

**ADDRESSING THE HEALTH RISK
BEHAVIOURS OF PEOPLE WITH A
MENTAL ILLNESS: A COLLABORATIVE
APPROACH?**

Jacqueline Mary Bailey

BPsync (Hons)

**A thesis submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy**

University of Newcastle

September, 2019

This research was supported by an Australian Government Research
Training Program (RTP) Scholarship

STATEMENT OF ORIGINALITY

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision. The thesis contains no material which has been accepted, or is being examined, for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968 and any approved embargo.

STATEMENT OF AUTHORSHIP

I hereby certify that this thesis is in the form of a series of papers. I have included as part of the thesis a written declaration from each co-author, endorsed in writing by the Faculty Assistant Dean (Research Training), attesting to my contribution to any jointly authored papers.

SIGNED:

Jacqueline Bailey

September 2019

PERMISSION REGARDING COPYRIGHT

This thesis includes published journal articles (Chapters 2 through 6). All authors and the journals where in each chapter is published are attributed in this thesis under 'List of Publications Included in this Thesis' and at commencement of each related chapter. Such chapters were published under the following Creative Commons Licenses:

Chapter 2:

© The Author(s) 2017, International Journal of Mental Health Nursing published by John Wiley & Sons Australia, Ltd on behalf of Australian College of Mental Health Nurses Inc. This is an Open Access article under the terms of the Creative Commons Attribution Licence (<http://creativecommons.org/licences/by/4.0/>), which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

Chapter 3:

© The Author(s) 2019. Published by Elsevier Inc. This is an Open Access article under the CCBY-NC-ND licence (<http://creativecommons.org/licences/by-nc-nd/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Chapter 4:

© The Author(s) 2016. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licences/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Chapter 5:

© The Author(s) 2017. Published by Elsevier Inc. This is an Open Access article under the CC BY-NC-ND licence (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Chapter 6:

© The Author(s) 2018. This is an Open Access article, distributed under the terms of the Creative Commons Attribution 4.0 International Licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated.

ACKNOWLEDGMENTS

This thesis would not have been possible without the generous support of many individuals and organisations.

I would like to formally thank my supervisors Professor Jenny Bowman, Dr. Paula Wye, Professor John Wiggers, and Dr. Kate Bartlem. Thank you for your endless guidance, support, patience, and investment in me and the development of my research skills. I feel immensely proud of the work we have conducted and am continually inspired by your dedication to addressing the physical health inequities experienced by people living with a mental illness. In particular, I would like to thank Jenny for creating such a fulfilling work environment where you have not only nurtured my development as a researcher, but have been supportive of my broader career aspirations. You have been patient and understanding whilst I juggled the demands of two post-graduate programs. It has been a privilege and a pleasure to have had you as my primary supervisor and I will miss our supervision meets.

Thank you to the individuals and organisations who assisted in the conduct of the research comprised in this thesis. Thank you to Sharon Freebody and the team at Carer Assist, and other local carer support groups for providing us an opportunity to learn from your carer members. I would like to express my sincere gratitude to the participants who gave their time to this research; and shared their experiences with the research team. Thank you also to Melissa Jackson and Natalie Lantry for volunteering your time to the project. A special thank you to Julia Dray for proofing thesis chapters in such a tight time frame.

To the Physical Health in Mental Illness (PHiMI) research team, my fellow research students, and clinical masters students, thank you for your assistance and company on this

journey. You have all aided me in numerous ways, whether it be through debriefing about the challenges of post-graduate study, or providing much needed coffee breaks and animal chat, or quoting our favourite TV shows. Thank you to Alex Metse, Kate Bartlem, and Julia Dray for sharing your experience and providing endless advice and tips on how to navigate the post-graduate journey. Jessy Hao, thank you for your friendship and company while we were trying to navigate our way through PhD and clinical study. It was such a comfort to share that experience with you. To my ‘Aviation Office Buddies’ - Lauren Gibson, Tegan Bradley, Caitlin Fehily, Carly Mallise, and Grace Hanly – thank you for making work such an enjoyable place to be. I will cherish the memories and odd topics of discussion that filled our lunch breaks.

To my friends and family, thank you for your endless encouragement and understanding over the last few years when workload got in the way of events and catch-ups. Thank you for providing happy distractions or allowing me to debrief when I felt overwhelmed. I would like to thank my grandparents and my parents for their belief in me and constant support in all aspects of my life. Mum and Dad, you taught me to value of hard work and gave me the courage to pursue my goals.

Finally, to Brendon, this thesis would not be possible without you. Your support throughout this journey has been immeasurable, especially over the last two years. You have sacrificed your time and energy to allow me to follow my aspirations without a second thought; all while providing endless reassurance and encouragement. You believed in me when I doubted myself. Thank you. I can’t wait for us to start the next chapter in our lives and see what we can achieve together.

TABLE OF CONTENTS

STATEMENT OF ORIGINALITY.....	i
STATEMENT OF AUTHORSHIP.....	i
PERMISSION REGARDING COPYRIGHT.....	ii
ACKNOWLEDGMENTS.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	xiv
LIST OF FIGURES.....	xvi
LIST OF APPENDICES.....	xix
LIST OF PUBLICATIONS INCLUDED IN THIS THESIS.....	xx
CO-AUTHOR STATEMENT.....	xxi
ADDITIONAL PUBLICATIONS AND PRESENTATIONS.....	xxiv
GLOSSARY OF TERMS.....	xxx
ABSTRACT.....	xxxiii
 CHAPTER 1: BACKGROUND AND RATIONALE: HEALTH RISK BEHAVIOURS AMONG PEOPLE WITH A MENTAL ILLNESS AND AVAILABLE SUPPORTS FOR BEHAVIOUR CHANGE.....	 1
1. Chronic Disease Prevalence and a Potential for Prevention	2
1.1 Health and Economic Burden of Chronic Disease	2
1.2 The Contribution of Health Risk Behaviours	4
2. People with a Mental Illness	5
2.1. Prevalence of Mental Illness	5
2.2. Health and Economic Burden of Mental Illness.....	7
2.3. An Inequitable Chronic Disease Burden among People with a Mental Illness.....	9
2.4. Prevalence of Health Risk Behaviours among People with a Mental Illness	13
2.4.1. Tobacco smoking.....	13
2.4.2. Harmful alcohol consumption	14
2.4.3. Inadequate nutrition	15
2.4.4. Inadequate physical activity.....	16
3. The Role of Mental Health Services in Addressing Client Health Risk Behaviours.....	18
3.1. Mental Health Care Services	18
3.2. Addressing Health Risk Behaviours.....	19
3.3. Models of Care to Prevent Chronic Disease Health Risk Behaviours	20

3.4. Prevalence of Preventive Health Care Provision by Mental Health Services.....	21
3.5. Barriers to Preventive Care Provision in Mental Health Care Settings.....	23
4. Family Carers: Their Potential Role in Supporting Health Risk Behaviour Change.....	25
4.1. Engagement of Carers in Mental Health Service Provision.....	25
4.2. Family Carers: Who are they?.....	26
4.3. A Potential Role in Supporting Health Risk Behaviour Change.....	29
4.3.1. Carer provision of behaviour change support for health risk behaviours.....	30
4.4. Potential Challenges to Carer Provision of Health Risk Behaviour Change Support	31
4.4.1. Challenges reported by other carers.....	32
4.4.2. A need to prioritise mental health?	33
4.4.3. A need for engagement and support of carers by health services.....	33
5. A Summary of Evidence Gaps in Existing Research.....	35
5.1. Knowledge Gaps Regarding Preventive Care in Mental Health Service Settings	35
5.2. Knowledge Gaps Regarding Carers' Potential to Provide Health Risk Behaviour Change Support.....	36
6. Thesis Aims and Structure	37
References.....	39

CHAPTER 2: DO MENTAL HEALTH CONSUMERS WANT TO IMPROVE THEIR LONG-TERM DISEASE RISK BEHAVIOURS? A SURVEY OF OVER 2000 PSYCHIATRIC INPATIENTS	78
Abstract.....	79
Introduction.....	80
Methods	83
Design and setting.....	83
Participants and recruitment.....	83
Data collection procedures.....	84
Measures	84
Patient characteristics	84

Health behaviour risk status	84
Interest in changing health risk behaviours, and acceptability of clinical staff providing risk reduction advice	85
Statistical analysis	86
Results.....	86
Participants.....	86
Prevalence of health risk behaviours.....	89
Interest in changing health risk behaviours and acceptability of being provided advice and support.....	92
Discussion.....	95
Limitations	98
Conclusion.....	99
Relevance for clinical practice	99
References.....	101

CHAPTER 3: SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES..... 111

Abstract.....	112
Introduction.....	113
Methods	115
Search Methods.....	115
Study Eligibility Criteria.....	116
Study type.....	116
Setting.....	116
Outcome measures	116
Study Selection Process	117
Data Extraction.....	117
Data Analysis and Synthesis	118
Assessment of Methodological Quality	119
Subgroup and Sensitivity Analyses.....	120
Assessment of Confidence in Cumulative Evidence	120
Differences Between Protocol and Review.....	120

Results.....	121
Study Selection.....	121
Characteristics of Included Studies.....	123
Provision of Preventive Care	131
Assessment of Methodological Quality	131
Meta-Analysis of Prevalence of Preventive Care Provision.....	131
Ask/Assess	132
Advise.....	132
Assist	133
Arrange	133
Assessment of Confidence in Cumulative Evidence	137
Narrative Synthesis	137
Ask/Assess.....	137
Advise.....	138
Assist	138
Arrange	138
Subgroup and Sensitivity Analyses.....	138
Service type	138
Sensitivity analyses	140
Discussion.....	140
Study Limitations and Strengths	142
Conclusion.....	144
References.....	145

SUPPLEMENTARY APPENDIX TO: SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES . 162

Supplementary Document 3.1 Medline search strategy: search executed October 22nd 2016*	163
Supplementary Document 3.2 JBI Critical Appraisal Checklist for Studies Reporting Prevalence Data.....	166
Supplementary Document 3.3 Table of included studies reporting the provision of preventive care in mental health services from 2006-2017	167
Supplementary Document 3.4 Summary of critical appraisal of methodological quality of included studies	197

Supplementary Document 3.5 Forest plots for all meta-analyses and pre-specified subgroup analyses by setting type.....	199
Supplementary Document 3.6 Table of meta-analysis results with GRADE ratings and reasons for downgrading	255
Supplementary Document 3.7 Table of subgroup analysis results	257
Supplementary Document 3.8 Table of sensitivity analysis results.....	260
Supplementary Document 3.9 PRISMA Checklist.....	261
Supplementary Document 3.10 References of included studies	264
 CHAPTER 4: SMOKING CESSATION CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES.....	271
Abstract.....	272
Introduction.....	273
Methods	276
Design and Setting	276
Participants and Recruitment	276
Data Collection Procedures.....	276
Measures	277
Socio-demographic, clinical and smoking characteristics.....	277
Perceived health effects of smoking.....	277
Attitudes to smoking bans in specialist mental health services.....	278
Expectations of smoking cessation care provision.....	278
Data Analysis	278
Results.....	279
Sample characteristics.....	279
Smoking status and perceived health effects of smoking	281
Attitudes to smoking bans.....	283
Expectations of smoking cessation care provision.....	283
Associations between socio-demographic and attitudinal variables, with expectations of smoking cessation care provision	283
Discussion.....	286
Limitations	288
Conclusion.....	289

References.....	290
SUPPLEMENTARY APPENDIX TO: SMOKING CESSATION CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES	298
CHAPTER 5: FAMILY CARERS: A ROLE IN ADDRESSING CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS?.....	301
Abstract.....	302
Introduction.....	303
Methods	305
Design and Setting	305
Participants and recruitment.....	305
Data Collection Procedures.....	306
Measures	306
Socio-demographic and clinical characteristics	306
Chronic disease risk behaviour status.....	307
Current promotion of health behaviours.....	307
Carer perceptions of their role and ability in promoting health behaviours of the person they care for	307
Statistical Analysis	308
Results.....	309
Sample characteristics	309
Current promotion of health behaviours	311
Carer perceptions of their role and ability in promoting the health behaviours of the person they care for	312
Carer perceptions of the interest in changing health behaviours held by the person with a mental illness	315
Factors associated with carer promotion of health behaviours	315
Discussion.....	319
Study limitations and strengths	321
Conclusion.....	322
References.....	323

CHAPTER 6: SUPPORTING CHANGE IN CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS: A QUALITATIVE STUDY OF THE EXPERIENCES OF FAMILY CARERS	332
Abstract	333
Introduction	335
Methods	338
Design and setting	338
Participants and recruitment	338
Procedure	339
Measures	340
Participant characteristics	340
Focus group	340
Analysis	341
Results	341
Experiences in addressing the chronic disease risk behaviours	344
The salience of the risk behaviours and their interaction with mental illness ...	345
Nutrition and physical activity	345
Smoking and alcohol	347
Existing barriers to addressing chronic disease risk behaviours	348
Nutrition and physical activity	349
Smoking and alcohol	351
Potential supportive strategies to address carers' needs	353
Current sources of support	353
Interface between carers and health services	355
Discussion	357
Limitations	361
Conclusions	361
References	363

CHAPTER 7: SUMMARY OF KEY FINDINGS AND IMPLICATIONS FOR FUTURE RESEARCH.....	373
Introduction.....	374
Summary of Key Findings.....	375
Chapter 2: Do mental health consumers want to improve their long-term disease risk behaviours? A survey of over 2000 psychiatric inpatients	375
Chapter 3: Systematic review and meta-analysis of the provision of preventive care for modifiable chronic disease risk behaviours by mental health services	377
Chapter 4: Smoking cessation care for people with a mental illness: Family carer expectations of health and community services.....	378
Chapter 5: Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness?.....	380
Chapter 6: Supporting change in chronic disease risk behaviours for people with a mental illness: A qualitative study of the experience of family carers	382
Implications for Research	384
1. How adherence to preventive care policies in mental health services might be increased.....	385
2. How the capacity of family carers to support health risk behaviour change might be facilitated.....	389
2.1. Considerations for interventions aimed at increasing carer capacity to support behaviour change.....	392
2.2. Professional carers: A potential source of behaviour change support? ...	394
3. How people with a mental illness themselves perceive health behaviour change and what may be helpful in supporting them.....	395
Limitations	397
Strengths and Key Contributions to the Field.....	398
Conclusions.....	399
References.....	401

LIST OF TABLES

CHAPTER 1: BACKGROUND AND RATIONALE: HEALTH RISK BEHAVIOURS AMONG PEOPLE WITH A MENTAL ILLNESS AND AVAILABLE SUPPORTS FOR BEHAVIOUR CHANGE

Table 1.1 Mental health related service use in Australia, 2016-2017 ¹⁴⁰	19
--	----

CHAPTER 2: DO MENTAL HEALTH CONSUMERS WANT TO IMPROVE THEIR LONG-TERM DISEASE RISK BEHAVIOURS? A SURVEY OF OVER 2000 PSYCHIATRIC INPATIENTS

Table 2.1 Demographic comparison of participants, nonconsenters and partial completers, and not approached	88
Table 2.2 Participants engaging in health risk behaviours and multiple risk behaviours, by primary diagnosis	90
Table 2.3 Diagnostic associations with health risk behaviours.....	91
Table 2.4 At-risk participants interested in changing their health risk behaviours, and overall patient acceptability towards being provided staff advice and support, by primary diagnosis.....	93
Table 2.5 Diagnostic associations with interest in changing health risk behaviours and acceptability of being provided advice and support from inpatient facility staff	94

CHAPTER 3: SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES

Table 3.1 Included studies reporting the provision of preventive care in mental health services from 2006-2017.....	124
Table 3.2 Summary of effects of all meta-analyses of included studies published from 2006-2017	134
Table 3.3 Table of included studies reporting the provision of preventive care in mental health services from 2006-2017	167
Table 3.4 Summary of critical appraisal of methodological quality of included studies	197
Table 3.5 Table of meta-analysis results with GRADE ratings and reasons for downgrading.....	255
Table 3.6 Table of subgroup analysis results	257
Table 3.7 Table of sensitivity analysis results	260

CHAPTER 4: SMOKING CESSATION CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES

Table 4.1 Socio-demographic characteristics	280
Table 4.2 Perceived health effects of smoking and attitudes towards smoking bans ...	282
Table 4.3 Variables associated with carer expectations of smoking cessation care provision across health care settings	284
Table 4.4 Chi-square results for variables associated with carer expectations of smoking cessation care provision across service settings	298

CHAPTER 5: FAMILY CARERS: A ROLE IN ADDRESSING CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS?

Table 5.1 Socio-demographic characteristics and chronic disease risk behaviour status	310
Table 5.2 Carer promotion and perceptions of their role and ability in addressing the health behaviours	313
Table 5.3 Chi-square results for variables associated with carer promotion of health behaviours	316
Table 5.4 Final logistic regression models for variables associated with carer current promotion of health behaviours	318

CHAPTER 6: SUPPORTING CHANGE IN CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS: A QUALITATIVE STUDY OF THE EXPERIENCES OF FAMILY CARERS

Table 6.1 Demographic and caring characteristics of participants	343
Table 6.2 Themes and sub-themes from the data analysis	345

LIST OF FIGURES

CHAPTER 2: DO MENTAL HEALTH CONSUMERS WANT TO IMPROVE THEIR LONG-TERM DISEASE RISK BEHAVIOURS? A SURVEY OF OVER 2000 PSYCHIATRIC INPATIENTS

Figure 2.1 Participant flow diagram.....	87
--	----

CHAPTER 3: SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES

Figure 3.1 PRISMA study flow diagram of studies published from 2006-2017	122
Figure 3.2 Forest plots of the overall client and audit reported highest estimates of smoking cessation care provision by care element: a) ask/assess, b) advise, c) assist, and d) arrange	136
Figure 3.3 Overall clinician reported highest estimates of care provision: Ask/assess for smoking	199
Figure 3.4 Overall clinician reported lowest estimates of care provision: Ask/assess for smoking	200
Figure 3.5 Overall client and audit reported highest estimates of care provision: Ask/assess for smoking	201
Figure 3.6 Overall client and audit reported lowest estimates of care provision: Ask/assess for smoking	202
Figure 3.7 Overall client and audit reported highest estimates of care provision: Ask/assess for alcohol	203
Figure 3.8 Overall client and audit reported lowest estimates of care provision: Ask/assess for alcohol	204
Figure 3.9 Overall client and audit reported highest estimates of care provision: Ask/assess for nutrition	205
Figure 3.10 Overall client and audit reported lowest estimates of care provision: Ask/assess for nutrition	206
Figure 3.11 Overall client and audit reported highest estimates of care provision: Ask/assess for physical activity	207
Figure 3.12 Overall client and audit reported lowest estimates of care provision: Ask/assess for physical activity	208
Figure 3.13 Overall clinician reported highest estimates of care provision: Advise for smoking	209
Figure 3.14 Overall clinician reported lowest estimates of care provision: Advise for smoking	210
Figure 3.15 Overall client and audit reported highest estimates of care provision: Advise for smoking	211

Figure 3.16 Overall client and audit reported lowest estimates of care provision: Advise for smoking	212
Figure 3.17 Overall client and audit reported highest estimates of care provision: Advise for alcohol	213
Figure 3.18 Overall client and audit reported lowest estimates of care provision: Advise for alcohol	214
Figure 3.19 Overall clinician reported highest estimates of care provision: Advise for nutrition	215
Figure 3.20 Overall clinician reported lowest estimates of care provision: Advise for nutrition	216
Figure 3.21 Overall client and audit reported highest estimates of care provision: Advise for nutrition	217
Figure 3.22 Overall client and audit reported lowest estimates of care provision: Advise for nutrition	218
Figure 3.23 Overall clinician reported highest estimates of care provision: Advise for physical activity	219
Figure 3.24 Overall clinician reported lowest estimates of care provision: Advise for physical activity	220
Figure 3.25 Overall client and audit reported highest estimates of care provision: Advise for physical activity	221
Figure 3.26 Overall client and audit reported lowest estimates of care provision: Advise for physical activity	222
Figure 3.27 Overall clinician reported highest estimates of care provision: Assist for smoking	223
Figure 3.28 Overall clinician reported lowest estimates of care provision: Assist for smoking	224
Figure 3.29 Overall client and audit reported highest estimates of care provision: Assist for smoking	225
Figure 3.30 Overall client and audit reported lowest estimates of care provision: Assist for smoking	226
Figure 3.31 Overall clinician reported highest estimates of care provision: Arrange for smoking	228
Figure 3.32 Overall clinician reported lowest estimates of care provision: Arrange for smoking	229
Figure 3.33 Overall client and audit reported highest estimates of care provision: Arrange for smoking	230
Figure 3.34 Overall client and audit reported lowest estimates of care provision: Arrange for smoking	231
Figure 3.35 Overall client and audit reported highest estimates of care provision: Arrange for physical activity	232
Figure 3.36 Overall client and audit reported lowest estimates of care provision: Arrange for physical activity	233
Figure 3.37 Pre-specified subgroup analysis by setting type: Clinician reported data by inpatient settings: Ask/assess for smoking	234

Figure 3.38 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Ask/assess for smoking.....	235
Figure 3.39 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Ask/assess for smoking.....	236
Figure 3.40 Pre-specified subgroup analysis by setting type: Client and audit data by outpatient settings: Ask/assess for smoking.....	237
Figure 3.41 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for smoking.....	238
Figure 3.42 Pre-specified subgroup analysis by setting type: Client and audit data by outpatient settings: Ask/assess for alcohol.....	239
Figure 3.43 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for alcohol.....	240
Figure 3.44 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for physical activity	241
Figure 3.45 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for smoking.....	242
Figure 3.46 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Advise for smoking.....	243
Figure 3.47 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Advise for smoking.....	244
Figure 3.48 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for nutrition.....	245
Figure 3.49 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for physical activity	246
Figure 3.50 Pre-specified subgroup analysis by setting type: Clinician reported data by inpatient settings: Assist for smoking	247
Figure 3.51 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Assist for smoking	248
Figure 3.52 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Assist for smoking	249
Figure 3.53 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Assist for smoking	250
Figure 3.54 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Arrange for smoking.....	252
Figure 3.55 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Arrange for smoking.....	253

LIST OF APPENDICES

APPENDIX 1: UNIVERSITY OF NEWCASTLE THESIS BY PUBLICATION GUIDELINES	423
APPENDIX 2: ETHICS APPROVAL	427
Appendix 2.1: Ethics Approval for Chapter 2	427
Appendix 2.2: Ethics Approval for Chapters 4 and 5	433
Appendix 2.3: Ethics Approval for Chapter 6	438
APPENDIX 3: INFORMATION STATEMENTS AND CONSENT FORMS	443
Appendix 3.1: Information Statement and Consent Form for Chapter 2	443
Appendix 3.2: Information Statement and Consent Form for Chapters 4 and 5	448
Appendix 3.3: Information Statement and Consent Form for Chapter 6	453
APPENDIX 4: RECRUITMENT MATERIALS	458
Appendix 4.1: Letter of Invitation for Chapters 4 and 5	458
Appendix 4.2: Recruitment Poster for Chapter 6	459
Appendix 4.3: Recruitment Brochure for Chapter 6	460
APPENDIX 5: SURVEY INSTRUMENTS	461
Appendix 5.1: Patient Survey for Chapter 2	461
Appendix 5.2: Carer Survey for Chapters 4 and 5	467
Appendix 5.3: Carer Survey for Chapter 6	517

LIST OF PUBLICATIONS INCLUDED IN THIS THESIS

Chapter 2: Bartlem, K., Bailey, J., Metse, A., Asara, A., Wye, P., Clancy, R., Wiggers, J., & Bowman, J. (2018). Do mental health consumers want to improve their long-term disease risk behaviours? A survey of over 2000 psychiatric inpatients. *International Journal of Mental Health Nursing*, 27(3): 1032-1043. doi: 10.1111/inm.12411

Chapter 3: Bailey, J., Bartlem, K., Wiggers, J., Wye, P., Stockings, E., Hodder, R., Metse, A., Regan, T., Clancy, R., Dray, J., Tremain, D., Bradley, T., & Bowman, J. (2019). Systematic review and meta-analysis of the provision of preventive care for modifiable chronic disease risk behaviours by mental health services. *Preventive Medicine Reports*, 16. doi: 10.1016/j.pmedr.2019.100969

Chapter 4: Bailey, J., Wye, P., Stockings, E., Bartlem, K., Metse, A., Wiggers, J., Bowman, J. (2017). Smoking cessation care for people with a mental illness: Family carer expectations of health and community services. *Journal of Smoking Cessation*, 12(4): 221-230. doi: 10.1017/jsc.2016.23

Chapter 5: Bailey, J., Wye, P., Wiggers, J., Bartlem, K., Bowman, J. (2017). Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? *Preventive Medicine Reports*, 7: 140-146. doi: 10.1016/j.pmedr.2017.05.014

Chapter 6: Bailey, J., Hansen, V., Wye, P., Wiggers, J., Bartlem, K., Bowman, J. (2018). Supporting change in chronic disease risk behaviours for people with a mental illness: A qualitative study of the experiences of family carers. *BMC Public Health*, 18(1): 416. doi: 10.1186/s12889-018-5314-z

CO-AUTHOR STATEMENT

I attest that Research Higher Degree candidate Jacqueline Bailey has contributed to the following publications for which I am a co-author. Jacqueline has:

- Contributed to the development of research questions
- Contributed to research design and methodology
- Contributed to the development and modification of data collection tools for chapters 3,4,5,6
- Managed or participated in data collection procedures for chapters 3,4,5,6
- Cleaned the data
- Led the data analysis for chapters 3,4,5,6
- Led the writing of manuscripts for chapters 3,4,5,6

Full name of co-author	Chapters co-authored	Signature of co-author	Date
Jenny Bowman	2,3,4,5,6		13/02/2019
Kate Bartlem	2,3,4,5,6		13/02/2019
Paula Wye	2,3,4,5,6		20/02/2019
John Wiggers	2,3,4,5,6		13/02/2019

Full name of co-author	Chapters co-authored	Signature of co-author	Date
Alexandra Metse	2,3,4		12/02/2019
Emily Stockings	3,4		06/12/2018
Richard Clancy	2,3		15/02/2019
Ashley Asara	2		07/03/2019
Rebecca Hodder	3		12/02/2019
Tim Regan	3		08/08/2019
Julia Dray	3		13/02/2019
Danika Tremain	3		27/02/2019
Tegan Bradley	3		25/02/2019
Vibeke Hansen	6		07/01/2019
Signature of PhD student			

Full name:**Signature:****Date:**

Jacqueline Bailey

18/09/2019

Signature of Assistant Dean (Research and Training) (ADRT)

Full name:**Signature:****Date:**

Francis Martin

19/09/2019

ADDITIONAL PUBLICATIONS AND PRESENTATIONS

Publications

- Bailey, J., Regan, T., Bartlem, K., Wiggers, J., Wye, P., & Bowman, J. (2019). A survey of the prevalence of modifiable health risk behaviours among carers of people with a mental illness. *BMC Public Health*, 19(1240). doi: 10.1186/s12889-019-7577-4
- Metse, A., Stockings, E., Bailey, J., Regan, T., Bartlem, K., Wolfenden, L., Taylor, G., Wiggers, J., & Bowman, J. (2019). Rates of retention of persons with a mental health disorder in outpatient smoking cessation and reduction trials, and associated factors: Protocol for a systematic review and meta-analysis. *BMJ Open*, 9(e030646). doi: 10.1136/bmjopen-2019-030646
- Stockings, E., Black, N., Bartlem, K., Metse, A., Regan, T., Bailey, J., Wolfenden, L., Wiggers, J., & Bowman, J. (2019). Outpatient interventions for smoking cessation and reduction for adults with a mental disorder. *Cochrane Database of Systematic Reviews*. (3) Art. No.: CD013286 doi: 10.1002/14651858
- Fehily, C., Bartlem, K., Wiggers, J., Wolfenden, L., Regan, T., Dray, J., Bailey, J., & Bowman, J. (2018). Systematic review of interventions to increase the provision of care for chronic disease risk behaviours in mental health settings: Review Protocol. *Systematic Reviews*, 7(10):67. doi: 10.1186/s13643-018-0735-4
- Dray, J., Bowman, J., Campbell, E., Freund, M., Wolfenden, W., Hodder, R., McElwaine, K., Tremain, D., Bartlem, K., Bailey, J., Small, T., Palazzi, K., Oldmeadow, C., Wiggers, J. (2017). Systematic review of universal resilience-focused interventions targeting child and adolescent mental health in the school setting. *Journal of the American Academy of Child and Adolescent Psychiatry*, 56(10): 813-824. doi: 10.1016/j.jaac.2017.07.780

Bartlem, K., Bowman, J., Bailey, J., Freund, M., Wye, P., Lecathelinais, C., McElwaine, K., Campbell, E., Gillham, K., & Wiggers, J. (2015). Chronic disease health risk behaviours amongst people with a mental illness. *Australian & New Zealand Journal of Psychiatry*, 49(8): 731-741. doi: 10.1177/0004867415569798

Tremain, D., Freund, M., Wolfenden, L., Bowman, J., Dunlop, A., Bartlem, K., Bailey, J., McFayden, T., Dray, J., Wye, P., Leigh, L., & Wiggers, J. The provision of preventive care for modifiable health risk behaviours by clinicians within substance use treatment settings: A systematic review. *Preventive Medicine*. Under Review.

Bradley, T., Bartlem, K., Campbell, L., Wye, P., Rissel, C., Reid, K., Regan, T., Bailey, J., & Bowman, J. Use of a telephone-based coaching service for chronic disease health risk behaviours by people with a mental health condition. *Preventive Medicine Reports*. Under Review.

Bailey, J., Clinton-McHarg, T., Wye, P., Wiggers, J., Bartlem, K., & Bowman, J. Preventive care for physical activity and fruit and vegetable consumption: Family carer expectations of service delivery for people with a mental health condition. In draft.

Presentations

**Presenting author*

Bradley*, T., Bartlem, K., Campbell, E., Wye, P., Rissel, C., Reid, K., Regan, T., Bailey, J., Bowman, J. Use of a population level prevention service for chronic disease risk behaviours by people with a mental health condition. Australasian Society for Behavioural Health and Medicine Conference, February 2019, Christchurch, New Zealand. (Oral presentation).

Bailey*, J., Regan, T., Bartlem, K., Wye, P., Wiggers, J., Bowman, J. Prevalence of chronic disease risk behaviours among carers of people with a mental illness. Joint

Australian Psychological Society College of Health Psychologists and Australasian Society for Behavioural Health and Medicine Conference, July 2017, Gold Coast, QLD. (Oral presentation).

Bailey*, J., Bartlem, K., Wye, P., Wiggers, J., Bowman, J. Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? Joint Australian Psychological Society College of Health Psychologists and Australasian Society for Behavioural Health and Medicine Conference, July 2017, Gold Coast, QLD. (Oral presentation).

Bailey, J., Hansen, V., Wye, P., Wiggers, J., Bartlem, K., Bowman*, J. Family carer experiences in supporting nutrition and physical activity behaviour change for people with a mental illness. International Society of Behavioural Nutrition and Physical Activity Annual Meeting, June 2017, Victoria, Canada. (Poster).

Bailey, J., Bartlem*, K., Wye, P., Wiggers, J., Bowman, J. Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? 13th Behavioural Research in Cancer Control Conference, May 2017, Melbourne, VIC. (Oral presentation).

Bailey*, J., Regan, T., Bartlem, K., Wye, P., Wiggers, J., Bowman, J. Prevalence of chronic disease risk behaviours among carers of people with a mental illness. World Congress on Public Health, April 2017, Melbourne, VIC. (Oral presentation).

Bailey*, J., Bartlem, K., Wye, P., Wiggers, J., Bowman, J. Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? World Congress on Public Health, April 2017, Melbourne, VIC. (Oral presentation).

Bartlem, K., Bailey*, J., Metse, A., Wye, P., Wiggers, J., Bowman, J. Health behaviours in people with mental illness: Prevalence, interest in change, acceptability of care.

World Congress on Public Health, April 2017, Melbourne, VIC. (Oral presentation).

Bartlem, K., Bowman, J., Tremain, D., Wye, P., Bailey, J., Wiggers*, J. Intervention to increase preventive care in mental health services: Exploration of reasons for limited effect. World Congress on Public, Health April 2017, Melbourne, VIC. (Oral presentation).

Bailey, J., Bartlem*, K., Wye, P., Wiggers, J., Bowman, J. Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? International Congress of Behavioural Medicine, December 2016, Melbourne, VIC. (Oral presentation).

Bailey, J., Wye, P., Bartlem, K., Wiggers, J., Stockings, E., Metse*, A., Bowman, J. Chronic disease risk behaviour care for people with a mental illness: Family carer expectations of health and community services. International Congress of Behavioural Medicine, December 2016, Melbourne, VIC. (Oral presentation).

Bartlem*, K., Wye, P., Wiggers, J., Stockings, E., Metse, A., Bailey, J., Fehily, C., Bowman, J. Chronic disease risk behaviours among people with a mental illness: Prevalence, interest in change and acceptability of risk reduction care. International Congress of Behavioural Medicine, December 2016, Melbourne, VIC. (Oral presentation).

Bailey*, J., Bartlem, K., Wye, P., Wiggers, J., Stockings, E., Metse, A., Bowman, J. Chronic disease risk behaviour care for people with a mental illness: Family carer expectations. European Public Health Conference, November 2016, Vienna, Austria. (Oral presentation).

Bartlem, K., Bailey*, J., Metse, A., Wye, P., Wiggers, J., Clancy, R., Bowman, J. Health behaviours in people with mental illness: Prevalence, interest in change,

acceptability of care. European Public Health Conference, November 2016, Vienna, Austria. (Oral presentation).

Bartlem, K., Bowman, J., Tremain, D., Wye, P., Bailey*, J., Wiggers, J. An intervention to increase preventive care provision in mental health services. European Public Health Conference, November 2016, Vienna, Austria. (Poster).

Metse, A., Wiggers, J., Wye, P., Wolfenden, L., Prochaska, J., Stockings, E., Williams, J., Ansell, K., Fehily, C., Bailey*, J., Bowman, J. Smoking and mental illness: A bibliometric analysis of research output over time. European Public Health Conference, November 2016, Vienna, Austria. (Oral presentation).

Metse, A., Wiggers, J., Wye, P., Wolfenden, L., Freund, M., Clancy, R., Stockings, E., Terry, M., Allan, J., Colyvas, K., Prochaska, J., Bailey*, J., Bowman, J. An integrated smoking cessation intervention for mental health patients: A randomised controlled trial. European Public Health Conference, November 2016, Vienna, Austria. (Oral presentation).

Bailey*, J., Wye, P., Bartlem, K., Wiggers, J., Bowman, J. Family carers: A role in addressing cancer risk behaviours for people with a mental illness? UICC World Cancer Congress, November 2016, Paris, France. (Oral presentation).

Bailey*, J., Wye, P., Bartlem, K., Wiggers, J., Stockings, E., Metse, A., Bowman, J. Cancer risk behaviour care for people with a mental illness: Family carer expectations of health and community services. UICC World Cancer Congress, November 2016, Paris, France. (Oral presentation).

Bartlem, K., Bailey*, J., Metse, A., Wye, P., Wiggers, J., Clancy, R., Bowman, J. Health behaviours in people with mental illness: Prevalence, interest in change, acceptability of care. UICC World Cancer Congress, November 2016, Paris, France. (Oral presentation).

Metse, A., Wiggers, J., Wye, P., Wolfenden, L., Freund, M., Clancy, R., Stockings, E., Terry, M., Allan, J., Colyvas, K., Prochaska, J., Bailey*, J., Bowman, J. An integrated smoking cessation intervention for mental health patients: A randomised controlled trial. UICC World Cancer Congress, November 2016, Paris, France. (Oral presentation).

Metse, A., Wiggers, J., Wye, P., Wolfenden, L., Prochaska, J., Stockings, E., Williams, J., Ansell, K., Fehily, C., Bailey*, J., Bowman, J. Smoking and mental illness: A bibliometric analysis of research output over time. UICC World Cancer Congress, November 2016, Paris, France. (Oral presentation).

Dray*, J., Bowman, J., Campbell, E., Freund, M., Wolfenden, L., Hodder, R., McElwaine, K., Tremain, D., Small, T., Bartlem, K., Bailey, J., Wiggers, J. Systematic review of the effect of school-based, resilience-focussed interventions on child and adolescent mental health. The 22nd International Association for Child and Adolescent Psychiatry and Allied Professions World Congress, September 2016, Calgary, Canada. (Oral presentation).

Bailey, J., Wye, P., Bartlem*, K., Stockings, E., Metse, A., Wiggers, J., Bowman, J. Smoking cessation care for people with a mental illness: Family carer expectations of health and community services. UK Nicotine & Smoking Cessation Conference, June 2016, London, United Kingdom. (Oral presentation).

Bailey*, J., Bowman, J., Wye, P., Bartlem, K., Stockings, E., Metse, A., Wiggers, J. The provision of smoking cessation care for people with a mental illness: ‘Carers’ expectations of health and community services. Hunter Cancer Research Alliance Symposium November 2015, Newcastle, NSW. (Poster).

Bailey*, J., Wye, P., Stockings, E., Bartlem, K., Metse, A., Wiggers, J., Stockings, E. The provision of smoking cessation care for people with mental illness: ‘Carers’

expectations of health and community services. Oceania Tobacco Control Conference, October 2015, Perth, WA. (Oral presentation).

Bartlem*, K., Bowman J., Bailey J., Freund M., Wye P., Lecathelinais C., McElwaine K., Wolfenden L., Campbell E., Gillham K., Wiggers J. Need for action: Preventive care for chronic disease risk factors within community mental health services. Population Health Congress September 2015, Hobart, TAS. (Oral presentation).

Bailey*, J., Wye, P., Stockings, E., Bartlem, K., Metse, A., Wiggers, J., Stockings, E. The provision of smoking cessation care for people with mental illness: Expectations and experiences of 'carers'. Australasian Society for Behavioural Health and Medicine Conference February 2015, Perth, WA. (Oral presentation).

Bailey*, J., Bowman, J., Wye, P., Bartlem, K., Stockings, E., Metse, A., Wiggers, J. The provision of smoking cessation care for people with mental illness: Expectations and experiences of 'carers'. UICC World Cancer Congress December 2014, Melbourne, VIC. (Oral presentation).

Bailey*, J., Bowman, J., Wye, P. Exploring the potential for carers to influence the physical health risk behaviours of people with a mental illness: A focus on smoking. University of Newcastle, School of Psychology 4th Year Research Conference November 2013, Newcastle, NSW. (Oral presentation).

Bartlem*, K., Bowman, J., Wiggers, J., Freund, M., Wye, P., Bailey, J., Prevalence of modifiable health risk behaviours in community mental health clients. Population Health Congress September 2012, Adelaide, SA. (Oral presentation).

GLOSSARY OF TERMS

The following is a list of terms used throughout this thesis:

Chronic disease - Non-communicable chronic diseases are persistent health conditions with long-lasting effects which once present, generally persist throughout the lifetime and require self-management with the support of health professionals. Such conditions are sometimes referred to as non-communicable diseases, particularly by the World Health Organisation. Whilst mental health conditions are a type of chronic disease, the term chronic disease used throughout this thesis refers to non-communicable chronic physical diseases such as cardiovascular disease, cancer, chronic respiratory conditions, chronic musculoskeletal conditions, and diabetes, unless otherwise specified.

Health risk behaviours - Modifiable health risk behaviours that increase an individual's risk of developing chronic disease. Health risk behaviours are referred to using different terms (such as health behaviours, chronic disease risk behaviours, and long-term disease risk behaviours) throughout this thesis. These terms have been retained in the individual chapters as they appear in the published article, where terminology may reflect responses to reviewer comments or journal preferences. The health risk behaviours under investigation in this thesis are tobacco smoking, harmful alcohol consumption, inadequate physical activity, and inadequate nutrition or fruit and vegetable. Fruit and vegetable consumption, and nutrition more broadly, are associated with the development of chronic diseases. Some chapters within this thesis examine fruit and vegetable consumption specifically, whereas others focus on nutrition more generally to be inclusive of the variable measures of nutrition in the research literature.

Mental illness - The description of mental illness in research literature is not always clear, for instance, the term 'serious mental illness' is often used to categorise mental illnesses such as schizophrenia, without a definition of such a categorisation. For the research studies conducted for this thesis, the term mental illness is used to refer to mental health conditions commonly

experienced by individuals accessing adult mental health services, that is, categories of mental illness outlined in the DSM-5 not including neurodevelopmental or degenerative disorders (for example, not including autism and dementia, but including but not limited to: schizophrenia, depression, anxiety, and personality disorders). When referring to research literature, the terms pertaining to mental illness categorisations utilised by the original source references are used.

Family carers - Throughout this thesis, the terms ‘family carer’ or ‘carer’ refer to individuals who provide support to people with a mental or physical disability without payment. In the research literature, family carers are referred to by a range of terms, often: family caregivers, informal carers, family members, or primary carers. The studies comprising this thesis utilise the terms ‘carer’ and ‘family carer’. When referring to the research literature, the terms utilised by original source materials are retained for accuracy in reporting.

ABSTRACT

Internationally and in Australia, people with a mental illness experience significantly greater morbidity and mortality and reduced life expectancy compared to people without such an illness. The majority of excess mortality is attributable to a higher prevalence of chronic physical disease. The health risk behaviours of tobacco smoking, harmful alcohol consumption, inadequate nutrition and inadequate physical activity are the leading modifiable risk factors for the development of chronic disease. People with a mental illness are consistently reported to experience a higher in engagement in such health risk behaviours than people without a mental illness; however, little research has examined the prevalence of health risk behaviours among people in psychiatric inpatient settings. The provision of preventive care to address such health risk behaviours in mental health services is recommended in policies and guidelines internationally and in Australia. Despite such policies, sub-optimal provision of preventive care has been reported with regards to smoking cessation care, however scant research exists on the extent to which such care is provided for other health risk behaviours.

Another potential avenue of health risk behaviour change support for people with a mental illness may be their informal or family carers. Carers have the potential to influence the health risk behaviours of the people they care for with a mental illness, however little is known about carers current: attitudes towards addressing the health risk behaviours for people with a mental illness; provision of health risk behaviour change support, and; potential barriers or supportive strategies to assist health risk behaviour change support. To address these evidence gaps, the aims of this thesis are, to:

1. Examine the need for preventive care for chronic disease risk behaviours in traditional mental health service settings and its current provision. Specifically to:

- a. Determine the prevalence of health risk behaviours (smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity); interest in improving ‘at risk’ behaviours, and; acceptability of receiving health risk behaviour change support during mental health treatment among a sample of Australian psychiatric inpatients.
 - b. Ascertain the prevalence of preventive care provision to people with a mental illness for the four health risk behaviours in mental health services generally through the conduct of a systematic review.
 - c. Explore family carers’: understanding of relationships between smoking and mental health; views and expectations of smoking bans in specialist mental health treatment settings, and smoking cessation care across a number of service settings.
2. To explore family carer current and potential provision of health risk behaviour change support to people with a mental illness, through:
 - a. Investigating the extent of carers’ current involvement in promoting positive health risk behaviours; carers own health risk behaviours, attitudes and perceptions of their role and ability to address health risk behaviours of the person for whom they provide care.
 - b. Exploring carers’ experiences in addressing the health risk behaviours of the person they care for; existing barriers to addressing such behaviours; and perceptions of potential strategies to assist them to provide health risk behaviour change support.

Thesis aims were addressed through the conduct of a series of studies. A cross-sectional survey undertaken with 2075 psychiatric inpatients addressed aim 1a. A systematic review and meta-analysis was conducted to explore aim 1b. A cross-sectional survey of

144 carers of people with a mental illness provided the data utilised in 1c and 2a. Finally, a focus group methodology was employed to explore the experience of 31 carers with regards to addressing the health risk behaviours of the person for whom they provided care (2c).

The findings presented in this thesis have contributed to advancing research in the field in a number of ways. Findings further demonstrate the need for mental health services to provide preventive care for health risk behaviours given: the high engagement in risk behaviours and interest in receiving support to change risk behaviours reported among psychiatric inpatients in Chapter 2; the sub-optimal provision of preventive care reported in Chapter 3, and; carers expectations that services accessed by people with a mental illness provide smoking cessation care to their clients with a mental illness identified in Chapter 4. Findings of Chapters 5 and 6 provided the first investigations of the role of family carers in influencing the four health risk behaviours among people with a mental illness and suggest carers have the potential to provide health risk behaviour change support but may be assisted in their role to do so through increased collaboration and communication with services accessed by the person they care for with a mental illness.

Overall, this thesis identified the need to explore: how adherence to preventive care policies in mental health services might be increased; how the capacity of family carers to support health risk behaviour change might be facilitated, and; how people with a mental illness themselves perceive health risk behaviour change and what may be helpful in supporting them. The final chapter of this thesis proposes the need for further research to explore such concepts.

**BACKGROUND AND RATIONALE: HEALTH RISK
BEHAVIOURS AMONG PEOPLE WITH A
MENTAL ILLNESS AND AVAILABLE SUPPORTS
FOR BEHAVIOUR CHANGE**

CHAPTER 1

**BACKGROUND AND RATIONALE: HEALTH
RISK BEHAVIOURS AMONG PEOPLE WITH A
MENTAL ILLNESS AND AVAILABLE
SUPPORTS FOR BEHAVIOUR CHANGE**

1. Chronic Disease Prevalence and a Potential for Prevention

Non-communicable chronic diseases are persistent health conditions with long-lasting effects which once present, generally persist throughout the lifetime and require self-management with the support of health professionals.¹ Such conditions are sometimes referred to as non-communicable diseases, particularly by the World Health Organisation (WHO).² Whilst mental health conditions are a type of chronic disease,³ the term chronic disease used throughout this thesis refers to non-communicable chronic physical diseases such as cardiovascular disease, cancer, chronic respiratory conditions, chronic musculoskeletal conditions, and diabetes, unless otherwise specified.

1.1 Health and Economic Burden of Chronic Disease

Results from the 2015 Global Burden of Disease Study reported chronic physical health conditions such as cardiovascular disease (17.9 million deaths), cancer (8.8 million deaths), chronic respiratory diseases (3.8 million deaths) and diabetes mellitus (1.5 million deaths) were responsible for the greatest proportion of morbidity and mortality worldwide in 2015.⁴ Chronic disease was responsible for 68% of global mortality in 2012,² prompting the 2013-2020 WHO global target of a 25% relative reduction in mortality from cardiovascular disease, cancer, diabetes or respiratory diseases.² In 2016 however, chronic disease accounted for 71% of deaths globally and in 2017 chronic disease represented 5 of the top 10 causes of deaths globally (ischemic heart disease, stroke, chronic obstructive pulmonary disease, lung cancer, and diabetes mellitus), with variation across low to high income countries.^{5,6}

Chronic disease yields a significant cumulative economic burden globally, including in high-income countries. The global economic burden of chronic disease has been projected to be approximately US\$47 trillion from 2010 through 2030 (75% of global GDP in 2010).⁷ In 2010, the global cost of cardiovascular disease was estimated at

US\$863 billion, estimated to increase by 22% to US\$1044 billion in 2030; with 55% due to direct healthcare costs and the remaining costs due to productivity loss or absenteeism from work.⁷ The 13.3 million new cases of cancer globally were estimated to cost US\$290 billion in 2010, with such costs projected to increase to US\$458 billion in 2030.⁷ The 2010 global costs of chronic obstructive pulmonary disease are estimated to increase from US\$2.1 trillion to US\$4.8 trillion in 2030; and the costs of diabetes were estimated at US\$500 billion in 2010, with a 2030 projection cost of US\$745 billion.⁷

In the United States (US), 2017 Global Burden of Disease study data reported cardiovascular and circulatory diseases, cancer, and diabetes mellitus made up six of the top ten causes of death; and cardiovascular and circulatory diseases, cancer, and cirrhosis made up six of the leading ten causes of Years of Life Lost (YLL) to premature death.⁶ In 2016, all chronic diseases (including: cardiovascular diseases, cancer, chronic respiratory diseases, diabetes, and mental and substance use) accounted for 2.4 million deaths and 79 million Disability Adjusted Life Years ([DALYs] [sum of Years Lived with a Disability (YLD) and YLL]).⁸ This increased to US\$347 billion for just the top five leading chronic diseases in 2010; equating to 30% of the total health-care spending.⁹

Similarly in Global Burden of Disease study data reported for the United Kingdom (UK) in 2017, cardiovascular and circulatory diseases, and cancer made up eight of the top ten leading causes of death; and cardiovascular and circulatory diseases, cancer, and cirrhosis made up seven of the ten leading causes of YLL.⁶ Data from the 2009 General Lifestyle Survey revealed that service care provision for people with chronic physical conditions accounted for 70% of the total health and social care spend in England.^{10,11}

In the Australian context, 2017 Global Burden of Disease study data indicated cardiovascular and circulatory diseases, cancer, and diabetes mellitus made up seven of the ten leading causes of death; and cardiovascular and circulatory diseases, and cancer

were responsible for seven of ten leading causes of YLL.⁶ Chronic diseases (including mental illnesses) accounted for more than 85% of the total disease burden among the Australian general population;¹² and 39% of preventable hospitalisations in 2013-2014.¹³ A conservative estimation (including only direct healthcare costs) from 2008-2009 suggested chronic diseases were responsible for \$27 billion in direct health-care costs; equating to 36% of the total allocated health expenditure;¹² with cardiovascular disease alone accounting for 11.1% of health expenditure in 2012-2013 (\$5 billion).¹⁴

1.2 The Contribution of Health Risk Behaviours

The modifiable health risk behaviours of tobacco smoking, alcohol consumption, poor nutrition, and physical inactivity are implicated in the development of many chronic diseases.^{13,15} Additionally, metabolic risks such as high body mass and high blood pressure further add to the development of chronic disease.^{13,15} Eight risk factors (tobacco smoking, harmful chronic alcohol consumption, low fruit and vegetable intake, physical inactivity, high blood pressure, high body mass index, high cholesterol, and high blood glucose) are estimated to account for 61% of cardiovascular deaths and over 75% of ischemic heart disease deaths globally.¹⁶ The WHO estimates that over one-third of cancers and up to 80% of instances of heart disease, stroke, and type 2 diabetes could be prevented by addressing tobacco use, harmful alcohol consumption, inadequate nutrition and physical inactivity.¹⁷ In high-income countries tobacco use, excessive alcohol consumption, low fruit and vegetable intake, and physical inactivity are among the 10 leading modifiable health risk factors contributing to causes of death and account for 17.9%, 1.6%, 2.5%, and 7.7% of deaths respectively.¹⁶ Further, three of nine WHO global health targets to prevent and control chronic diseases focus on the reduction in prevalence of tobacco smoking, harmful alcohol consumption, and inadequate physical activity.² In

an attempt to reduce health risk behaviours¹ for chronic disease generally, guidelines have been introduced internationally to guide clinicians to advise individuals on how to modify health risk behaviours to prevent the onset of chronic disease.¹⁸⁻²³

In Australia, the 2011 Australian Burden of Disease Study found that modifiable risk factors (including behavioural, metabolic, and environmental risks) were responsible for 31% of the total burden of disease and injury.¹³ Tobacco smoking, harmful alcohol consumption, and inadequate physical activity are among the five largest contributors to disease burden in Australia accounting for 9%; 5.1%, and; 5% of the total burden of disease respectively. Consuming inadequate fruit and vegetables accounted for 2% and 1.4% respectively.¹³ More recently, 2017 data from the Global Burden of Disease study reported tobacco smoking, diet, and harmful alcohol consumption as the 1st, 3rd, and 6th highest risk factors contributing to DALYs in Australia; positions which have remained stable since 2007.⁶

2. People with a Mental Illness

2.1. Prevalence of Mental Illness

The Diagnostic and Statistical Manual for Mental Disorders (DSM-5) defines ‘mental illness’ as a collection of clinically diagnosable disorders that impact significantly on emotion regulation, cognition, and/or social functioning; usually resulting in significant distress or disability in social, occupational, or other important activities of daily living.²⁴ Mental illness comprises a broad range of conditions including: mood (both depressive and bipolar); anxiety; schizophrenia spectrum; substance use;

¹ Such modifiable health risk behaviours that increase an individual’s risk of developing chronic disease are referred to using different terms (such as health risk behaviours, chronic disease risk behaviours, and long-term disease risk behaviours) throughout this thesis. These terms have been retained in the individual chapters as they appear in the published article, where terminology may reflect responses to reviewer comments or journal preferences

personality; neurodevelopmental; trauma- and stressor-related; obsessive-compulsive; and other disorders.²⁴ Mental illnesses have varying degrees of severity (with mild, moderate, or severe associated loss in health) and chronicity, with some resulting in chronic symptomatology, and others experienced as an episode resulting in full recovery.²⁴²

A large proportion of the worldwide adult population experience mental illness.²⁵ Results from the World Health Survey Initiative 2001 to 2003, conducted across 28 countries, reported between 12% and 47% of people experienced at least one mental disorder in their lifetime, and between 6% and 27% experienced a disorder in a 12 month period.²⁵ Further, the global proportion of 12 month mental disorders classified as severe (according to the Sheehan Disability Scales)²⁶ ranged from 13% to 37%; moderate: 13% to 48%; and mild: 28% to 75%.²⁵ Anxiety disorders were consistently found to be the most prevalent (lifetime 16%, 12-month prevalence 11%), followed by mood disorders (lifetime prevalence 12%, 12-month prevalence 6%).²⁵ More recently, in 2017 the Global Burden of Disease study reported conservative estimations of the ‘true’ prevalence (based on medical, epidemiological data, surveys and meta-regression modelling rather than just by reported diagnosis) of a range of mental health disorders globally. Proportions of the global population were estimated to experience the following 12 month prevalence rates: anxiety disorders 3.83%; depression 3.77%; alcohol use disorders 1.37%; drug use disorders 0.85%; bipolar disorder 0.61%; schizophrenia 0.29%; and eating disorders 0.14%.²⁷ The prevalence of mental illness in high income countries has been found to be

² The description of mental illness in research literature is not always clear, for instance, the term ‘serious mental illness’ is often used to categorise mental illnesses such as schizophrenia, without a definition of such a categorisation. For the research studies conducted for this thesis, the term mental illness is used to refer to mental health conditions commonly experienced by individuals accessing adult mental health services, that is, categories of mental illness outlined in the DSM-5 not including neurodevelopmental or degenerative disorders (for example, not including autism and dementia, but including but not limited to: schizophrenia, depression, anxiety, and personality disorders). When referring to research literature, the terms pertaining to mental illness categorisations utilised by the original source references are used.

comparable to the upper end of global estimations. For instance, the proportion of the population experiencing a mental illness in their lifetime in countries such as the US,²⁵ UK,²⁸ and New Zealand²⁹ has been estimated to range from 32% to 47%; with 21% to 27% experiencing a mental illness in a 12 month period.^{25,30-32}

The prevalence of mental illness in Australia is comparable to other high income countries, where prevalence has similarly remained stable in recent decades.³³ The 2017-2018 National Health Survey reported 4.8 million (20.1%) Australians had a mental or behavioural condition (a condition current at the time of interview and had lasted, or was expected to last, six months or more).³⁴ Anxiety-related conditions were reported by 3.2 million (13.1%) Australians, an increase from 2014-2015 where 2.6 million reported such a condition.³⁴ Depression or feelings of depression were reported by 10.4% of Australians in 2017-2018.³⁴ The 2007 Australian National Survey of Mental Health and Wellbeing reported 45% of the population experienced at least one mental illness in their lifetime (based on self-reported data assessed against diagnostic criteria),³⁵ and 20% in the preceding 12 month period.³⁶ Among lifetime mental disorders, anxiety disorders were most prevalent (26%), followed by substance use disorders (25%), and mood disorders (15%).³⁶ Similarly, among 12 month mental disorders, anxiety disorders were most prevalent (14%), followed by mood disorders (6%), and substance use disorders (5%).³⁶

2.2. Health and Economic Burden of Mental Illness

Worldwide, mental illness accounts for a significant disease burden.^{37,38} Findings from the 2017 Global Burden of Disease study reported depressive disorders were the third largest cause globally of YLDs.³⁹ In 2010, the Global Burden of Disease Study found that the burden of mental illness increased by 38% between 1990 and 2010, with continued increase projected for the future.³⁷ In 2010, it was estimated that mental illness accounted for 7% of DALYs⁴⁰ and 23% of all YLD. Such estimations place mental illness

as the fifth largest contributor to the total disease burden (DALYs), and the largest contributor to the non-fatal disease burden (YLDs).³⁷ However, such estimations have been proposed to be conservative, with the ‘true’ burden of mental illness suggested to be as high as 32% of all YLDs and 13% of DALYs.³⁸ The mental illnesses which accounted for the highest proportion of total DALYs were: depression (41%); anxiety disorders (15%); drug use disorders (11%); alcohol use disorders (10%); and schizophrenia (7%).³⁷

Mental illness also contributes to the global economic burden of non-communicable diseases, through both direct (personal medical and non-medical costs, such as transportation to treatment) and indirect (lost income due to mortality or disability and care seeking) costs.⁷ In 2010, the global cost of mental illness was estimated at US\$2.5 trillion, and projected to increase to US\$6 trillion by 2030.⁷ Indirect costs were estimated to account for approximately two-thirds of the total cost; with high-income countries incurring approximately 65% of the total economic burden.⁷

Mental illness is similarly a leading contributor to non-fatal disease burden in Australia and among the top five disease groups contributing to the total burden of disease.¹³ In 2011, the Australian Burden of Disease Study reported estimations that mental illness accounted for 12% of the total burden of disease, and 23% of the non-fatal disease burden.¹³ Anxiety, depression, and alcohol use disorders were among the top 20 causes of total burden.¹³ Further, in 2017, the Global Burden of Disease Study reported depressive disorders were the fifth largest cause of YLD and were the fourth largest cause of DALYs in Australia.⁶

In Australia, the overall economic burden of serious mental illness (categorised as schizophrenia and other psychoses, bipolar disorder, severe anxiety and depression) was estimated in 2014 to be AUD\$98.8 billion.⁴¹ In 2010-2011 the total direct cost of supporting people with any mental illness was conservatively estimated to be at least

\$28.6 billion, 2.2% of Australia's Gross Domestic Product.⁴² This estimate included direct health expenditure estimated at \$13.8 billion and direct non-health expenditure of at least \$14.8 billion.⁴² Indirect costs consisting of broader individual, social and economic costs (such as loss of productivity and disability, and the impact on family and carers) and capital expenditure (expenditure by other businesses and organisations) were not included in such estimations.⁴² Additionally, in 2014, the cost of absenteeism (\$4.7 billion), reduced productivity (\$6.1 billion), and compensation claims (\$146 million) due to mental health problems were estimated to cost a total of \$11 billion; the equivalent of 2.6 million days lost to productivity.⁴³

2.3. An Inequitable Chronic Disease Burden among People with a Mental Illness

People with a mental illness experience higher rates of all-cause morbidity, mortality and reduced life expectancy compared to the general population.⁴⁴ For instance, a review of systematic reviews and meta-analyses published between 1995 and 2007 found a substantial body of evidence showing positive associations of depression and anxiety with heart disease, stroke, and diabetes mellitus; with inconsistent evidence for cancer.⁴⁵ Additionally, in 2005 the UK Disability Rights Commission found people with schizophrenia are more likely to experience some cancers, ischemic heart disease, diabetes, respiratory disease, and stroke compared to people without such disorders.⁴⁶ People with schizophrenia were 90% more likely to get bowel cancer; and women with schizophrenia were 42% more likely to get breast cancer than women without schizophrenia.⁴⁶ People with schizophrenia were also more likely to be diagnosed with a range of chronic diseases when aged under 55 years, as compared to people without schizophrenia: coronary heart disease (31% to 18%), diabetes (41% to 30%), respiratory disease (23% to 17%) and have a stroke (21% to 11%).⁴⁶

Internationally, all-cause mortality rates 1.3 to 4.3 times higher than the general population rates have been reported among people with a diagnosis of schizophrenia,⁴⁷⁻⁴⁹ bipolar disorder,⁴⁷ and any mental disorder requiring hospital admission;⁵⁰ resulting in an estimated reduced life expectancy of 10 to 20 years;^{47,50-53} a disparity that is largely attributable to chronic disease. An increased burden of chronic disease has been found to exist for people diagnosed with schizophrenia, schizoaffective disorders and related psychosis disorders, bipolar disorder, and depression, with standardised mortality rates for such chronic diseases in this population group varying from 1.6 to 4.9 times that of the general population in the UK and US.^{48,54,55}

Similarly, Australia's Mental Health and Physical Health Tracker report provides a comprehensive analysis of the experience of chronic diseases among Australians experiencing mental illness.⁵⁶ The report found individuals with mental illness are: 41% to 52% more likely to have circulatory system disease; 46% to 74% more likely to report having diabetes mellitus; 96% to 158% more likely to have chronic obstructive pulmonary disease, and; 20% to 82% more likely to report having cancer.⁵⁶

In Australia there is some evidence that aligns with international evidence of higher all-cause mortality rates for people with a mental illness compared to the general population, however such research has focused to date on individuals with severe mental illnesses requiring psychiatric inpatient hospitalisation. The gap in life expectancy between Australians diagnosed with a mental illness requiring psychiatric inpatient hospitalisation and the general Australian population is estimated at 15.9 years for males, and 12.0 years for females, with this pattern of reduced life expectancy increasing over time by 2.4 years for males and 1.6 years for females from 1985 to 2005.⁵⁷ Seventy-eight percent of excess deaths among Australians with any mental illness are attributed to chronic disease.^{57,58}

Multiple factors have been implicated as contributors to the greater chronic disease morbidity and mortality experienced by people with a mental illness, including: psychotropic medication side effects, disparities in physical health care access and provision, and a higher prevalence of health risk behaviours.⁴⁴ Psychotropic medications, particularly second-generation anti-psychotics, are reported to be associated with metabolic adverse events such as increases in weight, plasma glucose and lipids which can increase the risk of chronic diseases.⁵⁹⁻⁶³ Further, people with a mental illness are suggested to be less likely to receive physical health care compared to people without a mental illness.⁶⁴⁻⁶⁹ Patient factors such as a lack of motivation or social instability, provider factors such as time constraints, diagnostic overshadowing, and system factors such as fragmentation of physical and mental health care have been suggested to interact to result in people with a mental illness having reduced access to physical health care.⁷⁰ Finally, a higher prevalence of engagement in health risk behaviours (tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity) has been suggested to be a significant contributor to the excess chronic disease morbidity and mortality experienced by people with a mental illness.^{64-66,71} The potential for these behaviours to be modified affords significant scope for chronic disease prevention.

The WHO has released 'risk' guidelines and related population recommendations for each of the four health risk behaviours, which include: there being no safe level of tobacco consumption;⁷² and that adults consume at least five portions of fruit and vegetables per day (excluding starchy roots such as potatoes),⁷³ and engage in at least 150 minutes of moderate-intensity aerobic physical activity per week (or 75 minutes of vigorous-intensity activity, or a combination) and muscle-strengthening activities at least twice weekly.⁷⁴ Whilst the evidence identifying the alcohol attributable burden of chronic diseases is strong and the WHO report that 50 countries have national drinking guidelines

informed by a definition of a ‘standard drink’, there is less international consensus regarding the amount of alcohol consumption which constitutes risk.⁷⁵

The population guidelines and recommendations adopted by specific countries with respect to these behaviours vary. In Australia, national guidelines state that the primary health risk behaviours that may place the individual at risk of a chronic disease are: any current consumption of tobacco products;⁷⁶ consuming more than two alcoholic drinks on a regular drinking day;⁷⁷ consuming less than five vegetable or two fruit servings per day,⁷⁸ and; engaging in less than 150 to 300 minutes of moderate intensity physical activity or 75 to 150 minutes of vigorous intensity physical activity, or an equivalent combination each week, and participating in muscle strengthening activities on at least 2 days each week.^{79 80-83}

Some health risk behaviours have also been suggested to directly impact on mental health outcomes. For example, a systematic review and meta-analysis of 26 longitudinal studies among various populations, reported consistent evidence across all populations that smoking cessation was associated with significant reductions in depression, anxiety, stress; and increased psychological well-being and positive affect compared to continued smoking.⁸⁴ Systematic review evidence similarly suggests that physical activity reduces anxiety symptoms in both people without a mental illness,⁸⁵ and those with anxiety disorders,^{86,87} depression,^{85,87} schizophrenia,^{85,87} post-traumatic stress disorder,⁸⁷ and substance dependence.⁸⁷ Further, a meta-analysis of 49 prospective studies found physical activity had a protective effect against the emergence of depression in youths, adults, and elderly persons.⁸⁸

2.4. Prevalence of Health Risk Behaviours among People with a Mental Illness

In Australia and internationally, people with a mental illness are consistently reported to experience a higher engagement in each of these health risk behaviours. This section reports studies published within the last decade that describe the prevalence of four health risk behaviours among people with a mental illness (tobacco smoking, harmful chronic alcohol consumption, inadequate nutrition, and inadequate physical activity) and, where data are available (from the same study or a study published within + or - 5 years), also reports the prevalence of such risks among the general population. Comparison is made difficult however due to different definitions and measures of risk used across studies. Further, the data available for describing prevalence specific to people with a mental illness and that available for describing prevalence in the general population are sometimes separated by a wide span of time, drawing into question the validity of comparison and indicator of current prevalence.

2.4.1. Tobacco smoking

Internationally, tobacco smoking rates among people with a mental illness are consistently reported to be at least double that of the general population in high income countries,^{81,89-93} and have remained stable over the past two decades despite declines among the general population.⁹⁴⁻⁹⁶ In 2016, the prevalence of smoking among the general population in the US was estimated at 15.5% (37.8 million)⁹⁷ and 15.5% in England; 16.9% in Wales; 17.7% in Scotland, and; 18.1% in Northern Ireland.⁹⁸ No comparable population level survey data (i.e. from 2011 to present) was identified internationally that provided an estimate of the prevalence of smoking among community living individuals with a mental illness; although data from outpatient mental health services in the US (from 2013 to 2015) estimate the prevalence of smoking at approximately 44%.^{81,99} Rates

of smoking are reported to vary by type of mental illness, with a higher prevalence among people with psychotic (50% to 88%)^{100,101} and substance use disorders (77%),¹⁰¹ and among inpatient samples (42% to 91%).¹⁰¹⁻¹⁰⁵ People with a mental illness are also reported to consume tobacco in higher amounts than people without a mental illness,^{100,106,107} and are estimated to consume 42% to 45% of all cigarettes sold in the US, UK, and Australia.^{106,108,109}

In Australia, the prevalence of smoking among people with a mental illness is consistently reported to be higher than general population estimates (14.9%).¹¹⁰⁻¹¹⁵ In 2017, population survey data found people who were community dwelling and had been diagnosed or treated for a mental illness had a higher prevalence of daily smoking (24%) than people who had not been diagnosed or treated for such an illness (10%).¹¹⁶ Population survey data from 2010 estimated the prevalence in Australia of smoking among community dwelling individuals with a mental illness to be 67%.¹¹¹ Clients of outpatient mental health services have similarly been reported to have a smoking prevalence ranging from 50.7% to 65.9% (2014 to 2015).^{80,112,114,117} Two Australian studies (2013 and 2017) reporting the prevalence of smoking among inpatients reported 53.6% to 62% of inpatients were identified as smokers.^{115,118}

2.4.2. Harmful alcohol consumption

Internationally and in Australia, scarce research has focused on the prevalence of chronic harmful consumption of alcohol (a risk factor for chronic disease) among people with a mental illness; focussing for the most part on short term (acute or binge) harmful consumption.^{82,91,112,114,119} Internationally, no research conducted in the last decade could be identified reporting the prevalence of harmful chronic alcohol consumption among people with a mental illness. A 2006 German study provides the only identified estimation of chronic harmful alcohol consumption among people with a mental illness and a general

population comparison group.¹²⁰ In the study ‘risky’ alcohol consumption was classified as the consumption of more than: two pints of beer/ one pint of wine/ two small glasses of spirits consumed at least several times a week. ‘Risky’ alcohol consumption was reported to be greater among a sample of psychiatric inpatients with a range of mental diagnoses (19% to 43%), compared to the German general population comparison group (12%).¹²⁰

In Australia the prevalence of people with a mental illness who consume alcohol at ‘at-risk’ levels for chronic disease appears to be greater than that for the general population. Population survey data from 2016 suggests 17% of the general population are reported to consume alcohol at levels that place them at risk of long term harm (chronic).¹¹⁶ No comparative population survey data for people with a mental illness could be identified. However, among Australian community mental health clients with varying mental illnesses, the prevalence of alcohol consumption at a level considered related to risk of chronic harm has been reported to be 35% (2015).⁸⁰

2.4.3. Inadequate nutrition

Comparisons of the prevalence of inadequate nutrition in the general population and among people with a mental illness are difficult due to the differences in measures of inadequate nutrition,⁸³ and few studies report directly comparable figures among people with a mental illness and general population samples. However, findings from the UK (2011),⁸³ US (2014),⁸² and Spain (2012),¹²¹ consistently report, relative to guidelines, inadequate nutrition (where adequate nutrition is conceptualised as: consuming fruits, vegetables, grains [fibre], lean meat; and limiting: saturated fat, salt, and added sugars)⁷⁸ among people with a mental illness. For instance, a 2013 systematic review of 31 studies found people with schizophrenia have a diet characterised by poor fibre and fruit intake, and excess of saturated fat intake.¹²² Data from outpatient mental health services in Spain

(2012) estimate that 78% of outpatients consume an unhealthy diet categorised by over eating of fats and sugars and under eating of fruits and vegetables.¹²¹ A 2011 UK study of psychiatric inpatients with schizophrenia reported that 62% of participants consumed fruit or vegetables less than once daily compared to 21% of general population controls.⁸³ Additionally, a 2018 study of psychiatric inpatients in Norway reported 58.8% of the sample did not meet national daily dietary guidelines, being rated as having an ‘unhealthy’ diet by nurses.¹⁰⁵ Limited comparison is possible to general population data (2017) where between 59% to 66% of adults are estimated to consume inadequate amounts of fruit and 85% to 87% consume inadequate vegetables.¹²³

Australian data with respect to nutrition among people with a mental illness is similarly limited. General population 2015 data from the National Health Survey suggest a high prevalence of inadequate nutritional intake (71% to 77% consuming inadequate amounts of fruit and 95% to 97% consuming inadequate vegetables).^{116,124} An indirect comparison of 2014 population survey data reported 70.6% of individuals diagnosed with a psychotic disorder consumed one or fewer serves of fruit per day, and 48.1% consumed one or fewer serves of vegetables per day.¹¹⁴ Additionally, higher proportions of people with psychosis have reported consuming zero servings of fruit as compared to the general population (25% versus 6%) and vegetables (8% versus 1%) daily (2014).¹¹² Surveys of Australian clients of community based services identified that, relative to guidelines, 87% of mental health clients consumed inadequate amounts of fruit or vegetables (2015)⁸⁰ compared to 81% of general community health clients (2013).¹²⁵

2.4.4. Inadequate physical activity

A high prevalence of inadequate physical activity has been reported among samples of people with a mental illness in the US (2009, 2014),^{82,119,126,127} UK (2011),⁸³ Spain (2012),¹²¹ and Norway (2018).¹⁰⁵ In a 2009 US sample of community based

Veterans Affairs Services (VA) clients with serious mental illness, a higher proportion were found to engage in physical activity less than three times per week (44% to 58%, varying by diagnosis) compared to a general population comparison group (39%).¹¹⁹ Further, in a 2014 US study of VA mental health outpatients, 53% reported that they engaged in less than 150 minutes of physical activity per week.¹²⁷

Levels of inadequate physical activity among people with a mental illness in Australia similarly appear to be higher than among the general population. A 2014 population survey of individuals diagnosed with a psychotic disorder, found 96% had inadequate physical activity as defined by the International Physical Activity Questionnaire.^{114,128} In 2014, as compared to the general population (67%), higher proportions of people with psychosis (97%) reported being sedentary or having low activity levels.¹¹² Higher levels of inadequate physical activity have similarly been reported among clients attending community mental health services (47%, 2015)⁸⁰ compared to clients attending general community health services (28%, 2013).¹²⁵

This section has described previous research which suggests the prevalence of health risk behaviours among people with a mental illness are high and, where comparisons are possible, exceed general population estimates. The majority of research to date has focused on smoking though rather than the other health risk behaviours and few studies have investigated the prevalence of multiple health risk behaviours among people with a mental illness. Health risk behaviour prevalence has often been assessed among community-living populations accessing community mental health services, which may be useful to inform interventions to address such behaviours within such settings, however few studies have explored the prevalence of risk among individuals accessing care from psychiatric inpatient settings.

3. The Role of Mental Health Services in Addressing Client Health Risk

Behaviours

3.1. Mental Health Care Services

Internationally, people with a mental illness access a range of services for their mental health including: primary care or generalist health services, specialist mental health services (both inpatient and outpatient/community settings), and psychosocial support services.¹²⁹⁻¹³¹ In high income countries such as the United States, United Kingdom and Australia,^{129,132-134} increasing numbers of people are being provided with care from community based mental health psychosocial support services (such as non-government organisations (NGOs)) which provide a range of services to people with a mental illness, people at risk of developing a mental illness, and their families and carers including prevention, early intervention, rehabilitation, recovery and psychosocial services.^{135,136} NGOs have proliferated in Australia in particular in recent years due to the public funding of such organisations after the advent of the National Disability Insurance Scheme in 2013 (an agency facilitating support to people with a range of disabilities, including mental illness, providing tailored care packages to meet individualised goals).¹³⁷⁻¹³⁹ Table 1.1 provides further data regarding mental health related service utilisation in Australia.^{140,141}

Table 1.1 Mental health related service use in Australia, 2016-2017¹⁴⁰

Service Type	Service contacts in 2016-2017	Individual clients in 2016-2017
General practitioners ^a	18 000 000	
Access to Allied Psychological Services (ATAPS) ^b	350 000+	72 500
Public hospital emergency department presentations	276 954	
Overnight (inpatient) hospitalisations ^c	258 000	
Same-day (inpatient) hospitalisations ^d	320 760	19 248 ^e
Community (outpatient) mental health services	8 900 000	420 000
Residential (inpatient) mental health care ^f	7 300	5 476
Disability support services ^g		100 939

^a 2015 to 2016 data¹⁴¹

^b ATAPS program available to people with diagnosed mild to moderate mental illness for up to 12 sessions with a mental health professional

^c Occur in public acute, public psychiatric, or private hospitals. Admissions equating to approximately 4.5 million patient care days, with average length of stay 17 days.

^d Includes public and private hospitalisations. Patients only admitted for a portion of the day; may be due to intervention provided or hospital's model of care.

^e Data available for private hospitalisations only

^f 294 113 residential care days provided, with an average of 40 days per episode.

^g Provided to people with a psychiatric disability under the National Disability Agreement

3.2. Addressing Health Risk Behaviours

Mental health services have an acknowledged role in addressing the health risk behaviours of clients.¹⁴²⁻¹⁴⁸ Internationally^{17,149-167} and in Australia,^{144,168-171} guidelines and policies have been implemented to enhance the provision of care by mental health care services that addresses clients' health risk behaviours. In addition to a WHO recommendation that such care be provided routinely in all health care settings to all clients,¹⁷ similar recommendations have been enacted in the US,^{150,151,172} UK,^{152,153,166} New Zealand,¹⁴⁹ and Australia.^{144,168,173,174} For example, with respect to specialist mental health services, the Institute for Healthcare Improvement recommends integrated physical

health assessment, monitoring, and referrals to other health services where appropriate are provided at all mental health service contacts in the US.¹⁵⁵ Similarly, the UK National Institute for Health and Care Excellence recommends physical health screening and the offer of a combined healthy eating and physical activity programme to all clients for the management of bipolar disorder,¹⁶⁴ and psychosis and schizophrenia.¹⁶³

In Australia, national^{144,168,173-176} and state bodies^{169-171,177} similarly recommend mental health services provide physical health care to address the health risk behaviours of people with a mental illness; recommendations which have been adopted into state mental health service policies.^{147,178-181} For instance, the New South Wales (NSW) Mental Health Commission's Strategic Plan for Mental Health in NSW 2014-2024 directs that mental health services take responsibility for the holistic health care of their clients by providing physical health assessment and monitoring of physical health status.¹⁴² In line with this plan, the 2017 NSW Department of Health policy directive on Physical Health Care within Mental Health Services instructs all mental health services to provide physical health care including assessment and care for four key health risk behaviours: smoking, alcohol, nutrition, and physical activity.¹⁴⁷

3.3. Models of Care to Prevent Chronic Disease Health Risk Behaviours

Care to support and facilitate improvements or reductions in the modifiable chronic disease health risk behaviours has been termed 'preventive care'.¹⁸²⁻¹⁸⁴ The '5As' framework is a widely endorsed preventive care approach,¹⁸⁵⁻¹⁸⁸ providing clinicians with a process to screen for health risk behaviours in their clients and to facilitate the provision of or access to interventions to improve health risk behaviours.¹⁸⁵⁻¹⁹¹ Whilst the 5As model was initially created to guide the provision of smoking cessation care specifically in primary care settings,^{186,187} the framework has been adapted and applied to the other health risk behaviours;¹⁹²⁻¹⁹⁴ and its provision has been effective in improving health risk

behaviours among various populations and settings.^{156,185,195,196} The 5As elements consist of: ‘ask’ about engagement in health risk behaviours; ‘assess’ health risk behaviour status and interest in change; ‘advise’ changing/reducing health risk behaviours; provide health risk behaviour change ‘assistance’; and ‘arrange’ or refer to other services for health risk behaviour change support.¹⁸⁶ Its application in mental health services has been suggested to be effective in such settings.¹⁹⁷⁻¹⁹⁹ For example, a US study of six outpatient mental health services, utilising a delayed control methodology, reported significant reductions in clients’ smoking after the implementation of a 12-month 5A’s smoking cessation service intervention.¹⁹⁷ Additionally, an Australian survey of 267 mental health practitioners found training in the delivery in the 5A’s resulted in a two to three times increase in the provision of four of the five care elements for smoking cessation; however the study did not assess client smoking cessation as an outcome.¹⁹⁹

3.4. Prevalence of Preventive Health Care Provision by Mental Health

Services

People with a mental illness have been reported to receive sub-optimal preventive care for their health risk behaviours in both outpatient and inpatient mental health services.^{70,200-202} However, the vast majority of such research to date has focused on smoking cessation care.²⁰¹⁻²⁰⁷ A review of the literature identified two previous reviews of the provision of preventive care within mental health services.^{200,208} A narrative review, published in 2011 and which explored only smoking cessation care within psychiatric inpatient settings, cited just four studies from the US (N=2) and Australia (N=2). The review reported sub-optimal provision of nicotine dependence treatment, with few inpatients receiving: a diagnosis of nicotine dependence or withdrawal (0-3%); advice to quit smoking (0-31%); and nicotine replacement therapy (0-56%).²⁰⁰ A more recent review (2019) with a broader scope explored mental health nurses’ experiences of

providing physical health care, with a focus on their attitudes rather than provision of care.²⁰⁸ The review included 41 studies examining general physical health care, sexual health, smoking, physical activity, and nutrition. Six included studies reported outcomes via the Physical Healthcare Attitude Scale (PHASe) for mental health nurses;²⁰⁹ where nurses reported the frequency ‘always’ or ‘very often’ of providing 14 physical health care related items. Across the six studies utilising the PHASe, advice on regular exercise was provided by 50.4% to 79.7% of participants, advice on healthy diet was provided by 43.4% to 86.7% of participants, and 30.6% to 66.7% of participants reported aiding smoking cessation.²⁰⁸ In addition to exploring care provision by mental health nurses only, the review did not report outcomes by mental health service type, nor was a meta-analysis able to be conducted.²⁰⁸

Additional individual studies have similarly also reported sub-optimal provision of preventive care for smoking cessation in both outpatient^{201,202} and inpatient mental health services.^{203-206,210} Research suggests variable rates of care provision across both risk behaviours and care elements. For instance, asking about smoking is reported to occur most frequently (68% to 98%),^{201,206,207} compared to: assessing nicotine dependence and interest in change (8% to 44%),^{203,207} advising on smoking cessation (4% to 79%);^{201,203,204,206,207,210} providing cessation assistance (3% to 89%),^{203,205,207} and arranging referral or follow-up (12% to 49%).^{201,207}

Less research could be located regarding the provision of preventive care in mental health services for alcohol consumption, nutrition, and physical activity.^{178,201,202,211,212} In addition, it is difficult to elucidate an overall picture of the current levels of provision of preventive care for all health risk behaviours due to fragmented research which generally explores one health risk behaviour and few elements of care provision. One study was located that assessed the provision of multiple

preventive care elements for all four health risk behaviours to clients of a mental health service, utilising client report.²⁰¹ This study was conducted among 558 Australian community mental health service clients, and found the following proportions of clients reporting assessment of their health risk behaviours: smoking (73%); harmful alcohol consumption (76%); inadequate fruit or vegetable consumption (26%), and; inadequate physical activity (57%).²⁰¹ Most clients received advice to change health risk behaviours, for: tobacco smoking (79%); harmful alcohol consumption (73%); inadequate fruit or vegetable consumption (69%), and; inadequate physical activity (85%). Fewer clients reported receiving referral or follow-up for health risk behaviour change assistance, for: smoking (48%); harmful alcohol consumption (37%); inadequate fruit or vegetable consumption (37%), and; inadequate physical activity (44%).²⁰¹ Whilst many clients reported receipt of some elements of care, previous research has considered the provision of care to less than 80% of clients to be sub-optimal.^{201,213,214} There is a need for a synthesis of evidence regarding the prevalence of preventive care provision across mental health service settings and across different health risk behaviours and all five elements of care.

3.5. Barriers to Preventive Care Provision in Mental Health Care Settings

The sub optimal provision of preventive care by mental health services is likely to be a result of many factors; with barriers suggested to exist at the client, clinician, and system/service levels.²¹⁵⁻²²⁷ Clinical practice change research suggests a supportive environment is vital to enable the adequate provision of preventive care, addressing barriers at both the clinician and system level.²²⁸ For instance, research has found an increased likelihood in the provision of preventive care when the following occur: clinicians are confident in their ability to provide preventive care;²¹⁹ clinicians are trained in the provision of care;^{216,219,227} the use of risk assessment forms to identify health risk

behaviours;²²⁷ routine auditing and feedback of care delivery;²²⁷ guidelines related to care for health risk behaviours,²²⁷ and; protocols for the delivery of preventive care.^{227,229}

Additionally, clinician and client attitudes and perceptions as to the value and importance of preventive care provision also have a fundamental influence on the provision of care. Research does suggest that clinicians think preventive care is important, and they have a role in the provision of such care.^{208,230-232} Albeit this may be tempered if they hold the belief that clients would not find the provision of preventive care acceptable.^{233,234} While clinicians may sometimes doubt clients' desire to change health risk behaviours or capacity to do so,^{216,219-221,231,233} research suggests such concerns are misplaced. Clients with a mental illness have been found to express a desire to change their health risk behaviours,^{80,82,113,235-238} and receive support to do so.²⁰¹ Evidence however, is stronger in some settings than others, with previous research having focused more on community based mental health settings for instance, rather than inpatient settings.

It is important for research to be undertaken to address such gaps in the evidence base, in order to understand the extent to which preventive care is provided across mental health services currently. Subsequently, intervention research in particular is required, such research may indicate how the potential role of mental health services can be optimised to provide adequate preventive care to clients. However, it is also important to continue to explore other potential avenues of supporting health risk behaviour change for people with a mental illness.

4. Family Carers: Their Potential Role in Supporting Health Risk Behaviour Change

4.1. Engagement of Carers in Mental Health Service Provision

Internationally and in Australia, the importance of the carer role in the treatment of people with a mental illness is increasingly being acknowledged through legislation, and through government and mental health service policies which seek to enhance carer involvement in mental health service provision and involve carers in the development of mental health policy and practice.²³⁹ For instance, of 164 WHO member states, 58% reported full or partial involvement of persons with a mental illness and family members in mental health planning, policy, service development and evaluation.¹²⁹ Guidelines and policies advocate for carer involvement in all aspects of care for people with a mental illness^{146,148,240,241} and aim to deliver a holistic approach to the provision of mental health care and to increase the effectiveness of interventions and treatments provided by health care services.^{142,242,243}

Carers are acknowledged and included as essential partners in the provision of care in mental health service policies and practice guidelines in high income countries such as the US,²⁴⁴ Canada,^{245,246} England,^{163,247} Scotland,^{159,248,249} Wales,²⁵⁰ and Ireland.²⁵¹ In the UK, the ‘Triangle of Care’ refers to a therapeutic alliance between mental health service staff, clients, and carers; aimed to improve carer collaboration and partnership in mental health services, particularly inpatient and acute psychiatric services.²⁴⁷ Six elements are proposed as necessary to achieving the ‘Triangle of Care’ including: acknowledging carers and the essential role they play; ensuring staff are trained in carer engagement strategies; and providing information about and access to a range of carer support services. Further, carer/family engagement in mental health delivery has

been recommended in clinical practice guidelines for the treatment of mental disorders in the US and UK.^{146,244}

Similarly, in Australia the need to acknowledge the role of carers and engage them as important stakeholders in the care of people with a mental illness is recognised through policies and guidelines.^{240,252-257} For example, in the state of NSW, the Carer Recognition Act states that carers should be engaged as important stakeholders in the provision of care, including the assessment, planning, delivery, and review of services to the person they care for, and should be included in care decision making.²⁵⁸ Despite such policies, carers often report a lack of engagement with general and mental health services accessed by the person for whom they provide care.²⁵⁹⁻²⁶⁴

4.2. Family Carers: Who are they?

A family carer³ is an individual who provides support and assistance without payment to an individual with any physical or mental disability.²⁵⁵ Family carers play a central role in the lives of the people for whom they provide care.^{240,265} A role which may include providing social, emotional, functional and financial support in the form of tasks such as: interacting with health care and other services;^{266,267} collecting, and providing reminders to take medications;²⁶⁷ participating in decisions regarding medical care;²⁶⁷ and supporting and/or extending health care interventions in the home environment.^{240,265,267} Such support is critical to not only the people for whom they provide care, but also to the health care system.^{268,269}

³ Throughout this thesis, the terms ‘carer’ or ‘family carer’ refer to individuals who provide support to people with a mental or physical disability without payment. In the research literature, family carers are referred to by a range of terms, often: family caregivers, informal carers, family members, or primary carers. The studies comprising this thesis utilise the terms ‘carer’ and ‘family carer’. When referring to the research literature, the terms utilised by original source materials are retained for accuracy in reporting.

A large number of people in high-income countries are in an informal caring role.²⁷⁰⁻²⁷³ In the US in 2014, approximately 18% of the population (43.5 million people) were in a caring role.²⁷⁰ The economic value of family caregiving in the US was estimated at US\$470 billion in 2013; more than the total Medicaid spending for 2013.²⁶⁹ In 2015 in the UK, 6.8 million people were estimated to be in an informal caring role.²⁷⁴ The economic value of the carer contribution in 2015 was £132 billion per year, roughly the equivalent of the total annual cost of health spending in the UK (£134.1 billion).^{274,275} In 2015, almost 2.7 million Australians were identified as informal carers for the elderly or anyone with a physical or mental disability.²⁷⁶ The replacement cost of the carer contribution in 2015 alone was estimated to be AU\$60.3 billion and equivalent to 1.9 billion hours of unpaid care.²⁶⁸

Carers in high-income countries share similar demographic characteristics. In the US, the majority of carers are female (60%), with an average age of 49 years.²⁷⁰ Eighty-five percent of carers in the US provide care for a relative, and the average length of time in the caring role is 4 years.²⁷⁰ In England, 60% of carers are women, and most likely (42%) to be aged 45-64 years.²⁷³ Approximately half (48%) of carers in England spend at least 20 hours per week in the caring role; and 27% of carers have been in a caring role for at least ten years.²⁷³ Results from the Australian 2015 Survey of Disability, Ageing and Carers report that more than two thirds of primary carers (a carer providing the most assistance to a person with a disability) are female, and the average age of the primary carer is 55 years.²⁷⁶ The vast majority (96%) of primary carers also cared for a family member, and similar to in England, 55% spent at least 20 hours per week caring for their family member.²⁷⁶

A significant proportion of the carer population in high-income countries provide care to people with a mental illness. In the US in 2014, 21% of the 43.5 million carers

were providing care for a person with a mental illness.²⁷⁰ Additionally, in the UK, 1 in 4 of all carers (6.8 million) provide care to an individual with a mental illness.^{247,274} In Australia, data from the 2007 National Survey of Mental Health and Wellbeing estimated 15% of the adult population (2.4 million people) provided informal care for a person with a mental illness; with 38% of people with a relative with a mental illness in a caregiving role.²⁷⁷

Data collected from the 2012 Survey of Disability, Ageing and Carers²⁷⁸ and the 2007 National Survey of Mental Health and Wellbeing,³⁶ summarised in one recent technical report,²⁷⁹ provide additional information about the profile, role and contribution of Australian carers of people with a mental illness.²⁷⁹ The majority (54%) of Australian mental health carers are female and aged 25 to 64 years (73%), with one fifth providing informal care to more than one individual, usually a partner (46%) or offspring (32%).²⁷⁹ Approximately half of those carers have been in a caring role for ten or more years.²⁷⁹ Primary carers (the person who provides the most informal assistance) spend an average of 36 hours per week in the caring role, with 38% providing care for more than 40 hours per week (two times that of the above estimate relating to care provided for people with disabilities generally). The role of the primary carer of a person with a mental illness is generally spent providing: emotional support (67% of time); assistance with practical tasks (30%); and assistance with activities of daily living (3%). Additionally, primary carers of people with a mental illness report spending an additional 59 hours per week ‘on standby’ to assist their family member if a crisis arises.²⁷⁹ The total annual replacement costs for all carers of people with a mental illness in 2015 was estimated at \$14.3 billion, equating to \$129,000 per primary carer and \$39,000 per secondary or other informal carers.²⁷⁹

The role and responsibilities of family carers differ depending on the needs of the person for whom they provide care. For instance, most carers of people with a chronic mental illness provide: emotional support to their care recipient (68%; such as encouraging or prompting to do things; motivating; managing crises; emotional support and companionship); assistance with practical tasks (64%; such as assisting, informing and liaising with health professionals); with fewer mental health carers providing assistance with activities of daily living (32%).²⁷⁹

4.3. A Potential Role in Supporting Health Risk Behaviour Change

Carers have been suggested to have the potential to influence the health risk behaviours of people with a mental illness due to the nature of the caring role and relationship.^{263,280} In addition, the ecological theory of health behaviour suggests that the social environment and the attitudes and behaviours of people within that environment have the potential to influence the behaviours of the individual.²⁸¹ A significant body of research confirms that positive health behaviour outcomes in individuals can be enhanced by social support from family or friends.^{2,282-293}

Social support can take the form of providing practical support, emotional encouragement, and facilitating healthy behaviours such as exercising together.^{282,294} Evidence from randomised controlled trials among general population samples has reported greater weight loss for individuals when family or friends are enrolled in weight loss programs together.^{282,283} Additionally, a common strategy utilised in smoking cessation interventions among the general population is the recruitment of a family member or friend to make joint quit attempts, given that the provision of social support during a quit attempt has been implicated as contributing to the success of cessation attempts.^{289,295-301} However, limited research has assessed how the provision of social support by family or friends impacts on the health risk behaviours of people with a mental

illness.²⁸⁶⁻²⁸⁸ For example, a feasibility pre-post pilot study of individuals with severe mental illness in the US participating in a healthy lifestyle intervention to improve diet and physical activity with a family or friend self-selected support partner yielded significant positive improvements in: readiness to change physical activity, dietary fat and social support for participation in exercise, and; non-significant positive improvements in weight, BMI and cardiorespiratory fitness.^{284,285} Such research suggests carers of people with a mental illness may have the potential to positively influence the health risk behaviours of the people for whom they provide care.

4.3.1. Carer provision of behaviour change support for health risk behaviours

Despite the potential that may exist for carers to positively influence the health risk behaviours of people with a mental illness for whom they provide care, little research has explored carer behaviours and attitudes towards this role or the extent to which they currently undertake it. To date, no systematic review evidence has assessed the extent to which family carers are involved in supporting health risk behaviours among people with a mental illness for whom they provide care. A review of the literature identified just four studies exploring the potential for carers to have a role in addressing the health risk behaviours of those they care for: one descriptive quantitative correlational study³⁰² and three qualitative studies.^{263,267,303}

The quantitative study was conducted in the US with 27 family carers of adults with schizophrenia and diabetes mellitus. The study found 89% of carers prepared meals for their family member with 78% seeking to prevent high-sugar and high-fat food intake; 22% encouraged their family member to stop drinking alcohol, and; 59% assisted their family member with exercise participation.³⁰² A US qualitative study of 13 carers of older adults with serious mental illness found that the majority of carers reported actively

supporting weight loss through encouraging exercise, healthy food grocery shopping and meal preparation.²⁶⁷ A South African qualitative study, utilising an individual semi-structured interview methodology, found that of 8 family carers of people with a mental illness, most purchased, prepared and served food to their family member every day.³⁰³ Finally, an Australian study, also utilising semi-structured interviews, of 12 family carers of smokers with a mental illness reported that family carers actively tried to regulate and manage the consumption of tobacco by their family member.²⁶³ Such research suggests carers may play an active role in supporting the health risk behaviours of their family members however, further research with larger sample sizes is required to confirm if this small body of research yields similar findings in other carers of people with a mental illness.

4.4. Potential Challenges to Carer Provision of Health Risk Behaviour

Change Support

There is similarly scant research regarding the potential challenges to mental health carers in seeking to address the health risk behaviours of those they care for, and regarding possible strategies for overcoming such challenges. The Australian study mentioned above reported a dissonance between carer concerns for the negative health effects of smoking, and the autonomy of their family member, resulting in some carers accommodating smoking rather than supporting cessation attempts.²⁶³ Further, the study identified a lack of communication between mental health services and carers as a barrier to the provision of care regarding smoking; with carers expressing a need for such services to communicate and collaborate with them on the provision of smoking cessation strategies.²⁶³

4.4.1. Challenges reported by other carers

Research conducted among carers of people with other conditions or disabilities may also elucidate opportunities for mental health carers in addressing the health risk behaviours of the people for whom they provide care.³⁰⁴⁻³⁰⁷ For instance, carers of people with dementia have reported a concern about the impact of nutrition on health and have tried to control their family member's weight through nutrition,³⁰⁴ and encourage physical activity among those they care for.³⁰⁵ Additionally, a survey of 53 carers and family members with early stage dementia found carers who believed high intensity exercise was important for health maintenance was a positive predictor of their family member's engagement in physical activity;³⁰⁶ suggesting carers attitudes towards health risk behaviours may impact on their family member's engagement in such behaviours. Moreover, inadequate nutrition among carers has been associated with inadequate nutrition among those with dementia they care for;³⁰⁷ suggesting the potential for carers and their family member's to share health risk behaviours, identifying a potential avenue to address health risk behaviours with carers and family members concurrently.

Therefore, an additional factor that may be a challenge to carer provision of support to address the health risk behaviours of people with a mental illness may be carers' own risk behaviour status. While not yet explored among carers, the smoking status of clinicians has been shown in some research to be inversely associated with their provision of preventive care for smoking,^{308,309} while other research has reported no difference between clinician attitudes to smoking-related care provision based on their own smoking status.^{231,310} As the limited carer research to date has only explored potential challenges in regards to addressing smoking, it is unknown if carers' own risk status with respect to other behaviours (e.g. harmful alcohol consumption, inadequate physical

activity and inadequate nutrition) may pose challenges in supporting the person they care for to make positive changes.

4.4.2. A need to prioritise mental health?

Research among carers has also reported it can be difficult to prioritise or attend to the many needs a family member may have, and that mental health needs may be especially pressing at times when an individual is unwell; with physical health concerns becoming secondary at that time.^{263,311,312} An Australian qualitative study of 13 family carers of people with a mental illness for instance found carers reported it was difficult to address physical health issues when their family members' mental health was unstable.³¹¹ Additionally, A US survey of 256 family members of a person with a mental illness reported: 74% perceived that smoking helps people with a mental illness cope with their stress; and 48% were more concerned about the effects of mental illness than the effects of smoking on their family member.³¹³ Such findings suggest carers may prioritise the mental health of their family member over their health risk behaviours.

4.4.3. A need for engagement and support of carers by health services

A further challenge for carers in addressing the health risk behaviours of the person they care for, is a need for engagement with and, understanding of the care delivery processes of health care services regarding health risk behaviours. In the absence of such engagement and understanding, the ability of the carer to fulfil expectations of being an effective care delivery partner with health services is limited.³¹⁴ Research in the area of carer-health service engagement to date has indicated carers report a lack of engagement with health services.³¹⁵⁻³¹⁸ For example, an Australian survey of 121 informal carers of people with borderline personality disorder (BPD) reported: 51% of carers said their general practitioner had not supported them as a carer; 73% had not received a crisis plan for the person they cared for; 55% did not receive help from mental health professionals

to understand BPD; and 49% had never been involved in mental health treatment decision making or care issues for the person they cared for where qualitative responses suggested carers requested to be involved but were often denied by service providers.²⁶⁴ Similarly, carer participants in an Australian qualitative study of 31 family carers of people accessing an adult mental health service expressed the need for provision of information and psychoeducation and inclusion in treatment decisions by mental health clinicians.²⁶¹

In addition, a 2012 systematic review qualitatively synthesised 13 UK studies reporting on the expectations of carers of adults with schizophrenia or bipolar disorder by carers themselves and mental health professionals, with a provision of recommendations to overcome barriers at the carer, clinician and system level.³¹⁸ The review found carers were perceived as a source of knowledge and were expected to contribute to: being involved in information gathering; treatment in terms of risk management and assisting adherence to treatment regimens including medications; and providing effective and safe care for their family member. A barrier reported by carers to their ability to assist in the care of their family member included their inability to approach services for assistance due to feelings of being taken for granted or perceived as being “part of the problem”.³¹⁸

Mental health professionals’ perceived barriers to service engagement that could be addressed by carers include: increasing their knowledge of mental health; establishing dialogue with professionals; being persistent; proactive; and contribute to decision-making in health services.³¹⁸ The review recommended the following to overcome such barriers: that clinicians strive to involve carers in planning and provision of care; dissemination of clear principles to guide information sharing that consider confidentiality and consent; clinicians require additional training in working with families and carers; and a clear discussion of expectations of the role of stakeholders at the commencement of treatment.³¹⁸

While research exploring barriers to engagement with mental health care services have been of a general nature, such barriers reported above may more specifically constrain the role of carers with regards to providing health risk behaviour change support. In terms of research regarding carer engagement with and understanding of health service approaches to addressing client health risk behaviours, the very limited research to date has had a focus on smoking cessation. Some research suggests that carers' perceptions of smoking and mental illness may influence their capacity and likelihood of supporting smoking cessation for those whom they provide care.^{312,313} A US survey of family members' attitudes to smoking and their role in promoting smoking cessation by the person they care for reported that: 39% of family members perceived that most people with a mental illness who smoke aren't interested in quitting; 74% reported that smoking helps people with a mental illness cope with their stress; 48% were more concerned about the effects of mental illness than the effects of smoking on their family member; and 69% reported that most family members do not have the skills to help a person with a mental illness stop smoking.³¹³ Similarly, a qualitative study of six family members of people accessing mental health services in New Zealand reported that participants expressed a need for information regarding the services' smoke-free policy and available smoking cessation treatments, and, a lack of discussion or consultation with carers regarding such policies and treatments and the carers role in supporting their objectives.³¹²

5. A Summary of Evidence Gaps in Existing Research

5.1. Knowledge Gaps Regarding Preventive Care in Mental Health Service Settings

As noted throughout this chapter, to date, research exploring the prevalence of health risk behaviours among people with mental illness has largely focused on community-dwelling samples; with inpatient services receiving less attention. No studies

to date have investigated the prevalence of all four health risk behaviours among Australian psychiatric inpatients, with the majority of research reporting prevalence of risk among community living persons accessing outpatient mental health services. Little research could be identified exploring the interest in improving health risk behaviours, and receptivity to receive preventive care from mental health inpatient services among people with a mental illness. One study was located which reported interest in changing the four health risk behaviours among a sample of psychiatric inpatients,⁸² and no studies could be found that explored acceptability to receive preventive care during an inpatient stay to address the health risk behaviours. Given the opportunity an inpatient stay provides to address health risk behaviours,^{319,320} an exploration of the extent to which clients in such services experience health risk behaviours could inform tailoring of strategies to address client's risk behaviours.

Research suggests clients of mental health services receive sub-optimal preventive care to address their health risk behaviours.^{178,200,206,211,321,322} However, previous reports of sub-optimal care provision have largely focused on smoking cessation.²⁰⁰ Previous estimates of care provision have utilised differing measurements and methodologies, limiting the ability to compare levels of preventive care provision across studies. A comprehensive synthesis of the prevalence of preventive care provision within mental health services to address the health risk behaviours of people with a mental illness is lacking.

5.2. Knowledge Gaps Regarding Carers' Potential to Provide Health Risk Behaviour Change Support

In addition, research also suggests family carers experience sub-optimal inclusion and consultation in general and mental health services. As described above, two

qualitative studies to date have explored: the experiences and attitudes of family members towards smoke-free policy in mental health settings;³¹² and one study among family carers reported suboptimal smoking cessation care from mental health services for their family member with a mental illness.²⁶³ A single study has investigated family members' attitudes towards smoking and people with a mental illness.³¹³ Only one of these three studies were conducted on a sample of family members identifying as mental health carers. Carers' perceptions of smoking and its impact on mental health, and their attitudes towards smoking cessation care provision in general and mental health services accessed by their family members with a mental illness are unknown.

Previous literature exploring the role of carers in influencing the health risk behaviours of people with a mental illness is scant.^{263,267,303} As noted, to date, one quantitative study has examined carers' involvement in addressing health risk behaviours by the person they care for, though the study did not explore potential barriers to such carer involvement.³⁰² Similarly, previous research exploring potential barriers to carer involvement in health risk behaviour change has listed a narrow scope of barriers and has not identified potential supportive strategies to increase carer capacity to support health risk behaviour change.^{263,267,313}

6. Thesis Aims and Structure

Given the limitations of existing research outlined in this introductory chapter, the aims of this thesis are, to:

1. Examine the need for preventive care for health risk behaviours in traditional mental health service settings and its current provision. Specifically to:
 - a. Determine the prevalence of health risk behaviours (smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity); interest in improving 'at risk' behaviours, and; acceptability of receiving health risk

behaviour change support during mental health treatment among a sample of Australian psychiatric inpatients.

- b. Ascertain the prevalence of preventive care provision for the four health risk behaviours in mental health services generally through the conduct of a systematic review.
 - c. Explore family carers': understanding of relationships between smoking and mental health; views and expectations of smoking bans in specialist mental health treatment settings, and smoking cessation care across a number of service settings.
2. To explore family carer current and potential provision of health risk behaviour change support to people with a mental illness, through:
- a. Investigating the extent of carers' current involvement in promoting positive health risk behaviours; carers' own health risk behaviours, attitudes and perceptions of their role and ability to address health risk behaviours of the person for whom they provide care.
 - b. Exploring carers' experiences in addressing the health risk behaviours of the person they care for; existing barriers to addressing such behaviours; and perceptions of potential strategies to assist them to provide health risk behaviour change support.

To address these aims, this thesis consists of six chapters following this introductory chapter. Five of these chapters (Chapters 2 to 6) have been published in peer-reviewed journals in accordance with the rules outlining thesis submission by publication through the University of Newcastle (see Appendix 1). The seventh and final chapter presents a brief summary of the preceding five chapters, and a discussion of implications for future research resulting from this thesis.

References

1. Australian Institute of Health and Welfare. Risk factors contributing to chronic disease. Cat no. PHE157. In. Canberra: AIHW; 2012.
2. World Health Organisation. *Global status report on noncommunicable diseases 2014*. Switzerland: WHO;2014.
3. Australian Institute of Health and Welfare. Australia's health 2016. In. Vol Australia's health series no. 15. Cat no. AUS 199. Canberra: Australian Institute of Health and Welfare; 2016.
4. Wang H, Naghavi M, Allen C, et al. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: A systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016;388(10053):1459-1544.
5. World Health Organization. Global health estimates 2016: Deaths by cause, age, sex, by country and by region, 2000-2016. In. Geneva: World Health Organization; 2018.
6. Institute for Health Metrics and Evaluation. GBD Results Tool: Country Profiles. University of Washington. <http://www.healthdata.org/results/country-profiles>. Published 2018. Accessed 16.01.2019, 2019.
7. Bloom DE, Cafiero ET, Jane-Llopis E, et al. *The global economic burden of noncommunicable diseases*. Geneva: World Economic Forum; 2011.
8. Institute for Health Metrics and Evaluation. Global burden of disease study 2016 (GBD 2016) results. In. Seattle, WA: Institute for Health Metrics and Evaluation; 2016.
9. American Public Health Association. *Public health and chronic disease: Cost savings and return on investment*. Washington: APHA.

10. Department of Health/ Long Term Conditions. Long term conditions compendium of information: Third edition. In: Health Do, ed. Leeds: Department of Health; 2012.
11. Department of Health/ Long Term Conditions. Improving the health and well-being of people with long term conditions. In. Leeds: Department of Health; 2010.
12. Australian Institute of Health and Welfare. Australia's Health 2014. Australia's health series no. 14. Cat. no. AUS 178. In. Canberra: AIHW; 2014.
13. Australian Institute of Health and Welfare. *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011*. Canberra: AIHW; 2016.
14. Australian Institute of Health and Welfare. *Australia's health 2016. Australia's health series no. 15*. Canberra: AIHW; 2016.
15. World Health Organisation. *World health report 2002*. Geneva 2003.
16. World Health Organisation. Global health risks: Mortality and burden of disease attributable to selected major risks. In. Geneva: World Health Organisation; 2009.
17. World Health Organisation. *2008-2013 action plan for global strategy for the prevention and control of noncommunicable diseases*. Geneva 2008.
18. Bull FC, Expert Working Groups. Physical activity guidelines in the U. K.: Review and recommendations. In: School of Sport EaHS, ed: Loughborough University; 2010.
19. Nutrition Advice Team. A quick guide to the Government's healthy eating recommendations. In. London: Public Health England; 2017.
20. Department of Health. UK Chief Medical Officers' low risk drinking guidelines. In. London: Department of Health; 2016.
21. National Institute for Health and Care Excellence. Smoking: Harm reduction. In: NICE; 2013.

22. U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015-2020 dietary guidelines for americans. 8th Edition. In: Available at <http://health.gov/dietaryguidelines/2015/guidelines/>; 2015.
23. Centers for Disease Control and Prevention. Alcohol use and your health factsheet. In. CDC2018.
24. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (5th ed.)*. Washington, DC: American Psychiatric Association; 2013.
25. Kessler RCA-G, S.; Alonso, J.; Chatterji, S.; Lee, S.; Ormel, J.; Ustun, T. B.; Wang, P. S. The global burden of mental disorders: An update from the WHO world mental health (WMH) Surveys. *Epidemiol Psychiatr Soc*. 2009;18(1):23-33.
26. Sheehan DV. The Sheehan disability scales. In: *The anxiety disease and how to overcome it*. New York: Charles Scribner and Sons; 1983:151.
27. Global Burden of Disease Collaborative Network. Global burden of disease study 2016 (GBD 2016) results. In. Seattle, WA: Institute for Health Metrics and Evaluation (IHME); 2017.
28. McManus S, Meltzer H, Brugha T, Bebbington P, Jenkins Re. Adult psychiatric morbidity survey 2007. Results of a Household Survey. In: NHS Information Centre for Health and Social Care; 2009.
29. Oakley Browne MA, Wells JE, Scott KM, McGee MA, Team NZMHSR. Lifetime prevalence and projected lifetime risk of DSM-IV disorders in Te Rau Hinengaro: The New Zealand Mental Health Survey. *Australian & New Zealand Journal of Psychiatry*. 2006;40(10):865-874.

30. Karg RS, Bose J, Batts K, et al. Past year mental disorders among adults in the United States: Results from the 2008-2012 Mental Health Surveillance Study. In: Substance Abuse and Mental Health Services Administration (SAMHSA); 2014.
31. Steel Z, Marnane C, Iranpour C, et al. The global prevalence of common mental disorders: A systematic review and meta-analysis 1980-2013. *Int J Epidemiol*. 2014;43(2):476-493.
32. Baxter J, Kokaua J, Wells JE, McGee MA, Oakley Browne MA. Ethnic comparisons of the 12 month prevalence of mental disorders and treatment contact in Te Rau Hinengaro: The New Zealand Mental Health Survey. *Australian & New Zealand Journal of Psychiatry*. 2006;40(10):905-913.
33. Department of Health and Ageing. National Mental Health Report 2013: tracking progress of mental health reform in Australia 1993 – 2011. In. Canberra: Commonwealth of Australia; 2013.
34. Australian Bureau of Statistics. National health survey: First results. Australia 2017-18. 4364.0.55.001. In. Canberra, ACT: Commonwealth of Australia; 2018.
35. World Health Organization. *ICD-10: International statistical classification of diseases and related health problems. 10th revision*. 2nd ed. Geneva: World Health Organization; 2004.
36. Australian Bureau of Statistics. National survey of mental health and wellbeing: summary of results. In. Canberra: Commonwealth of Australia; 2007.
37. Whiteford HA, Degenhardt L, Rehm J, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet*. 2013;382(9904):1575-1586.
38. Vigo D, Thronicroft G, Atun R. Estimating the true global burden of mental illness. *Lancet Psychiatry*. 2016;3(2):171-178.

39. Institute for Health Metrics and Evaluation. Findings from the Global Burden of Disease Study 2017. In. Seattle, WA: IHME; 2018.
40. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL. *Global burden of disease and risk factors. Disease Control Priorities Project*. Washington, DC, and New York, NY: The World Bank and Oxford University Press; 2006.
41. Royal Australian and New Zealand College of Psychiatrists. The economic cost of serious mental illness and comorbidities in Australia and New Zealand. In. Melbourne, Vic: Royal Australian and New Zealand College of Psychiatrists; 2016.
42. Medibank and Nous Group. The case for mental health reform in Australia: A review of expenditure and system design. In. Australia: Medibank Private Limited and Nous Group; 2013.
43. Beyondblue and the Australian Government National Mental Health Commission. Mentally Health Workplace Alliance. Creating a mentally healthy workplace: Return on investment analysis. In. Australia: Pricewaterhouse Coopers (PwC); 2014.
44. Firth J, Siddiqi N, Koyanagi A, et al. The Lancet Psychiatry Commission: a blueprint for protecting physical health in people with mental illness. *Lancet Psychiatry*. 2019;6(8):675-712.
45. Clarke DM, Currie KC. Depression, anxiety and their relationship with chronic diseases: A review of the epidemiology, risk and treatment evidence. *Medical Journal of Australia*. 2009;190:S54-S60.
46. Disability Rights Commission. Equal treatment: Closing the gap. A formal investigation into physical health inequalities experienced by people with learning

- disabilities and/or mental health problems. In. London: Disability Rights Commission; 2006.
47. Laursen TM, Wahlbeck K, Hallgren J, et al. Life expectancy and death by diseases of the circulatory system in patients with bipolar disorder or schizophrenia in the Nordic countries. *PloS one*. 2013;8(6):e67133.
 48. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. *The British journal of psychiatry : the journal of mental science*. 2010;196(2):116-121.
 49. Saha S, Chant D, McGrath J. A systematic review of mortality in schizophrenia: is the differential mortality gap worsening over time? *Arch Gen Psychiatry*. 2007;64(10):1123-1131.
 50. Wahlbeck K, Westman J, Nordentoft M, Gissler M, Laursen TM. Outcomes of Nordic mental health systems: life expectancy of patients with mental disorders. *The British journal of psychiatry : the journal of mental science*. 2011;199(6):453-458.
 51. Chang CK, Hayes RD, Perera G, et al. Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. *PloS one*. 2011;6(5):e19590.
 52. Erlangsen A, Anderson PK, Toender A, Laursen TM, Nordentoft M, Canudas-Romo V. Cause-specific life-years lost in people with mental disorders: A nationwide, register-based cohort study. *Lancet Psychiatry*. 2017;4:937-945.
 53. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA psychiatry*. 2015;72:334-341.

54. Callaghan RC, Veldhuizen S, Jeysingh T, et al. Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *J Psychiatr Res.* 2014;48(1):102-110.
55. Osborn DPJ, Levy G, Nazareth I, Peterson I, Islam A, King MB. Relative risk of cardiovascular and cancer mortality in people with severe mental illness from the United Kingdom's General Practice Research Database. *Arch Gen Psychiatry.* 2007;64:242-249.
56. Harris B, Duggan M, Batterham P, et al. Australia's mental and physical health tracker: Background paper. Australian Health Policy Collaboration issues paper no. 2018-02. In. Melbourne: Australian Health Policy Collaboration; 2018.
57. Lawrence D, Hancock K, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *Bmj.* 2013;346:f2539.
58. Lawrence D, Kisely S, Pais J. The epidemiology of excess mortality in people with mental illness. *Canadian Journal of Psychiatry.* 2010;55(12):752-760.
59. Newcomer JW. Second-generation (atypical) antipsychotics and metabolic effects: a comprehensive literature review. *CNS drugs.* 2005;19 Suppl 1:1-93.
60. Daumit GL, Goff DC, Meyer JM, et al. Antipsychotic effects on estimated 10-year coronary heart disease risk in the CATIE schizophrenia study. *Schizophrenia research.* 2008;105(1-3):175-187.
61. Darba J, Kaskens L, Aranda P, et al. A simulation model to estimate 10-year risk of coronary heart disease events in patients with schizophrenia spectrum disorders treated with second-generation antipsychotic drugs. *Annals of clinical psychiatry : official journal of the American Academy of Clinical Psychiatrists.* 2013;25(1):17-26.

62. De Hert M, van Winkel R, Van Eyck D, et al. Prevalence of diabetes, metabolic syndrome and metabolic abnormalities in schizophrenia over the course of the illness: a cross-sectional study. *Clin Pract Epidemiol Ment Health*. 2006;2:14.
63. Newcomer JW, Haupt DW. The metabolic effects of antipsychotic medications. *Canadian Journal of Psychiatry*. 2006;51(8):480-491.
64. Lawrence D, Kisely S. Inequalities in healthcare provision for people with severe mental illness. *Journal of psychopharmacology*. 2010;24(4 Suppl):61-68.
65. Cunningham C, Peters K, Mannix J. Physical health inequities in people with severe mental illness: identifying initiatives for practice change. *Issues in mental health nursing*. 2013;34(12):855-862.
66. de Hert M, Correll CU, Bobes J, et al. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry*. 2011;10(1):52-77.
67. Naylor C, Parsonage M, McDaid D, Knapp M, Fossey M, Galea A. Long-term conditions and mental health: The cost of co-morbidities. In. London: The Kings Fund; 2014.
68. Frayne SM, Halanych JH, Miller DR, et al. Disparities in diabetes care: Impact of mental illness. *Archives of Internal Medicine*. 2005;165(22):2631-2638.
69. Illness RM. Lethal discrimination: Why people with mental illness are dying needlessly and what needs to change. In. London: Rethink Mental Illness; 2013.
70. Mauer B. *Morbidity and mortality in people with serious mental illness*. Alexandria: VA; USA: National Association of State Mental Health Program Directors (NASMHPD) Medical Directors Council;2006.

71. Collins E, Tranter S, Irvine F. The physical health of the seriously mentally ill: an overview of the literature. *Journal of psychiatric and mental health nursing*. 2012;19(7):638-646.
72. World Health Organization. WHO report on the global tobacco epidemic, 2017: Monitoring tobacco use and prevention policies. In. Geneva: WHO; 2017.
73. World Health Organization. Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. In. Geneva: WHO; 2003.
74. World Health Organization. Global recommendations on physical activity for health. In. Geneva: WHO; 2011.
75. World Health Organization. Global status report on alcohol and health 2018. In: 3.0 IGO LCB-N-S, ed. Geneva: World Health Organization; 2018.
76. Ministerial Council on Drug Strategy. National drug strategy 2010-2015. In. Perth: Commonwealth of Australia; 2011.
77. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. In: Canberra: Commonwealth of Australia; 2009.
78. National Health and Medical Research Council. Eat for health: Australian dietary guidelines summary. In: Canberra: Australian Government; 2013.
79. Department of Health. Make your move-sit less be active for life! In. Canberra: Commonwealth of Australia; 2014.
80. Bartlem K, Bowman J, Bailey J, et al. Chronic disease health risk behaviours amongst people with a mental illness. *Australian and New Zealand Journal of Psychiatry*. 2015;49(8):731-741.

81. Cook JA, Razzano LA, Swarbrick MA, et al. Health risks and changes in self-efficacy following community health screening of adults with serious mental illnesses. *PloS one*. 2015;10(4):1-15.
82. Prochaska JJ, Fromont SC, Delucchi K, et al. Multiple risk-behavior profiles of smokers with serious mental illness and motivation for change. *Health Psychology*. 2014;33(12):1518-1529.
83. Ussher M, Doshi R, Sampuran A, West R. Cardiovascular risk factors in patients with schizophrenia receiving continuous medical care. *Community mental health journal*. 2011;47:688-693.
84. Taylor G, McNeill A, Girling A, Farley A, Lindson-Hawley N, Aveyard P. Change in mental health after smoking cessation: systematic review and meta-analysis. *Bmj*. 2014;348:g1151.
85. Pederson BK, Saltin B. Exercise as medicine - evidence for prescribing exercise as therapy in 26 different chronic diseases. *Scand J Med Sci Sports*. 2015;25:1-72.
86. Jayakody K, Gunadasa S, Hosker C. Exercise for anxiety disorders: Systematic review. *Br J Sports Med*. 2014;48:187-196.
87. S. R, Tiedemann A, Stanton R, Parker A, Curtis J, Ward PB. Implementing evidence-based physical activity interventions for people with mental illness: An Australian perspective. *Australasian Psychiatry*. 2016;24(1):49-54.
88. Schuch FB, Vancampfort D, Firth J, et al. Physical activity and incident depression: A meta-analysis of prospective cohort studies. *AJP in Advance*. 2018.
89. Lawrence D, Mitrou F, Zubrick S. Smoking and mental illness: results from population surveys in Australia and the United States. *BMC public health*. 2009;9:285.

90. Morris C, Giese A, Turnbull J, Dickinson M, Johnson-Nagel N. Predictors of tobacco use among persons with mental illnesses in a statewide population. *Psychiatric Services*. 2006;57:7-10.
91. Smith S, Yeomans D, Bushe C, et al. A well-being programme in severe mental illness. Baseline findings in a UK cohort. *International journal of clinical practice*. 2007;61(12):1971-1978.
92. McClave AK, McKnight-Eily LR, Davis SP, Dube SR. Smoking characteristics of adults with selected lifetime mental illnesses: Results from the 2007 National Health Interview Survey. *American journal of public health*. 2010;100(12):2464-2472.
93. Office for National Statistics. *Integrated Household Survey, January to December 2013: Experimental Statistics*. United Kingdom 2014.
94. Szatkowski L, McNeill A. Diverging trends in smoking behaviours according to mental health status. *Nicotine & Tobacco Research*. 2015;17(3):356-360.
95. Cook BL, Wayne GF, Kafali EN, Liu Z, Shu C, Flores M. Trends in smoking among adults with mental illness and association between mental health treatment and smoking cessation. *JAMA*. 2014;311(2):172-182.
96. Lawrence D, Williams JM. Trends in smoking rates by level of psychological distress-time series analysis of US National Health Interview Survey Data 1997-2014. *Nicotine & Tobacco Research*. 2016;18(6):1463-1470.
97. Jamal A, Phillips E, Gentzke AS, et al. Current Cigarette Smoking Among Adults — United States, 2016. *Morbidity and Mortality Weekly Report*. 2018;67:53-59.
98. Statistics Team ND. Statistics on smoking: England: 2017. In: Digital N, ed. Government Statistical Service: Health and Social Care Information Centre; 2017.

99. Dickerson FB, Yu A, Dalcin A, et al. Cigarette smoking and health characteristics in individuals with serious mental illness enrolled in a behavioral weight loss trial. *J Dual Diagn.* 2013;9(1):39-46.
100. de Leon J, Diaz FJ. A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. *Schizophrenia research.* 2005;76(2-3):135-157.
101. Lineberry TW, Allen JD, Nash J, Galardy CW. Population-based prevalence of smoking in psychiatric inpatients: a focus on acute suicide risk and major diagnostic groups. *Comprehensive psychiatry.* 2009;50(6):526-532.
102. Parker C, McNeill A, Ratschen E. Tailored tobacco dependence support for mental health patients: A model for inpatient and community services. *Addiction.* 2012;107(Suppl 2):18-25.
103. Prochaska J, Gill P, Hall S. Treatment of tobacco use in an inpatient psychiatric setting. *Psychiatric Services.* 2004;55(11):1265-1270.
104. Du Plooy JL, Macharia M, Verster C. Cigarette smoking, nicotine dependence, and motivation to quit smoking in South African male psychiatric inpatients. *BMC psychiatry.* 2016;16(1):403.
105. Ringen PA, Faerden A, Antonsen B, et al. Cardiometabolic risk factors, physical activity and psychiatric status in patients in long-term psychiatric inpatient departments. *Nord J Psychiatry.* 2018;72(4):296-302.
106. Lasser K, Boyd JW, Woolhandler S, Himmelstein DU, McCormick D, Bor DH. Smoking and Mental Illness. *Jama.* 2000;284(20):2606.
107. Bowden JA, Miller CL, Hiller JE. Smoking and mental illness: a population study in South Australia. *The Australian and New Zealand journal of psychiatry.* 2011;45(4):325-331.

108. Grant BF, Hasin DS, Chou S, Stinson FS, Dawson DA. Nicotine dependence and psychiatric disorders in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Arch Gen Psychiatry*. 2004;61(11):1107-1115.
109. McManus S, Meltzer H, Campion J. *Cigarette smoking and mental health in England: Data from the Adult Psychiatric Morbidity Survey 2007*. London: National Centre for Social Research 2010.
110. Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2016: Detailed findings. Drug statistics series no 31. Cat. no. PHE 214. In. Canberra: AIHW; 2017.
111. Cooper J, Mancuso SG, Borland R, Slade T, Galletly C, Castle D. Tobacco smoking among people living with a psychotic illness: the second Australian Survey of Psychosis. *The Australian and New Zealand journal of psychiatry*. 2012;46(9):851-863.
112. Hahn LA, Galletly CA, Foley DL, et al. Inadequate fruit and vegetable intake in people with psychosis. *The Australian and New Zealand journal of psychiatry*. 2014;48(11):1025-1035.
113. Moeller-Saxone K. Cigarette smoking and interest in quitting among consumers at a Psychiatric Disability Rehabilitation and Support Service in Victoria. *Australian and New Zealand journal of public health*. 2008;32(5):479-481.
114. Morgan VA, McGrath JJ, Jablensky A, et al. Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychological medicine*. 2014;44:2163-2176.
115. Stockings E, Bowman J, McElwaine K, et al. Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine & tobacco research*

- : *official journal of the Society for Research on Nicotine and Tobacco*. 2013;15(5):942-949.
116. Australian Institute of Health and Welfare. Australia's health 2018. Australia's health series no. 16. AUS 221. In. Canberra: AIHW; 2018.
 117. Happell B, Scott D, Hoey W, Stanton R. Self-reported health, health behaviors, attitudes, and beliefs of regional mental health consumers. *Perspectives in Psychiatric Care*. 2014;50(3):193-200.
 118. Metse AP, Wiggers J, Wye P, et al. Efficacy of a universal smoking cessation intervention initiated in inpatient psychiatry and continued post-discharge: A randomised controlled trial. *Australian and New Zealand Journal of Psychiatry*. 2017;51(4):366-381.
 119. Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *General hospital psychiatry*. 2009;31(6):555-563.
 120. Kilian R, Becker T, Kruger K, Schmid S, Frasch K. Health behavior in psychiatric in-patients compared with a German general population sample. *Acta psychiatrica Scandinavica*. 2006;114(4):242-248.
 121. Simonelli-Munoz A, Fortea M, Salorio P, Gallego-Gomez J, Sanchez-Bautista S, Balanza S. Dietary habits of patients with schizophrenia: a self-reported questionnaire survey. *International journal of mental health nursing*. 2012;21(3):220-228.
 122. Dipasquale S, Pariente CM, Dazzan P, Aguglia E, McGuire P, Mondelli V. The dietary pattern of patients with schizophrenia: A systematic review. *Journal of Psychiatric Research*. 2013;47(2):197-207.

123. The Ministry of Health and Care Services. Norwegian national action plan for a healthier diet (2017-2021). In. Oslo: The Ministry of Health and Care Services;; 2017.
124. Australian Bureau of Statistics. National health survey first results: Australia 2014-2015. In. Canberra: Commonwealth of Australia; 2015.
125. McElwaine K, Freund M, Campbell E, et al. The delivery of preventive care to clients of community health services. *BMC health services research*. 2013;13:167.
126. Janney CA, Fagiolini A, Swartz HA, Jakicic JM, Holleman RG, Richardson CR. Are adults with bipolar disorder active? Objectively measured physical activity and sedentary behavior using accelerometry. *J Affect Disord*. 2014;152-154:498-504.
127. Snethen GA, McCormick BP, Lysaker PH. Physical activity and psychiatric symptoms in adults with schizophrenia spectrum disorders. *The Journal of nervous and mental disease*. 2014;202(12):845-852.
128. Craig C, Marshall A, Sjostrom M, et al. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc*. 2003;35(8):1381-1395.
129. World Health Organization. *Mental health atlas 2014*. Geneva: World Health Organization; 2015.
130. World Health Organisation. Mental health action plan 2013-2020. In. Geneva: WHO Press; 2013.
131. Royal Australian College of General Practitioners. General practice: Health of the nation 2018. In. East Melbourne, Vic: RACGP; 2018.

132. Mental Health Taskforce. The five year forward view for mental health: Mental health taskforce strategy. In. Leeds: National Health Service; 2016.
133. Blader JC. Acute inpatient care for psychiatric disorders in the United States, 1996 through 2007. *Arch Gen Psychiatry*. 2011;68(12):1276-1283.
134. Australian Institute of Health and Welfare. Mental health services-in brief 2017. Cat. no, HSE 192. In. Canberra: AIHW; 2017.
135. Mental Health Coordinating Council. A scoping report of NSW Division of General Practice: Their activities and networks with Community Managed Organisations. In. Lilyfield: Mental Health Coordinating Council; 2011.
136. World Health Organization. Optimal mix of services for mental health. In. Geneva: World Health Organization; 2007.
137. Parliament of Australia. National Disability Insurance Scheme. In: Families H, Community Services and Indigenous Affairs, ed. 20. Canberra: Parliament of Australia; 2013.
138. Independent Advisory Council. IAC advice on implementing the NDIS for people with mental health issues. In: Services ADoH, ed2014.
139. COAG Disability Reform Council. National Disability Insurance Scheme quarterly actuarial report. In: Services ADoH, ed2016.
140. Australian Institute of Health and Welfare. Mental health services in brief 2018. Cat. no. HSE 211. In. Canberra, ACT: AIHW; 2018.
141. Britt H, Miller GC, Henderson J, et al. General practice activity in Australia 2015-2016. General practice series no. 40. In. Sydney: Sydney University Press; 2016.
142. NSW Mental Health Commission. Living Well: A strategic plan for mental health in NSW. In. Sydney: NSW Mental Health Commission; 2014.

143. Royal Australian College of General Practitioners. Smoking, nutrition, alcohol, physical activity (SNAP): A population health guide to behavioural risk factors in general practice. In: Melbourne: Royal Australian College of General Practitioners; 2004.
144. National Preventive Health Taskforce. Australia: The healthiest country by 2020 - National Preventative Health Strategy - the roadmap for action. In. Canberra, Australia 2010.
145. Agency for Healthcare Research and Quality. Guide to Clinical Preventive Services 2010-2011. In: AHRQ Publication No. 10-05145, Rockville, MD.; 2010.
146. National Institute for Health and Care Excellence. Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care (Updated edition) Clinical guideline 82. In: The British Psychological Society & The Royal College of Psychiatrists; 2010.
147. NSW Department of Health. Physical health care within mental health services. In. Sydney, NSW: Department of Health; 2017.
148. World Health Organization. mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings. In. Geneva: WHO; 2016.
149. Ministry of Health. New Zealand Smoking Cessation Guidelines. In. Wellington: Ministry of Health; 2014.
150. United States Preventive Services Task Force. The guide to clinical preventive services 2014: Recommendations of the U.S. Preventive Services Task Force. Report No.: 14-05158. In. Rockville, MD: Agency for Healthcare Research and Quality; 2014.

151. Moyer VA. Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: U.S. preventive services task force recommendation statement. *Ann Intern Med.* 2013;159(3):210-218.
152. National Institute for Health and Care Excellence. Physical activity: Encouraging activity in all people in contact with the NHS. NICE quality standard 84. In: National Institute for Health and Care Excellence; 2015.
153. National Institute for Health and Care Excellence. Preventing type 2 diabetes: Risk identification and interventions for individuals at high risk. NICE public health guidance 38. In: National Institute for Health and Care Excellence; 2012.
154. De Hert M, Vancampfort D, Correll CU, et al. Guidelines for screening and monitoring of cardiometabolic risk in schizophrenia: Systematic evaluation. *British Journal of Psychiatry.* 2011;199:99-105.
155. The Lewin Group Inc. Approaches to integrating physical health services into behavioral health organisations: A guide to resources, promising practices, and tools. In: The Lewin Group Inc. Institute for Healthcare Improvement; 2012.
156. Fiore MC, Jaen CR, Baker TB, et al. Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guidelines. In. Rockville, MD: US Department of Health and Human Services. Public Health Service; 2008.
157. Royal College of Physicians, Royal College of Psychiatrists. Smoking and mental health. Royal College of Psychiatrists Council Report CR178. In: London: Royal College of Physicians; 2013.
158. Scottish Government. Mental health strategy: 2017-2027. In. Edinburgh: Scottish Government; 2017.

159. Scottish Government. Mental health in Scotland: Improving the physical health and well being of those experiencing mental illness. In. Edinburgh: The Scottish Government; 2008.
160. Welsh Assembly Government. The role of community mental health teams in delivering community mental health services: Interim policy implementation guidance and standards. In. Cardiff: Welsh Assembly Government; 2010.
161. Royal College of Psychiatrists. Improving physical health for people with mental illness: what can be done? In: Psychiatry FoGA, ed. London: Royal College of Psychiatrists; 2013.
162. Royal College of Psychiatrists. Whole-person care: From rhetoric to reality. Achieving parity between mental and physical health. In. London: Royal College of Psychiatrists; 2013.
163. National Institute for Health and Care Excellence. Psychosis and schizophrenia in adults: The NICE guideline on treatment and management. In: Health NCCfM, ed. London: National Institute for Health and Care Excellence; 2014.
164. National Institute for Health and Care Excellence. Bipolar disorder: The assessment and management of bipolar disorder in adults, children and young people in primary and secondary care. In. London: National Institute for Health and Care Excellence; 2014.
165. National Institute for Health and Care Excellence. Smoking cessation in secondary care: Acute, maternity and mental health services. In. Vol public health guidance 48. London: NICE; 2013.
166. Department of Health HM Government. No health without mental health: A cross-government mental health outcomes strategy for people of all ages. In: Health Do, ed. London: HM Government; 2011.

167. Canadian Mental Health Association. Recommendations for preventing and managing co-existing chronic physical conditions and mental illnesses. In. Toronto: Canadian Mental Health Association; 2008.
168. Royal Australian College of General Practitioners. *Guidelines for preventive activities in general practice. 9th edn.* East Melbourne, Vic: RACGP; 2016.
169. Hunter New England Local Health District. Preventive Care Area Policy Statement, HNEH Pol 10_01. In: Hunter New England Health; 2010.
170. Department of Health Victoria. Victorian public health and wellbeing plan 2001-2015. In. Melbourne: Prevention and Population Health Branch, Victorian Government, Department of Health; 2011.
171. Queensland Health. The health of Queenslanders 2008: Prevention of chronic disease. Second report of the chief health officer Queensland. In. Brisbane: Queensland Health; 2008.
172. United States Preventive Services Task Force. Counseling and interventions to prevent tobacco use and tobacco-caused disease in adults and pregnant women: U.S. Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med.* 2009;150(8):551-555.
173. Royal Australian College of General Practitioners. Smoking cessation guidelines for Australian general practice. Practice handbook. In: Ageing DoHa, ed. Canberra: Australian Government; 2014.
174. Royal Australian and New Zealand College of Psychiatrists. Keeping body and mind together. Improving the physical health and life expectancy of people with serious mental illness. In. Melbourne, Vic: RANZCP; 2016.

175. Stanley S, Laugharne J. Clinical guidelines for the physical care of mental health consumers. In: Community CaMHU, School of Psychiatry and Clinical Neuroscience, ed. Perth: The University of Western Australia; 2010.
176. Stanley SH, Laugharne JD. Clinical guidelines for the physical care of mental health consumers: A comprehensive assessment and monitoring package for mental health and primary care clinicians. *Australian & New Zealand Journal of Psychiatry*. 2011;45(824-829).
177. New South Wales Health. Managing nicotine dependence: A guide for NSW Health staff. In. North Sydney: New South Wales Ministry of Health; 2015.
178. Stanley SH, Laugharne J. Clinical guidelines for the physical care of mental health consumers: Multi-site service evaluation project 2013. In: Neurosciences SoPaC, ed. Crawley: University of Western Australia; 2013.
179. NSW Department of Health. Physical health care of mental health consumers. In: Sydney: NSW Department of Health
2017.
180. Department for Health and Ageing. Mental health services pathways to care policy directive. In. Adelaide: Government of South Australia; 2014.
181. Department of Health NSW. Delivery of preventive care in NSW community mental health services. Policy Directive PD2009_027. In:2009.
182. Hensrud D. Clinical preventive medicine in primary care: background and practice: 1. Rationale and current preventive practices. *Mayo Clin Proc*. 2000;75(2):165-172.
183. Woolf S, Krist A, Rothenich S. Joining hands: partnerships between physicians and the community in the delivery of preventive care. In. Washington DC: Center for American Progress; 2006.

184. Hulscher M, Wensing M, van der Weijden T, Grol R. Interventions to implement prevention in primary care. *Cochrane Database of Systematic Reviews*. 1997;1:CD000362.
185. Harris M. *The role of primary health care in preventing the onset of chronic disease, with a particular focus on the lifestyle risk factors of obesity, tobacco and alcohol*. Centre for Primary Health Care and Equity, UNSW.: Commissioned Paper for National Preventive Health Taskforce; 2008.
186. Glasgow RE, Goldstein MG, Ockene JK, Pronk NP. Translating what we have learned into practice. Principles and hypotheses for interventions addressing multiple behaviors in primary care. *American journal of preventive medicine*. 2004;27(2 Suppl):88-101.
187. Coups EJ, Gaba A, Ockene J, Pronk N. Physician screening for multiple behavioral health risk factors. *American journal of preventive medicine*. 2004;27(2S):34-41.
188. Whitlock EP, Orleans CT, Pender N, Allan J. Evaluating primary care behavioral counseling interventions: an evidence-based approach. *American journal of preventive medicine*. 2002;22(4):267-284.
189. Krist A, Woolf S, Frazier C, et al. An electronic linkage system for health behavior counseling: Effect on delivery of the 5A's. *American journal of preventive medicine*. 2008;35(5S):S350-358.
190. Carroll JK, Fiscella K, Epstein RM, Sanders MR, Williams GC. A 5A's communication intervention to promote physical activity in underserved populations. *BioMed Central Health Services Research*. 2012;12(374).

191. Bentz CJ, Bayley KB, Bonin KE, et al. Provider feedback to improve 5A's tobacco cessation in primary care: A cluster randomized clinical trial. *Nicotine & Tobacco Research*. 2007;9(3):341-349.
192. Ockene JK, Ockene IS, Quirk ME, et al. Physician training for patient-centered nutrition counseling in a lipid intervention trial. *Preventive medicine*. 1995;24(6):563-570.
193. Ockene JK, Wheeler EV, adams AS, Hurley TG, Herbert J. Provider training for patient-centered alcohol counseling in a primary care setting. *Archives of Internal Medicine*. 1997;157(20):2334-2341.
194. Carroll JK, Flocke SA, Sanders MR, Lowenstien L, Fiscella K, Epstein RM. Effectiveness of a clinician intervention to improve physical activity discussions in underserved adults. *Family practice*. 2016;33(5):488-491.
195. Whitlock EP, Orleans CT, Pender N, Allan J. Evaluating primary care behavioral counseling interventions: An evidence-based approach. *American journal of preventive medicine*. 2002;22(4):267-284.
196. Goldstein MG, Whitlock EP, DePue J. Multiple behavioral risk factor interventions in primary care. Summary of research evidence. *American journal of preventive medicine*. 2004;27(2S):61-79.
197. Dixon L, Medoff D, Goldberg R, et al. Is implementation of the 5 A's of smoking cessation at community mental health centers effective for reduction of smoking by patients with serious mental health illness? *The American Journal on Addictions*. 2009;18(5):386-392.

198. DiClemente CC, Delahanty JC, Kofeldt MG, Dixon L, Goldberg R, Luckstead A. Stage movement following a 5A's intervention in tobacco dependent individuals with serious mental illness (SMI). *Addictive behaviors*. 2011;36:261-264.
199. Sharma R, Meurk C, Bell S, Ford P, Gartner C. Australian mental health care practitioners' practices and attitudes for encouraging smoking cessation and tobacco harm reduction in smokers with severe mental illness. *International journal of mental health nursing*. 2018;27:247-257.
200. Wye P, Bowman J, Wiggers J, Freund M, Wolfenden L, Stockings E. Treating nicotine dependence in Australian mental health hospitals. *Mental Health and Substance Use Journal*. 2011;2(130).
201. Bartlem K, Bowman J, Freund M, et al. Acceptability and receipt of preventive care for chronic-disease health risk behaviours reported by clients of community mental health services. *Psychiatric Services*. 2015;66(8):857-864.
202. Bartlem K, Bowman J, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American journal of preventive medicine*. 2014;47(6):762-770.
203. Etter M, Etter JF. Acceptability and impact of a partial smoking ban in a psychiatric hospital. *Preventive medicine*. 2007;44(1):64-69.
204. Prochaska JJ, Fletcher L, Hall SE, Hall SM. Return to smoking following a smoke-free psychiatric hospitalization. *American Journal on Addictions*. 2006;15(1):15-22.
205. Stockings EA, Bowman JA, Bartlem KM, et al. Implementation of a smoke-free policy in an inpatient psychiatric facility: Patient-reported adherence, support, and receipt of nicotine-dependence treatment. *International journal of mental health nursing*. 2015;24(4):342-349.

206. Howard L, Gamble C. Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient care settings. *Journal of Psychiatric & Mental Health Nursing*. 2011;18(2):105-112.
207. Williams JM, Miskimen T, Minsky S, et al. Increasing tobacco dependence treatment through continuing education training for behavioral health professionals. *Psychiatric Services*. 2015;66(1):21-26.
208. Dickens GL, Ion R, Waters C, Atlantis E, Everett B. Mental health nurses' attitudes, experience, and knowledge regarding routine physical healthcare: Systematic, integrative review of studies involving 7,549 nurses working in mental health settings. *BMC nursing*. 2019;18(16).
209. Robson D, Haddad M. Mental health nurses' attitudes towards the physical health care of people with severe and enduring mental illness: the development of a measurement tool. *International journal of nursing studies*. 2012;49(1):72-83.
210. Stockings EAL, Bowman JA, Baker AL, et al. Impact of a postdischarge smoking cessation intervention for smokers admitted to an inpatient psychiatric facility: A randomized controlled trial. *Nicotine and Tobacco Research*. 2014;16(11):1417-1428.
211. Happell B, Platania-Phung C, Scott D. Are nurses in mental health services providing physical health care for people with serious mental illness? An Australian perspective. *Issues in mental health nursing*. 2013;34(3):198-207.
212. Tso G, Kumar P, Jayasooriya T, Kisely S, Siskind D. Metabolic monitoring and management among clozapine users. *Australasian Psychiatry*. 2017;25(1):48-52.
213. Bartlem K, Bowman J, Freund M, et al. Effectiveness of an intervention in increasing the provision of preventive care by community mental health services:

- A non-randomised, multiple baseline implementation trial. *Implementation Science*. 2016;11(46).
214. Freund M, Campbell E, Paul C, Sakrouge R, Wiggers J. Smoking care provision in smoke-free hospitals in Australia. *Preventive medicine*. 2005;41(1):151-158.
215. Johnson K, Fry C. The attitudes and practices of community managed mental health service staff in addressing physical health: Findings from a targeted online survey. *Advances in Mental Health*. 2013;11(3):163-171.
216. Chwastiak L, Cruza-Guet MC, Carroll-Scott A, Sernyak M, Ickovics J. Preventive counseling for chronic disease: missed opportunities in a community mental health center. *Psychosomatics*. 2013;54(4):328-335.
217. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
218. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community mental health journal*. 2007;43(3):251-266.
219. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.
220. Happell B, Scott D, Platania-Phung C, Nankivell J. Should we or shouldn't we? Mental health nurses' views on physical health care of mental health consumers. *International journal of mental health nursing*. 2012;21(3):202-210.

221. Hyland B, Judd F, Davidson S, Jolley D, Hocking B. Case managers' attitudes to the physical health of their patients. *Australian and New Zealand Journal of Psychiatry*. 2003;37(6):710-714.
222. Ashton M, Lawn S, Hosking JR. Mental health workers' views on addressing tobacco use. *Australian & New Zealand Journal of Psychiatry*. 2010;44(9):846-851.
223. Organ B, Nicholson E, Castle D. Implementing a physical health strategy in a mental health service. *Australasian psychiatry : bulletin of Royal Australian and New Zealand College of Psychiatrists*. 2010;18(5):456-459.
224. Nash M. Physical care skills: a training needs analysis of inpatient and community mental health nurses. *Mental Health Practice*. 2005;9(4):20-23.
225. Dunbar L, Brandt T, Wheeler A, Harrison J. Barriers and solutions to implementing metabolic risk assessment in a secondary mental health service. *Australasian Psychiatry*. 2010;18(4):322-325.
226. Happell B, Scott D, Nankivell J, Platania-Phung C. Screening physical health? Yes! But...: nurses' views on physical health screening in mental health care. *Journal of Clinical Nursing*. 2013;22(15-16):2286-2297.
227. Anderson AE, Bowman JA, Knight J, et al. Smoking cessation care provision and support procedures in Australian community mental health centers. *Psychiatric Services*. 2013;64(7):707-710.
228. Happell B, Platania-Phung C, Scott D. Physical health care for people with mental illness: training needs for nurses. *Nurse education today*. 2013;33:396-401.
229. Happell B, Platania-Phung C, Scott D. What Determines Whether Nurses Provide Physical Health Care to Consumers With Serious Mental Illness? *Archives of psychiatric nursing*. 2014;28(2):87-93.

230. Happell B, Scott D, Platania-Phung C. Perceptions of barriers to physical health care for people with serious mental illness: a review of the international literature. *Issues in mental health nursing*. 2012;33(11):752-761.
231. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of psychiatric and mental health nursing*. 2010;17(4):319-327.
232. Bartlem K, Bowman J, Ross K, et al. Mental health clinician attitudes to the provision of preventive care for chronic disease risk behaviours and association with care provision. *BMC psychiatry*. 2016;16(57):1-9.
233. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community mental health journal*. 2007;43(3):251-266.
234. Ashton M, Lawn S, Hosking J. Mental health workers' views on addressing tobacco use. *Australian and New Zealand Journal of Psychiatry*. 2010;44(9):846-851.
235. Buhagiar K, Parsonage L, Osborn DP. Physical health behaviours and health locus of control in people with schizophrenia-spectrum disorder and bipolar disorder: a cross-sectional comparative study with people with non-psychotic mental illness. *BMC psychiatry*. 2011;11:104.
236. Siru R, Hulse GK, Tait RJ. Assessing motivation to quit smoking in people with mental illness: a review. *Addiction*. 2009;104(5):719-733.
237. Ussher M, Stanbury L, Cheeseman V, Faulkner G. Physical activity preferences and perceived barriers to activity among persons with severe mental illness in the United Kingdom. *Psychiatric Services*. 2007;58(3):405-408.

238. Filia SL, Baker AL, Richmond R, et al. Health behaviour risk factors for coronary heart disease (CHD) in smokers with a psychotic disorder: baseline results. *Mental Health and Substance Use*. 2011;4(2):158-171.
239. Knapp M, McDaid D, Mossialos E, Thronicroft G. *Mental health policy and practice across Europe*. Berkshire: Open University Press; 2007.
240. Office of the Chief Psychiatrist. Communicating with carers and families: Information sharing for better outcomes. Delivering a healthy WA. In: Health Do, ed. Perth: Government of Western Australia; 2007.
241. National Mental Health Commission. The national review of mental health programmes and services. In. Sydney: NMHC; 2014.
242. Steering Committee for the Review of Government Service Provision. *Report on government services 2013*. Canberra: Productivity Commission; 2013.
243. Mental Health Council of Australia. Recognition and respect: Mental health carers report 2012. In. North Sydney: Mental Health Council of Australia; 2012.
244. Kreyenbuhl J, Buchanan RW, Dickerson FB. The Schizophrenia Patient Outcomes Research Team (PORT): Updated treatment recommendations 2009. *Schizophrenia Bulletin*. 2010;36:94-103.
245. Carers Canada. A Canadian carer strategy. In. Mississauga: Ontario: Carers Canada; 2013.
246. Mental Health Commission of Canada. Advancing the Mental Health Strategy for Canada: A framework for action (2017-2022). In. Ottawa: Ontario: Mental Health Commission of Canada; 2016.
247. Rooney P, Worthington A. The triangle of care. Carers included: A guide to best practice in acute mental health care. In. London: National Mental Health Development Unit; 2015.

248. Scottish Government. Caring together: The carers strategy for Scotland 2010-2015. In. Edinburgh: The Scottish Government; 2010.
249. Worthington A, Rooney P, Hannan R, Martin K. The triangle of care. Carers included: A guide to best practice in mental health care in Scotland. In. London: Carers Trust; 2013.
250. Welsh Government. Mental health (Wales) measure 2010: National service model for local primary mental health support services. In. Cardiff: Welsh Government; 2011.
251. Wilson G, Montgomery L, Houston S, Davidson G, Harper C, Faulkner L. Regress? React? Resolve? An evaluation of mental health service provision in Northern Ireland. In: Health AM, ed. Belfast: Queen's University; 2015.
252. Bland R, Foster M. Families and Mental Illness: Contested Perspectives and Implications for Practice and Policy. *Australian Social Work*. 2012;65(4):517-534.
253. Mental Health Services. Consumer and carer participation framework: Partners towards recovery. In. New Town: Tasmanian Department of Health and Human Services; 2006.
254. New South Wales Government. NSW carers strategy 2014-2019. In. Sydney: New South Wales Government; 2014.
255. NSW Department of Health. NSW carers action plan 2007-2012 summary. In: Health NDo, ed. North Sydney: NSW Department of Health; 2007.
256. Galletly C, Castle D, Dark F, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of schizophrenia and related disorders. *Australian & New Zealand Journal of Psychiatry*. 2016;50(5):1-117.

257. Malhi GS, Bassett D, Boyce P, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders. *Australian & New Zealand Journal of Psychiatry*. 2015;49(12):1-185.
258. The Parliament of Australia. Carer recognition act. In. *No. 123*. Canberra: The Parliament of Australia; 2010.
259. Ewertzon M, Andershed B, Svensson E, Lutzen K. Family members' expectation of the psychiatric healthcare professionals' approach towards them. *Journal of psychiatric and mental health nursing*. 2011;18(2):146-157.
260. Harvey C, O'Hanlon B. Family psycho-education for people with schizophrenia and other psychotic disorders and their families. *The Australian and New Zealand journal of psychiatry*. 2013;47(6):516-520.
261. McAuliffe D, Andriske L, Moller E, O'Brien M, Breslin P, Hickey P. "Who cares?" An exploratory study of carer needs in adult mental health. *Australian e-Journal for the Advancement of Mental Health*. 2009;8(1):1-12.
262. World Health Organisation. *User empowerment in mental health: A statement by the WHO regional office for Europe*. Copenhagen: World Health Organisation; 2010.
263. Lawn S, McNaughton D, Fuller L. What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: a qualitative study. *International Journal of Mental Health Promotion*. 2015;17(5):261-277.
264. Lawn S, McMahon J. Experiences of family carers of people diagnosed with borderline personality disorder. *Journal of psychiatric and mental health nursing*. 2015;22(4):234-243.

265. Wood VJ, Curtis SE, Gesler W, et al. Creating 'therapeutic landscapes' for mental health carers in inpatient settings: a dynamic perspective on permeability and inclusivity. *Social science & medicine*. 2013;91:122-129.
266. Gregory NC-A, C.; Macpherson, R.; Ford, S.; Palmer, A. Identifying the needs of carers in mental health services. *Nursing Times*. 2006;102(17):32-35.
267. Aschbrenner KA, Pepin R, Mueser KT, et al. A mixed methods exploration of family involvement in medical care for older adults with serious mental illness. *Int J Psychiatry Med*. 2014;48(2):121-133.
268. Carers Australia, Deloitte Access Economics. The economic value of informal care in Australia in 2015. In. Barton, ACT: Deloitte Access Economics; 2015.
269. Reinhard SC, Feinberg LF, Choula R, Houser A. Valuing the invaluable: 2015 update: Undeniable progress, but big gaps remain. In. Washington DC: AARP Public Policy Institute; 2015.
270. AARP Public Policy Institute NAFc. Executive summary: Caregiving in the U.S. In. Chicago: AARP, NAC; 2015.
271. Collings S. Who cares for people with schizophrenia: Family carers' health, circumstances and adjustment. In. Vol Blue Skies report no. 28/09. Wellington: University of Otago; 2009.
272. Sinha M. Spotlight on Canadians: Results from the General Social Survey. Portrait of caregivers, 2012. In. Vol Cat no. 89-652- No.001. Ottawa: Statistics Canada; 2013.
273. NHS Information Centre Social Care Team. Survey of Carers in Households 2009/2010. In: NHE Information Centre for Health and Social Care; 2010.
274. Buckner L, Yeandle S. Valuing carers 2015: The rising value of carers' support. In. London: Carers UK; 2015.

275. Her Majesty's Treasury. *Public expenditure statistical analyses 2015*. London 2015.
276. Australian Bureau of Statistics. Disability, ageing and carers, Australia: Summary of findings, 2015. In. Canberra: ABS; 2016.
277. Pirkis J, Burgess P, Hardy J, Harris M, Slade T, Johnston A. Who cares? A profile of people who care for relatives with a mental disorder. *Australian and New Zealand Journal of Psychiatry*. 2010;44:929-937.
278. Australian Bureau of Statistics. Survey of disability, ageing and carers. In. Canberra: Commonwealth of Australia; 2012.
279. Diminic S, Hielscher E, Lee Y, Y., et al. The economic value of informal mental health caring in Australia: Technical report. In. Brisbane, Qld: The University of Queensland; 2016.
280. Mairs H, Lovell K, Keeley P. Carer and mental health professional views of a psychosocial treatment for negative symptoms in psychosis: a qualitative study. *International journal of nursing studies*. 2012;49(10):1191-1199.
281. Rimer BK, Glanz K. Theory at a glance: A guide for health promotion practice. In: Washington DC: National Cancer Institute; 2005.
282. Gorin AA, Powers TA, Koestner R, Wing RR, Raynor HA. Autonomy support, self-regulation, and weight loss. *Health Psychology*. 2014;33(4):332-339.
283. Wing RR, Jeffery RW. Benefits of recruiting participants with friends and increasing social support for weight loss and maintenance. *Journal of Consulting and Clinical Psychology*. 1999;67(1):132-138.
284. Aschbrenner KA, Mueser KT, Naslund JA, et al. Facilitating partner support for lifestyle change among adults with serious mental illness: A feasibility pilot study. *Community mental health journal*. 2017;53:394-404.

285. Aschbrenner KA, Mueser KT, Naslund JA, et al. Feasibility study of increasing social support to enhance a healthy lifestyle intervention for individuals with serious mental illness. *Journal of the Society for Social Work and Research*. 2016;7(2):289-313.
286. Aschbrenner K, Carpenter-Song E, Mueser K, Kinney A, Pratt S, Bartels S. A qualitative study of social facilitators and barriers to health behavior change among persons with serious mental illness. *Community mental health journal*. 2013;49(2):207-212.
287. Aschbrenner KA, Ferron JC, Muser KT, Bartels SJ, Brunette MF. Social predictors of cessation treatment use among smokers with serious mental illness. *Addictive behaviors*. 2015;41:169-174.
288. Aschbrenner KA, Bartels S, Mueser K, Carpenter-Song E, Kinney A. Consumer perspectives on involving family and significant others in a healthy lifestyle intervention. *Health Soc Work*. 2012;37(4):207-215.
289. Cobb LK, McAdams-DeMarco MA, Huxley RR, et al. The association of spousal smoking status with the ability to quit smoking: the Atherosclerosis Risk in Communities Study. *American journal of epidemiology*. 2014;179(10):1182-1187.
290. Gorin AA, Raynor HA, Fava J, et al. Randomized controlled trial of a comprehensive home environment-focused weight-loss program for adults. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*. 2013;32(2):128-137.
291. Jackson SE, Steptoe A, Wardle J. The influence of partner's behavior on health behavior change: the English Longitudinal Study of Ageing. *JAMA Intern Med*. 2015;175(3):385-392.

292. Medbo A, Melbye H, Rudebeck CE. "I did not intend to stop. I just could not stand cigarettes any more." A qualitative interview study of smoking cessation among the elderly. *BMC family practice*. 2011;12:42.
293. Verheijden MW, Bakx JC, van Weel C, Koelen MA, van Staveren WA. Role of social support in lifestyle-focused weight management interventions. *Eur J Clin Nutr*. 2005;59 Suppl 1:S179-186.
294. Latkin CA, Knowlton AR. Social network assessments and interventions for health behavior change: A critical review. *Behavioral Medicine*. 2015;41(3):90-97.
295. Andersen JS, Owen DC. Helping relationships for smoking cessation: grounded theory development of the process of finding help to quit. *Nurs Res*. 2014;63(4):252-259.
296. Creswell KG, Cheng Y, Levine MD. A test of the stress-buffering model of social support in smoking cessation: is the relationship between social support and time to relapse mediated by reduced withdrawal symptoms? *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2015;17(5):566-571.
297. Falba TA, Sindelar JL. Spousal concordance in health behavior change. *Health Serv Res*. 2008;43(1 Pt 1):96-116.
298. Rohrbaugh MJ, Shoham V, Butler EA, Hasler BP, Berman JS. Affective synchrony in dual- and single-smoker couples: further evidence of "symptom-system fit"? *Family process*. 2009;48(1):55-67.
299. Margolis R, Wright L. Better Off Alone Than With a Smoker: The Influence of Partner's Smoking Behavior in Later Life. *The journals of gerontology Series B, Psychological sciences and social sciences*. 2016;71(4):687-697.

300. vanDellen MR, Boyd SM, Ranby KW, MacKillop J, Lipkus IM. Willingness to provide support for a quit attempt: A study of partners of smokers. *Journal of health psychology*. 2016;21(9):1840-1849.
301. May S, West R. Do social support interventions (“buddy systems”) aid smoking cessation? A review. *Tobacco Control*. 2000;9(4):415.
302. El-Mallakh P, Yates BE, Adkins S. Family caregiving for adults with schizophrenia and diabetes mellitus. *Issues in mental health nursing*. 2013;34(8):566-577.
303. Mavundla TR, Toth F, Mphelane ML. Caregiver experience in mental illness: a perspective from a rural community in South Africa. *International journal of mental health nursing*. 2009;18(5):357-367.
304. Fjellström C, Starkenberg Å, Wesslén A, Licentiate MS, Tysén Bäckström A-C, Faxén-Irving G. To Be a Good Food Provider: An Exploratory Study Among Spouses of Persons With Alzheimer’s Disease. *American Journal of Alzheimer's Disease & Other Dementias®*. 2010;25(6):521-526.
305. Malthouse R, Fox F. Exploring experiences of physical activity among people with Alzheimer's disease and their spouse carers: a qualitative study. *Physiotherapy*. 2014;100(2):169-175.
306. O'Connell ME, Dal Bello-Haas V, Crossley M, Morgan DG. Attitudes toward physical activity and exercise: comparison of memory clinic patients and their caregivers and prediction of activity levels. *Journal of aging and physical activity*. 2015;23(1):112-119.
307. Rullier L, Lagarde A, Bouisson J, Bergua V, Torres M, Barberger-Gateau P. Psychosocial correlates of nutritional status of family caregivers of persons with dementia. *Int Psychogeriatr*. 2014;26(1):105-113.

308. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
309. Sarna L, Bialous SA, Wells MJ, Kotlerman J. Smoking among psychiatric nurses: does it hinder tobacco dependence treatment? *Journal of the American Psychiatric Nurses Association*. 2009;15(1):59-67.
310. Steiner JL, Weinberger AH, O'Malley SS. A survey of staff attitudes about smoking cessation. *Psychiatric services (Washington, DC)*. 2009;60(5):707-708.
311. Happell B, Wilson K, Platania-Phung C, Stanton R. Physical health and mental illness: Listening to the voice of carers. *Journal of Mental Health*. 2016.
312. Missen RL, Brannelly T, Newton-Howes G. Qualitative exploration of family perspectives of smoke-free mental health and addiction services. *International journal of mental health nursing*. 2013;22(4):294-303.
313. Aschbrenner KA, Dixon LB, Naslund JA, et al. An online survey of family members' beliefs and attitudes about smoking and mental illness. *J Dual Diagn*. 2017;13(3):179-183.
314. Mental Illness Fellowship of Australia Inc. *The physical health of people living with a mental illness- literature review, programs overview and recommendations*. Marlestone: MIFA;2011.
315. Cree L, Brooks HL, Berzins K, Fraser C, Lovell K, Bee P. Carers' experiences of involvement in care planning: a qualitative exploration of the facilitators and barriers to engagement with mental health services. *BMC psychiatry*. 2015;15(1):208.

316. Lloyd C, King R. Consumer and Carer Participation in Mental Health Services. *Australasian Psychiatry*. 2003;11(2):180-184.
317. Wilkinson C, McAndrew S. 'I'm not an outsider, I'm his mother!' A phenomenological enquiry into carer experiences of exclusion from acute psychiatric settings. *International journal of mental health nursing*. 2008;17(6):392-401.
318. Rowe J. Great expectations: a systematic review of the literature on the role of family carers in severe mental illness, and their relationships and engagement with professionals. *Journal of psychiatric and mental health nursing*. 2012;19(1):70-82.
319. Rigotti NA, Clair C, Munafo MR, Stead LF. Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev*. 2012(5):CD001837.
320. Prochaska JJ, Hall SE, Delucchi K, Hall SM. Efficacy of Initiating Tobacco Dependence Treatment in Inpatient Psychiatry: A Randomized Controlled Trial. *American journal of public health*. 2014;104(8):1557-1565.
321. Bartlem K, Bowman J, Freund M, et al. Acceptability and Receipt of Preventive Care for Chronic-Disease Health Risk Behaviors Reported by Clients of Community Mental Health Services. *Psychiatric Services*. 2015;66(8):857-864.
322. Bartlem KM, Bowman JA, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American journal of preventive medicine*. 2014;47(6):762-770.

**DO MENTAL HEALTH CONSUMERS WANT TO
IMPROVE THEIR LONG-TERM DISEASE RISK
BEHAVIOURS? A SURVEY OF OVER 2000
PSYCHIATRIC INPATIENTS**

CHAPTER 2

DO MENTAL HEALTH CONSUMERS WANT TO IMPROVE THEIR LONG-TERM DISEASE RISK BEHAVIOURS? A SURVEY OF OVER 2000 PSYCHIATRIC INPATIENTS

Chapter 2 is a published paper:

Bartlem, K., Bailey, J., Metse, A., Asara, A., Wye, P., Clancy, R., Wiggers, J., & Bowman, J. (2017). Do mental health consumers want to improve their long-term disease risk behaviours? A survey of over 2000 psychiatric inpatients. *International Journal of Mental Health Nursing*, 27(3): 1032-1043. doi: 10.1111/inm.12411

Abstract

Policies and clinical guidelines acknowledge the role mental health services have in addressing the physical health of individuals with a mental illness; however, little research has explored interest in reducing health risk behaviours or the acceptability of receiving support to reduce such risks among psychiatric inpatients. This study estimated the prevalence of four long-term disease risk behaviours (tobacco smoking, hazardous alcohol consumption, inadequate fruit and/or vegetable consumption, and inadequate physical activity); patient interest in reducing these risks; and acceptability of being provided care to do so during a psychiatric inpatient stay. A cross-sectional survey was undertaken with 2075 inpatients from four inpatient psychiatric facilities in one health district in Australia (October 2012–April 2014). Prevalence of risk behaviours ranged from 50.2% (inadequate physical activity) to 94.8% (inadequate fruit and/or vegetable consumption). The majority of respondents (88.4%) had more than one risk behaviour, and most were seriously considering improving their risk behaviours (47.6% to 65.3%). The majority (80.4%) agreed that it would be acceptable to be provided support and advice to change such behaviours during their psychiatric inpatient stay. Some diagnoses were associated with smoking and hazardous alcohol consumption, interest in reducing alcohol consumption and increasing fruit and/or vegetable consumption, and acceptability of receiving advice and support. The findings reinforce the need and opportunity for psychiatric inpatient facilities to address the long-term disease risk behaviours of their patients.

Introduction

The life expectancy of people across the broad spectrum of mental illness is substantially lower than that of the general population.¹⁻⁵ Data from Australia, the United Kingdom, and the United States estimate this life expectancy gap to be between 10 and 30 years, depending upon setting, psychiatric diagnosis, and severity of illness.¹⁻⁵ Up to 80% of excess mortality in this population is estimated to be attributed to long-term physical diseases such as cardiovascular diseases, respiratory diseases, and cancers.^{3,6,7} The elevated burden of long-term disease among people with a mental illness is contributed to substantially by an increased likelihood of engaging in key modifiable risk behaviours, including tobacco smoking, hazardous alcohol consumption, inadequate nutrition, and inadequate physical activity.⁸⁻¹⁰

The increased likelihood of individuals with a mental illness engaging in these key modifiable risk behaviours has been consistently reported in community-based studies, including, but not limited to samples of people with severe mental illness.¹¹⁻¹⁵ In a recent Australian survey, the prevalence of risk was considerably higher for clients of community mental health services compared to clients of generalist community health services for tobacco smoking (51% vs 13%), hazardous alcohol consumption (43% vs 22%), inadequate nutrition (87% vs 81%), and inadequate physical activity (47% vs 28%).^{11,16} The evidence regarding differences in the prevalence of long-term disease and associated health risk behaviours as a function of diagnosis is equivocal. Some studies have identified differences in risk prevalence between psychiatric diagnostic groups,^{14,17} with such findings being suggested to reflect poorer physical health with increasing severity of mental illness, particularly for schizophrenia or psychosis.¹⁸ In contrast, clients attending community mental health services reported a similar prevalence of risk behaviours across all psychiatric diagnoses,¹⁹ and recent global research suggests that all

diagnoses, not just severe mental illness, are associated with increased risk of long-term disease.²⁰ These findings indicate that strategies to address these behaviours for all people with a mental health condition, regardless of diagnosis, are required, and more research is required to determine how to best tailor health behaviour interventions for people with mental illnesses.

Mental health services have been identified as having a key role in providing care to reduce the preventable long-term disease burden in this population,^{21,22} as reflected in the development of various national and international clinical guidelines for mental health services regarding the management and care of long-term disease risk behaviours.²³⁻²⁶ However, consistent evidence demonstrates that care provision in accordance with these guidelines is suboptimal in mental health services.²⁷⁻³¹ To date, most of this research has been conducted in outpatient or community mental health services.²⁷⁻²⁹ The limited research involving psychiatric inpatient facilities indicates that these settings are also prone to suboptimal provision of care for health risk behaviours.^{30,31} For example, just 36% of Australian inpatient smokers reported receiving advice to quit, while 20% reported receiving best practice nicotine dependence treatment (corresponding with clinical practice guidelines).³¹ Inpatient settings may prove particularly difficult for the provision of care for health risk behaviours; however, little research has explored the barriers specific to providing such care in inpatient facilities. A small body of research, primarily related to smoking cessation care, suggests limited training and education, a lack of guidelines and organization support, and clinician attitudes may contribute to suboptimal care.³²⁻³⁵ Understanding the clinician and patient barriers to provision of care in these settings is essential to developing appropriate interventions to improve behaviours associated with long-term disease.

Mental health clinicians have reported concerns regarding their patients' level of interest in changing health behaviours, and acceptability towards being provided support to address such behaviours, as barriers to providing risk reduction care.^{28,34,36-38} For instance, 69% of nurse unit managers from Australian psychiatric inpatient facilities report their patients have no interest in quitting smoking,³⁸ while 30% of inpatient and community mental health nurses in the UK report their patients are not motivated to exercise.³⁴ Several studies, however, report that such perceptions do not accurately reflect the interests of patients, demonstrating that they are interested in modifying their health risk behaviours, and are receptive to receiving care for health behaviours from mental healthcare providers.^{11,39-41}

To the authors' knowledge, only one study has examined interest in modifying long-term disease health risk behaviours among mental health inpatients.³⁰ The study, undertaken in the United States, involved mental health inpatient smokers and found a variable level of patient interest in improving a range of health risk behaviours: tobacco smoking 23%, fruit and vegetable consumption 46%, physical activity 51%, and binge alcohol consumption 57%.³⁰ To our knowledge, no studies have reported mental health inpatient acceptability of being provided care in the inpatient setting to address their long-term disease health risk behaviours.

The aims of this study were to (i) determine the prevalence of four major long-term disease health risk behaviours (smoking, hazardous alcohol consumption, inadequate fruit and/or vegetable consumption, inadequate physical activity) in adult psychiatric inpatients; (ii) determine adult psychiatric inpatients' interest in improving health risk behaviours; and (iii) determine adult psychiatric inpatients' perceptions of the acceptability of being provided advice and support for behaviour change during a

psychiatric inpatient stay. Differences between psychiatric diagnostic groups were examined.

Methods

Design and setting

A cross-sectional survey was undertaken with inpatients from four public adult inpatient psychiatric facilities in one regional local health district in New South Wales, Australia. Six acute clinical units (20–25 beds each) were utilized across the four facilities, one of which provided specialized drug and alcohol services to patients with a comorbid psychiatric disorder. Psychiatric emergency care short-stay units, and units specializing in care for older persons were excluded. The study was undertaken in the context of a larger randomized controlled trial evaluating the efficacy of an integrated smoking cessation intervention.⁴² Ethical approval was obtained for the larger project from the Hunter New England Human Research Ethics committee, reference no.: 11/12/14/4.02, and the University of Newcastle Human Research Ethics Committee, reference no.: H-2012-0061. The reporting of this study conforms to the STROBE statement.⁴³

Participants and recruitment

Throughout the study period (October 2012–April 2014), research staff approached senior clinicians on a daily basis at each of the four facilities to identify eligible patients. Eligibility included being admitted to the facility during the study period, being 18 years of age or more, and identified by a senior clinician as being well enough to participate.

Data collection procedures

Eligible patients were approached by research staff independent of the inpatient facility and asked to participate in the survey. Surveys were administered in a quiet area of the unit as a face-to-face interview by the research staff and took ~15 min to complete. Electronic medical records were used to attain clinical and demographic data for each participant. Summary of clinical and demographic information for patients who did not consent or were not approached was obtained in aggregate form from the facility electronic medical record system.

Measures

Patient characteristics

Clinical and demographic information, collected via electronic medical records, included the following: age, gender, marital status, primary psychiatric diagnosis, identification as an Aboriginal and/or Torres Strait Islander person, and length of stay (days).

Health behaviour risk status

Participants reported their engagement in four health risk behaviours prior to admission to the unit. Six questions were developed around definitions of risk according to Australian national guidelines.⁴⁴⁻⁴⁷ and have been previously used with clients of community mental health services.¹¹

Participants reported, during the month prior to admission: whether they smoked any tobacco products (daily, weekly, less than weekly, ex-smoker, never smoker); number of fruit (0; 1; 2; 3; 4; 5+; do not know; refused) serves and vegetables (0; 1; 2; 3; 4; 5+; do not know; refused) serves they usually ate each day; and number of days per week they usually did 30 minutes or more of physical activity (0; 1; 2; 3; 4; 5+; do not

know; refused). Participants reported, in the last year: how frequently they consumed a drink containing alcohol (never, monthly, or less, 2–4 times a month, 2–3 times per week, 4 or more times a week); and for those who had consumed alcohol, the number of drinks containing alcohol they consumed during a usual drinking day (1 or 2; 3 or 4; 5 or 6; 7–9; 10 or more).

Health behaviour risk status was defined in line with Australian national guidelines: any smoking (daily, weekly, less than weekly);⁴⁵ consumption of more than two standard alcoholic drinks on a usual drinking day;⁴⁶ consuming less than two serves of fruit and/or less than five serves of vegetables per day;⁴⁷ or not engaging in at least 30 min of physical activity for at least 5 days a week.⁴⁴

Interest in changing health risk behaviours, and acceptability of clinical staff providing risk reduction advice

For each of the four risk behaviours, participants reported whether they were seriously considering making any positive changes (yes, no, do not know). To reduce response burden, single-item measures of interest in change were used. Such measures have been previously used in behaviour change research^{31,48-50} and have been demonstrated to predict behaviour change attempts,³¹ and successful behaviour change⁵¹ as accurately as measures containing multiple items. To determine acceptability towards clinical staff providing risk reduction advice during their inpatient stay, participants were provided the following statement '*It would be acceptable for the staff looking after me whilst in the hospital to give advice and support to help with any health behaviours I would like to change*' and asked to respond on a Likert scale (strongly disagree, disagree, unsure, agree, strongly agree).

Statistical analysis

Data were analysed using SAS analysis package.⁵² Condensed response variables were created for age, marital status, and length of stay (see Table 2.1). Risk variables (yes, no/do not know) were created from risk status responses for each of the four health risk behaviours. Responses to fruit and vegetable consumption items were combined to create an overall nutrition risk variable (reflecting inadequate fruit and/or inadequate vegetable consumption). Participants who responded 'do not know' to any of the 'interest in changing health risk behaviour' items were considered, on a conservative basis, to not be interested in changing. Descriptive statistics were used to examine patient characteristics, the prevalence of risk for each of the four behaviours (overall and by diagnostic category), the prevalence of being at risk for multiple behaviours (overall), the interest in improving health behaviours for participants identified to be at risk (overall and by diagnostic category), and the acceptability of being provided advice and support for behaviour change (overall and by diagnostic category). Logistic regression models adjusting for age, gender, Aboriginality, and marital status were used to examine whether primary psychiatric diagnosis was independently associated with risk status for each of the four behaviours, interest in changing each health risk behaviour, and acceptability of being provided advice and support for behaviour change (strongly agree/agree vs unsure, disagree, strongly disagree).

Results

Participants

Of 3626 patients admitted to the four units during the study period, 2315 (63.8%) were approached (1311 not approached due to: short admission, $n = 498$; psychiatric instability for duration of admission, $n = 459$; or discharged before interview, $n = 354$; Figure 2.1). Of those approached, 2078 (89.8%) consented to participate. Three

participants did not provide responses for any of the measures of this study and were excluded from analysis, providing a sample of 2075 participants and an overall completion rate of 57% (2075 of the 3626 patients admitted during the study period). Table 2.1 summarizes the participant characteristics and provides a demographic comparison of participants, nonconsenting patients, and patients not approached.

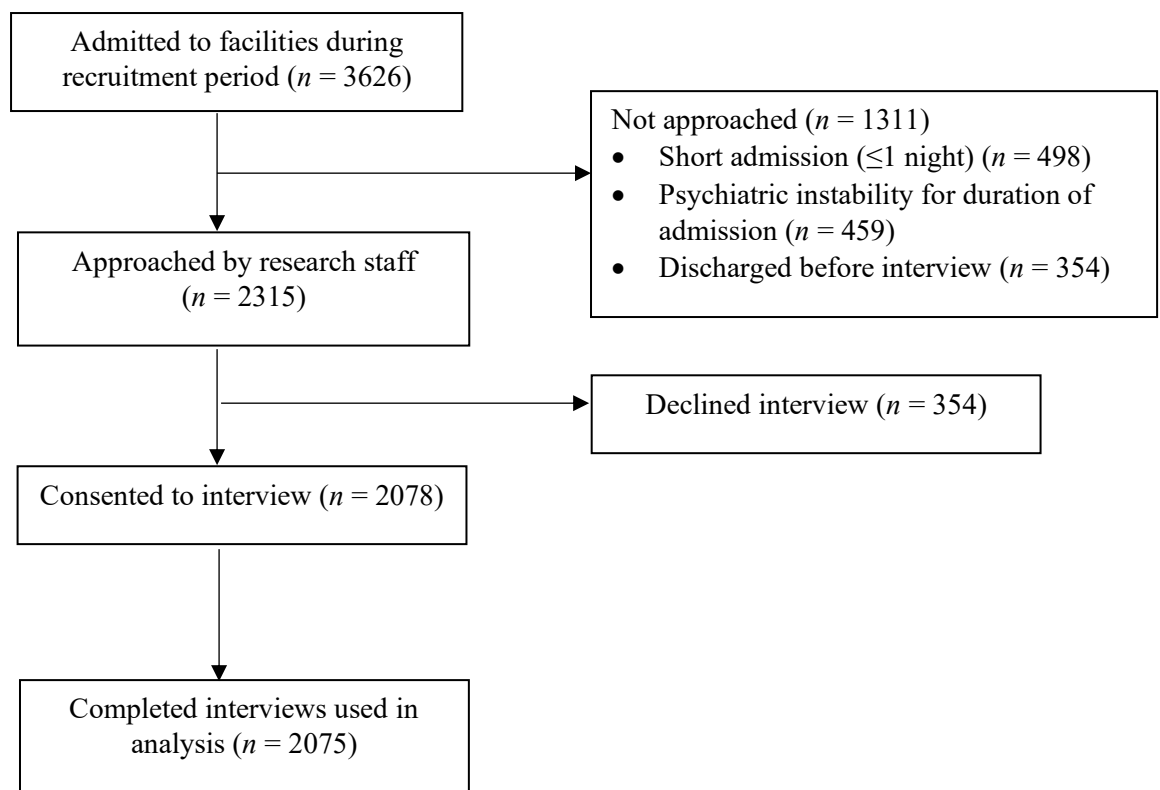


Figure 2.1 Participant flow diagram

Table 2.1 Demographic comparison of participants, nonconsenters and partial completers, and not approached

	Participants (<i>n</i> = 2075)		Nonconsenters (<i>n</i> = 237)		Not approached (<i>n</i> = 1311)	
	Mean	SD	Mean	SD	Mean	SD
Age (years), mean	41.5	14.1	44.7	15.4	39.8	17.1
Length of stay (days), mean	15.8	20.6	24.7	64.9	12.4	62.1
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Male	55.8	1157/2075	52.3	124/237	60.0	786/1311
<i>Marital status</i>						
Married/de facto	24.8	512/2063	19.4	45/232	26.0	337/1298
Single, separated, widowed, divorced	75.2	1551/2063	80.6	187/232	74.0	961/1298
Identifies as Aboriginal and/or Torres Strait Islander	11.5	238/2063	11.5	27/234	12.8	167/1300
<i>Primary diagnosis</i>						
Anxiety and stress related	9.0	187/2075	4.2	10/237	20.3	266/1311
Mood disorders	31.5	654/2075	25.3	60/237	23.1	303/1311
Other	3.7	77/2075	3.8	9/237	4.1	54/1311
Personality disorders	14.0	290/2075	11.4	27/237	17.2	225/1311
Schizophrenia, related psychosis	25.5	530/2075	45.1	107/237	14.1	185/1311
Substance-related disorders	16.2	337/2075	10.1	24/237	21.2	278/1311

Legal status

Voluntary admission	54.9	1140/2075	38.0	90/237	55.6	729/1311
---------------------	------	-----------	------	--------	------	----------

Prevalence of health risk behaviours

At least 50% of participants self-reported being at risk for each of the four behaviours (Table 2.2). Risk for inadequate nutrition was most prevalent (94.8%; inadequate fruit and inadequate vegetable consumption, 57.9% and 92.9%, respectively), followed by tobacco smoking (61.7%), hazardous alcohol consumption (50.9%), and inadequate physical activity (50.2%). Almost all participants (98.9%) engaged in at least one health risk behaviour (0 risks 1.1%; 1 risk 10.5%; 2 risks 34.8%; 3 risks 37.4%; 4 risks 16.2%), with 88.4% (1787/2021) of respondents at risk for multiple behaviours (two or more).

After adjusting for demographic variables, participants with substance-related disorders (OR = 2.56), anxiety- or stress-related disorders (OR = 1.51), or ‘other’ disorders (OR = 2.00) were most likely to be at risk for tobacco smoking, while those with mood disorders (OR = 0.53) or personality disorders (OR = 0.73) were least likely (Table 2.3). In regard to hazardous alcohol consumption, participants with substance-related disorders were twice as likely to be at risk (OR = 2.00) while those with schizophrenia or psychotic disorders were least likely (OR = 0.62). No relationships emerged between diagnosis and risk of inadequate fruit and/or vegetable consumption or inadequate physical activity.

Table 2.2 Participants engaging in health risk behaviours and multiple risk behaviours, by primary diagnosis

Behaviour ^a	Total		Psychotic disorders		Mood disorders		Substance related		Personality disorders		Anxiety/stress related		Other	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Smoking	61.7	1277/2070	64.1	339/529	48.9	319/653	80.7	271/336	56.1	162/289	69.5	130/187	73.7	56/76
Alcohol consumption	50.9	1037/2037	43.3	222/513	45.5	294/646	67.9	224/330	56.3	162/288	55.4	103/186	43.2	32/74
Overall nutrition	94.8	1943/2049	95.9	495/516	93.2	604/648	95.2	320/336	94.1	270/287	97.3	181/186	96.1	73/76
Inadequate fruit	57.9	1187/2050	63.6	328/516	52.5	341/649	60.1	202/336	56.8	163/287	63.4	118/186	46.1	35/76
Inadequate vegetable	92.9	1905/2051	94.4	488/516	90.9	590/649	92.9	312/336	92.3	265/287	95.7	178/186	94.7	72/76
Inadequate physical activity	50.2	1030/2050	52.6	272/517	50.2	326/650	45.7	153/335	48.6	140/288	56.8	105/185	45.3	34/75

^a Health behaviour risk status was defined in line with Australian national guidelines: any smoking (daily, weekly, less than weekly);⁴⁵ consumption of more than two standard alcoholic drinks on a usual drinking day;⁴⁶ consuming less than two serves of fruit and/or less than five serves of vegetables per day;⁴⁷ or not engaging in at least 30 minutes of physical activity for at least five days a week.⁴⁴

Table 2.3 Diagnostic associations with health risk behaviours

	Smoking			Alcohol			Fruit and/or vegetable			Physical activity		
	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>
Psychotic disorders	1.07	0.86-1.34	.54	0.62	0.50-0.77	<.0001*	1.29	0.79-2.12	.31	1.20	0.98-1.48	.08
Mood disorders	0.53	0.43-0.65	<.0001*	0.85	0.70-1.04	.12	0.67	0.45-1.01	.06	0.92	0.76-1.12	.41
Substance related	2.56	1.90-3.46	<.0001*	2.00	1.54-2.59	<.0001*	1.02	0.59-1.78	.93	0.86	0.68-1.09	.22
Personality disorders	0.73	0.56-0.95	.02	1.23	0.95-1.60	.12	0.88	0.51-1.52	.65	0.90	0.69-1.15	.39
Anxiety/stress related	1.51	1.07-2.13	.02	1.25	0.91-1.71	.17	2.11	0.85-5.26	.11	1.34	0.98-1.82	.06
Other	2.00	1.14-3.47	.02	0.72	0.44-1.18	.19	1.40	0.43-4.54	.57	0.81	0.51-1.29	.37

* $p < .05$

Odds ratios are adjusted for age, gender, Aboriginality, and marital status.

Interest in changing health risk behaviours and acceptability of being provided advice and support

The majority of participants who reported being at risk for a health behaviour indicated they were considering making changes to improve that behaviour (Table 2.4). Two-thirds of smokers (65.3%) were seriously considering quitting or reducing their smoking, and 60.6% of those who reported inadequate physical activity were considering increasing their physical activity. Approximately half of those who were at risk for hazardous alcohol consumption or inadequate fruit and/or vegetable consumption were considering reducing their alcohol consumption (49.5%) or increasing their fruit and/or vegetable intake (47.6%). Eighty per cent of participants agreed or strongly agreed that it would be acceptable to receive advice and support from inpatient facility staff to improve these behaviours (Table 2.4).

Few differences in interest in improving health risk behaviours or acceptability of being provided such advice or support were found across diagnoses (Table 2.5). Participants with schizophrenia or psychotic disorders were least likely to be interested in reducing their alcohol consumption (OR = 0.65), while those with substance-related disorders were most interested (OR = 1.78). Those with mood disorders expressed the greatest interest towards increasing their consumption of fruits and/or vegetables (OR = 1.24). Participants with diagnoses of schizophrenia or psychotic disorders were less likely to agree that it is acceptable to be provided advice and support from the inpatient facility staff to change their health behaviours (OR = 0.66).

Table 2.4 At-risk participants interested in changing their health risk behaviours, and overall patient acceptability towards being provided staff advice and support, by primary diagnosis

Behaviour	Total		Psychotic disorders		Mood disorders		Substance related		Personality disorders		Anxiety/stress related		Other	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n
Smoking	65.3	824/1261	62.1	205/330	68.0	215/316	65.9	178/270	67.5	108/160	62.3	81/130	67.3	37/55
Alcohol consumption	49.5	513/1037	41.9	93/222	50.0	147/294	60.7	136/224	42.6	69/162	52.4	54/103	43.8	14/32
Fruit and/or vegetables	47.6	924/1940	46.5	229/493	50.9	307/603	46.6	229/493	48.9	132/270	43.1	78/181	39.7	29/73
Inadequate physical activity	60.6	624/1030	57.0	155/272	62.9	205/326	64.7	99/153	60.7	85/140	58.1	61/105	55.9	19/34
<i>Acceptable to be provided staff advice and support</i>														
Strongly agree/agree	80.4	1630/2028	75.2	381/507	80.7	518/642	84.1	281/334	84.3	241/286	81.6	151/185	78.4	58/74
Unsure	6.5	131/2028	8.3	42/507	6.1	39/642	3.6	12/334	6.6	19/286	8.1	15/185	5.4	4/74
Disagree/strongly disagree	13.2	267/2028	16.6	84/207	13.2	85/642	12.3	41/334	9.1	26/286	10.3	19/185	16.2	12/74

Table 2.5 Diagnostic associations with interest in changing health risk behaviours and acceptability of being provided advice and support from inpatient facility staff

	Interest in improving health risk behaviours ^b									Acceptability					
	Smoking			Alcohol			Fruit and/or vegetable			Physical activity					
	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P
Psychotic disorders ^a	0.83	0.63-1.08	.16	0.65	0.48-0.89	.006*	0.97	0.79-1.20	.77	0.86	0.64-1.15	.31	0.66	0.51-0.84	.0007*
Mood disorders ^a	1.17	0.89-1.55	.27	1.05	0.80-1.39	.72	1.24	1.02-1.52	.03*	1.19	0.89-1.57	.24	1.03	0.81-1.31	.81
Substance related ^a	1.04	0.78-1.39	.77	1.78	1.31-2.41	.0002*	0.91	0.71-1.17	.46	1.19	0.82-1.71	.36	1.36	0.99-1.88	.06
Personality disorders ^a	1.12	0.78-1.60	.53	0.74	0.52-1.05	.09	1.01	0.78-1.31	.94	0.93	0.64-1.35	.69	1.37	0.97-1.92	.08
Anxiety/stress related ^a	0.85	0.58-1.25	.41	1.13	0.75-1.70	.57	0.82	0.60-1.12	.20	0.90	0.60-1.37	.64	1.08	0.73-1.60	.69
Other ^a	1.09	0.61-1.95	.76	0.76	0.37-1.55	.45	0.73	0.45-1.19	.21	0.74	0.37-1.50	.41	0.88	0.50-1.54	.64

^a Limited to those at risk for each behaviour

^b Odds ratios are adjusted for age, gender, Aboriginality, and marital status

* $p < .05$

Discussion

Psychiatric inpatients reported a high prevalence of risk for tobacco smoking, hazardous alcohol consumption, inadequate fruit and/or vegetable intake, and inadequate physical activity. For each of the four behaviours, at least half of the sample were found to be at risk. Almost all of the sample were at risk for at least one behaviour (98.9%), and the majority (88.4%) were at risk for two or more behaviours. The prevalence of some risk behaviours differed between diagnostic categories. Patients with substance-, anxiety-related, and other disorders were at an increased risk for smoking, and those with substance-related disorders were most likely to consume alcohol at a hazardous level. For each risk behaviour, a half to two-thirds of at-risk participants expressed an interest in making changes to improve the behaviour. Participants with substance use disorders were most likely to be interested in reducing their hazardous alcohol consumption, whereas participants with schizophrenia or psychotic disorders were least likely to be interested in doing so. Participants with mood disorders were most likely to be considering increasing their fruit and/or vegetable consumption. The majority of participants reported that it would be acceptable for inpatient facility staff to provide them with advice and support to change their health risk behaviours during their inpatient stay. While those with schizophrenia or psychotic disorders were least likely to agree it would be acceptable, 75% of such patients nevertheless reported that it would be so. These findings highlight the need to develop strategies to improve the health risk behaviours of people accessing psychiatric inpatient care, and the need to identify strategies to elicit inpatients' care expectations and to facilitate clinician understanding and response to such expectations.

The results are consistent with previous research, finding a high prevalence of health risk behaviours among patients of mental health services.^{11-14,17,40,53,54} However, direct comparisons are difficult given differences in study setting, sample, and how health

risk behaviours are defined. The majority of previous research has focused upon community or outpatient mental health services.^{11-14,40,53} Compared to a study undertaken among community mental health service clients in the same health district,¹¹ the current study identified a greater prevalence of at-risk patients for each of the four health risk behaviours (smoking 62% vs 51%; hazardous alcohol consumption 51% vs 43%; inadequate fruit and/or vegetable consumption 95% vs 87%; inadequate physical activity 50% vs 47%). Moreover, the current study also identified that patients accessing inpatient psychiatric services may be more likely to engage in multiple health risk behaviours, with 88% at risk for two or more behaviours, compared to 78% among those accessing community mental health services.¹¹ This finding further emphasizes the need to address the long-term disease health risk behaviours of people who access mental health services throughout contacts with all mental health service providers, by confirming a similar if not greater need exists in psychiatric inpatient facilities. Further, the high prevalence of risk across all diagnostic groups suggests that addressing physical health concerns should be a priority among all patients of mental health facilities, in contrast to a narrow focus on those with severe mental illness.

The finding that a large proportion of at-risk participants were considering making positive changes to health risk behaviours and that the large majority would find it acceptable to be provided advice and support during their inpatient stay is consistent with previous research.^{11,39-41} The level of interest identified for increasing fruit and vegetable consumption and physical activity, and reducing alcohol consumption, is similar to that found in a study of US psychiatric inpatients.⁵⁴ Interest in change in the current study, and acceptability towards being provided support from their psychiatric inpatient facility were comparable to the interest identified among clients of community mental health services in the same local health district in which this study was conducted.^{11,55} This

finding strengthens the argument for enhancing the capacity of mental health inpatient services to include health risk behaviour as part of treatment interventions.

During the inpatient stay, physical health, including modifiable health risk behaviours, should be assessed and recorded to enable appropriate follow-up.^{21,56} This could include brief advice or counselling, or engagement in healthy lifestyle interventions.^{21,57,58} At a minimum, it should include referral to appropriate physical health and behaviour change supports, and the development of a physical care plan upon discharge that is communicated to relevant services to enable continuation of care, including community mental health and primary care providers.^{21,57-59} Brief physical health assessment tools such as the Health Improvement Profile⁶⁰ have been trialled successfully in community-based mental health^{61,62} and primary care settings.⁶³ Preliminary evaluations have shown that use of such a tool is acceptable to both consumers and care providers⁶² and can lead to improvements in consumer health risk behaviours.⁶¹ To the authors' knowledge, such physical health assessment tools or brief programs are yet to be evaluated in the inpatient setting. There is a need to explore the feasibility and acceptability of providing physical health assessments and brief programs within the inpatient setting and to explore the strategies that may be required to support mental health clinicians to provide such care.

The variation by diagnostic category in interest in improving health behaviours and perceived acceptability of receiving support from mental health clinicians to do so adds to a very small body of research. Two studies in the United Kingdom have found no differences in interest in improving physical activity,^{39,41} smoking, and diet³⁹ across psychiatric diagnostic groups, while an Australian study found those with depression had increased interest in quitting smoking and in increasing physical activity.¹¹ The findings across all diagnostic groups of a high interest in improving risk behaviours, and high

acceptability towards receiving advice and support during an inpatient stay provide further evidence of the need to address these behaviours for all people with a mental illness.

To the authors' knowledge, this study is the first to examine whether psychiatric inpatients would find it acceptable to be provided advice and support from inpatient facility staff for improving a range of health risk behaviours. The findings add to a growing body of research in other settings indicating that people with a mental illness find acceptable and hold an expectation of being provided such care, and are interested in improving their health risk behaviours.^{11,39-41,54,55} Given that various studies have suggested that some mental health clinicians hold a dissonant view that their patients have neither an interest in, nor find such care provision to be acceptable,^{28,34,36,37} further research is required regarding the mechanisms to modify such views as a means of increasing such care provision.

Limitations

This study includes a large and diverse sample of psychiatric inpatients and a high consent rate, with 90% of those approached consenting to the study. The authors have speculated reasons for the high consent rate, and it is possible that the nature of the inpatient setting contributed to patients being more amenable to engage in conversation with research staff in the units. The findings should be interpreted in the light of its methodological characteristics. Firstly, use of patient report of health behaviours introduces possible recall and/or social desirability response biases, which may have led to conservative estimates of the prevalence of health risk behaviours.⁶⁴ Similarly, social desirability of response may have contributed to an overestimate of reported interest in changing these behaviours and in acceptability towards being provided with preventive care. Secondly, the analysis of associations between psychiatric diagnosis with risk

behaviour prevalence, interest towards changing behaviours, and acceptability of being provided advice and support included primary psychiatric diagnoses only. It is possible that accounting for the presence of co-occurring diagnoses may have impacted on the results of the association analyses. Those participants whose primary diagnosis was substance related may have been admitted with an alcohol use disorder, which may have confounded the association between this diagnostic group and hazardous alcohol consumption outcomes. Finally, given the study was conducted in a single health district in one state in Australia, the generalisability of the findings to other jurisdictions and settings is unknown.

Conclusion

The current study adds to the limited data regarding the prevalence of health risk behaviours and interest in making positive changes to improve health risk behaviours among psychiatric inpatients. It further demonstrates patient acceptability towards being provided support and advice for these behaviours in a psychiatric inpatient service setting. The results attest to the need to address the high prevalence of health risk behaviours among people with a mental illness and to address the barriers to clinician provision of care as a means of doing so.

Relevance for clinical practice

The high levels of behavioural risks, interest in improving such risks and acceptability of being provided with support and advice for these behaviours attest to the need for mental health clinicians working in inpatient psychiatric settings to routinely provide preventive care to address behaviour change. The high prevalence of risk, interest and acceptability across all diagnostic groups further suggests that clinicians should address behavioural risks among all patients, regardless of psychiatric diagnosis. There is a need to enhance the capacity of mental health inpatient services to address health risk

behaviours as part of routine care. During an inpatient stay, this should include assessment and recording of any health risk behaviours. At a minimum, follow-up to such assessment should include the provision of brief advice and referral to behaviour change supports. Additional care should include brief counselling and the development of a physical care plan to ensure ongoing communication with services providing care post discharge. There is a need to identify feasible ways in which inpatient services can systematically provide such care, and services need to provide clear guidance to clinical staff regarding processes for identifying risk and providing follow-up behaviour change support. Further, mental health services need to explore effective strategies for supporting inpatient mental health staff to provide such care, including the provision of organisational supports and systems change.

References

1. Chang CK, Hayes RD, Perera G, et al. Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. *PloS one*. 2011;6(5):e19590.
2. Laursen TM, Wahlbeck K, Hallgren J, et al. Life expectancy and death by diseases of the circulatory system in patients with bipolar disorder or schizophrenia in the Nordic countries. *PloS one*. 2013;8(6):e67133.
3. Lawrence D, Hancock K, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *Bmj*. 2013;346:f2539.
4. Olfson M, Gerhard T, Huang C, Crystal S, Stroup T. Premature mortality among adults with schizophrenia in the United States. *JAMA psychiatry*. 2015;72:1172-1181.
5. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA psychiatry*. 2015;72:334-341.
6. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. *The British journal of psychiatry : the journal of mental science*. 2010;196(2):116-121.
7. Druss BG, Zhao L, Von Esenwein S, Morrato EH, Marcus SC. Understanding excess mortality in persons with mental illness: 17-year follow up of a nationally representative US survey. *Medical Care*. 2011;49:599-604.
8. Callaghan RC, Veldhuizen S, Jeysingh T, et al. Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *J Psychiatr Res*. 2014;48(1):102-110.

9. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012;380(9859):2224-2260.
10. Stanley S, Laugharne J. The impact of lifestyle factors on the physical health of people with a mental illness: a brief review. *International journal of behavioral medicine*. 2014;21(2):275-281.
11. Bartlem K, Bowman J, Bailey J, et al. Chronic disease health risk behaviours amongst people with a mental illness. *Australian and New Zealand Journal of Psychiatry*. 2015;49(8):731-741.
12. Dipasquale S, Pariante CM, Dazzan P, Aguglia E, McGuire P, Mondelli V. The dietary pattern of patients with schizophrenia: A systematic review. *Journal of Psychiatric Research*. 2013;47(2):197-207.
13. Janney CA, Fagiolini A, Swartz HA, Jakicic JM, Holleman RG, Richardson CR. Are adults with bipolar disorder active? Objectively measured physical activity and sedentary behavior using accelerometry. *J Affect Disord*. 2014;152-154:498-504.
14. Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *General hospital psychiatry*. 2009;31(6):555-563.
15. Morgan VA, Waterreus A, Jablensky A, et al. People living with psychotic illness in 2010: the second Australian national survey of psychosis. *The Australian and New Zealand journal of psychiatry*. 2012;46(8):735-752.

16. McElwaine K, Freund M, Campbell E, et al. The delivery of preventive care to clients of community health services. *BMC health services research*. 2013;13:167.
17. Kilian R, Becker T, Kruger K, Schmid S, Frasch K. Health behavior in psychiatric in-patients compared with a German general population sample. *Acta psychiatrica Scandinavica*. 2006;114(4):242-248.
18. van Hasselt FM, Schorr SG, Mookhoek EJ, Brouwers JR, Loonen AJ, Taxis K. Gaps in health care for the somatic health of outpatients with severe mental illness. *International journal of mental health nursing*. 2013;22(3):249-255.
19. Bartlem KM, Bowman JA, Bailey JM, et al. Chronic disease health risk behaviours amongst people with a mental illness. *Australian & New Zealand Journal of Psychiatry*. 2015;49(8):731-741.
20. Scott KM, Lim C, Al-Hamzawi A, et al. Association of Mental Disorders With Subsequent Chronic Physical Conditions: World Mental Health Surveys From 17 Countries. *JAMA psychiatry*. 2016;73(2):150-158.
21. Lambert TJR, Reavley NJ, Jorm AF, Oakley Browne MA. Royal Australian and New Zealand College of Psychiatrists expert consensus statement for the treatment, management and monitoring of the physical health of people with an enduring psychotic illness. *Australian & New Zealand Journal of Psychiatry*. 2017;51(4):322-337.
22. de Hert M, Cohen D, Bobes J, et al. Physical illness in patients with severe mental disorders. II. Barriers to care, monitoring and treatment guidelines, plus recommendations at the system and individual level. *World Psychiatry*. 2011;10:138-151.

23. NSW Mental Health Commission. Living Well: A strategic plan for mental health in NSW. In. Sydney: NSW Mental Health Commission; 2014.
24. National Institute for Health and Care Excellence. Psychosis and schizophrenia in adults: The NICE guideline on treatment and management. In: Health NCCfM, ed. London: National Institute for Health and Care Excellence; 2014.
25. Reform ERGtCotAGWGoMH. National targets and indicators for mental health reform. In: National Mental Health Commission; 2013.
26. National Institute for Health and Care Excellence. Bipolar disorder: The assessment and management of bipolar disorder in adults, children and young people in primary and secondary care. In. London: National Institute for Health and Care Excellence; 2014.
27. Bartlem K, Bowman J, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American journal of preventive medicine*. 2014;47(6):762-770.
28. Chwastiak L, Cruza-Guet MC, Carroll-Scott A, Sernyak M, Ickovics J. Preventive counseling for chronic disease: missed opportunities in a community mental health center. *Psychosomatics*. 2013;54(4):328-335.
29. Greening J. Physical health of patients in rehabilitation and recovery: a survey of case note records. *Psychiatric Bulletin*. 2005;29(6):210-212.
30. Prochaska JJ, Gill P, Hall SM. Treatment of tobacco use in an inpatient psychiatric setting. *Psychiatric Services*. 2004;55(11):1265-1270.
31. Stockings E, Bowman J, McElwaine K, et al. Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2013;15(5):942-949.

32. Howard L, Gamble C. Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient care settings. *Journal of psychiatric and mental health nursing*. 2011;18(2):105-112.
33. Ratschen E, Britton J, Doody G, Leonardi-Bee J, McNeill A. Tobacco dependence, treatment and smoke-free policies: a survey of mental health professionals' knowledge and attitudes. *General hospital psychiatry*. 2009;31:576-582.
34. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.
35. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of Psychiatric & Mental Health Nursing*. 2010;17(4):319-327.
36. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
37. Johnson K, Fry C. The attitudes and practices of community managed mental health service staff in addressing physical health: Findings from a targeted online survey. *Advances in Mental Health*. 2013;11(3):163-171.
38. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of psychiatric and mental health nursing*. 2010;17(4):319-327.

39. Buhagiar K, Parsonage L, Osborn DP. Physical health behaviours and health locus of control in people with schizophrenia-spectrum disorder and bipolar disorder: a cross-sectional comparative study with people with non-psychotic mental illness. *BMC psychiatry*. 2011;11:104.
40. Fila SL, Baker AL, Richmond R, et al. Health behaviour risk factors for coronary heart disease (CHD) in smokers with a psychotic disorder: baseline results. *Mental Health and Substance Use*. 2011;4(2):158-171.
41. Ussher M, Stanbury L, Cheeseman V, Faulkner G. Physical activity preferences and perceived barriers to activity among persons with severe mental illness in the United Kingdom. *Psychiatric Services*. 2007;58(3):405-408.
42. Metse A, Bowman J, Wye P, et al. Evaluating the efficacy of an integrated smoking cessation intervention for mental health patients: Study protocol for a randomised controlled trial. *Trials*. 2014;15(266):1-7.
43. von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for Reporting Observational Studies. *PLoS medicine*. 2007;4(10):e296.
44. Department of Health and Aged Care. An active way to better health. In. Canberra: Australian Government; 1999.
45. Ministerial Council on Drug Strategy. National Tobacco Strategy, 2004-2009: The Strategy. In. Canberra: Commonwealth of Australia; 2004.
46. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. In: Canberra: Commonwealth of Australia; 2009.

47. National Health and Medical Research Council. Dietary guidelines for australian adults. In. Canberra: ACT: Commonwealth Department of Health and Ageing; 2003.
48. Haukkala A, Uutela A, Vartiainen E, McAlister A, Knekt P. Depression and smoking cessation: the role of motivation and self-efficacy. *Addictive behaviors*. 2000;25(2):311-316.
49. Luszczynska A, Tryburcy M, Schwarzer R. Improving fruit and vegetable consumption: a self-efficacy intervention compared with a combined self-efficacy and planning intervention. *Health education research*. 2007;22(5):630-638.
50. Marques-Vidal P, Melich-Cerveira J, Paccaud F, Waeber G, Vollenweider P, Cornuz J. Prevalence and factors associated with difficulty and intention to quit smoking in Switzerland. *BMC public health*. 2011;11(1):227.
51. Sciamanna CN, Hoch JS, Duke GC, Fogle MN, Ford DE. Comparison of five measures of motivation to quit smoking among a sample of hospitalized smokers. *J Gen Intern Med*. 2000;15(1):16-23.
52. SAS, v9.4 [computer program]. Lane Cove, NSW, Australia.
53. Morgan VA, McGrath JJ, Jablensky A, et al. Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychological medicine*. 2014;44:2163-2176.
54. Prochaska JJ, Fromont SC, Delucchi K, et al. Multiple risk-behavior profiles of smokers with serious mental illness and motivation for change. *Health Psychology*. 2014;33(12):1518-1529.
55. Bartlem K, Bowman J, Freund M, et al. Acceptability and receipt of preventive care for chronic-disease health risk behaviours reported by clients of community mental health services. *Psychiatric Services*. 2015;66(8):857-864.

56. Glasper A. Caring for adults with severe mental illness and physical health problems. *British Journal of Nursing*. 2016;25:1266-1267.
57. Baker AL, Kay-Lambkin FJ, Richmond R, et al. Healthy lifestyle intervention for people with severe mental disorders. *Mental Health and Substance Use*. 2011;4(2):144-157.
58. Harrison MR, McMillan CF, Dickinson T. Service innovation: a comparison of two approaches for physical screening of psychiatric inpatients. *Int*. 2012;16(2):157-160.
59. Royal College of Physicians, Royal College of Psychiatrists. Smoking and mental health. Royal College of Psychiatrists Council Report CR178. In: London: Royal College of Physicians; 2013.
60. White J, Gray R, Jones M. The development of the serious mental illness physical Health Improvement Profile. *Journal of psychiatric and mental health nursing*. 2009;16:493-498.
61. Bressington D, Mui J, Hulbert S, Cheung E, Bradford S, Gray RJP. Enhanced physical health screening for people with severe mental illness in Hong Kong: results from a one-year prospective case series study. 2014;14(1):57.
62. Bressington D, Chien WT, Mui J, et al. Chinese Health Improvement Profile for people with severe mental illness: A cluster-randomized, controlled trial. *International journal of mental health nursing*. 2018;27(2):841-855.
63. Hardy S, Hinks P, Gray R. Does training practice nurses to carry out physical health checks for people with severe mental illness increase the level of screening for cardiovascular risk? *Int J Soc Psychiatry*. 2014;60(3):236-242.
64. de Beaupaire R, Lukasiewicz M, Beauverie P, et al. Comparison of self-reports and biological measures for alcohol, tobacco, and illicit drugs consumption in

psychiatric inpatients. *European psychiatry : the journal of the Association of European Psychiatrists*. 2007;22(8):540-548

**SYSTEMATIC REVIEW AND META-ANALYSIS
OF THE PROVISION OF PREVENTIVE CARE FOR
MODIFIABLE CHRONIC DISEASE RISK
BEHAVIOURS BY MENTAL HEALTH SERVICES**

CHAPTER 3

SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES

Chapter 3 is a published paper with published supplementary material:

Bailey, J., Bartlem, K., Wiggers, J., Wye, P., Stockings, E., Hodder, R., Metse, A., Regan, T., Clancy, R., Dray, J., Tremain, D., Bradley, T., & Bowman, J. (2019). Systematic review and meta-analysis of the provision of preventive care for modifiable chronic disease risk behaviours by mental health services. *Preventive Medicine Reports*, 16. doi: 10.1016/j.pmedr.2019.100969

Abstract

People with mental illness experience increased chronic disease burden, contributed to by a greater prevalence of modifiable chronic disease risk behaviours. Policies recommend mental health services provide preventive care for such risk behaviours. Provision of such care has not previously been synthesised. This review assessed the provision of preventive care for modifiable chronic disease risk behaviours by mental health services. Four databases were searched from 2006-2017. Eligible studies were observational quantitative study designs conducted in mental health services, where preventive care was provided to clients for tobacco smoking, harmful alcohol consumption, inadequate nutrition, or inadequate physical activity. Two reviewers independently screened studies, conducted data extraction and critical appraisal. Results were pooled as proportions of clients receiving or clinicians providing preventive care using random effects meta-analyses, by risk behaviour and preventive care element (ask/assess, advise, assist, arrange). Subgroup analyses were conducted by mental health service type (inpatient, outpatient, other/multiple). Narrative synthesis was used where meta-analysis was not possible. Thirty-eight studies were included with 26 amenable to meta-analyses. Analyses revealed that rates of assessment were highest for smoking (78%, 95% confidence interval [CI]:59%-96%) and lowest for nutrition (17%, 95% CI:1%-35%); with variable rates of care provision for all behaviours, care elements, and across service types, with substantial heterogeneity across analyses. Findings indicated suboptimal and variable provision of preventive care for modifiable chronic disease risk behaviours in mental health services, but should be considered with caution due to the very low quality of cumulative evidence.

PROSPERO registration: CRD42016049889

Introduction

People with a mental illness experience greater rates of preventable morbidity, mortality, and a reduced life expectancy up to 30 years compared to people without such an illness.¹⁻⁸ In high income countries, such disparities are primarily due to a greater prevalence of chronic disease.^{1,6,9,10} This inequitable disease burden is consistently reported to be associated with a greater prevalence of four leading modifiable chronic disease risk behaviours: tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity.^{9,11-14}

Care to support and facilitate improvements or reductions in such modifiable chronic disease risk behaviours has been termed ‘preventive care’.¹⁵⁻¹⁷ A recommended strategy for addressing such behaviours is the provision of preventive care by health care providers,¹⁸ with Cochrane systematic review evidence supporting provision of preventive care for such behaviours in general health care settings for risk behaviour improvement.¹⁹⁻²⁴ Systematic review evidence demonstrates significant improvements in prevalence of such behaviours among people with a mental illness following the receipt of health promotion programs provided by mental health services.²⁵⁻²⁸ The provision of systematic preventive care is recommended in all health care settings, including mental health services, to all adult clients;²⁹⁻³⁸ with tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity often addressed together in clinical guidelines and recommendations.³³ The ‘5As’ framework is one recommended approach to facilitate the routine delivery of preventive care (‘ask’ about engagement in risk behaviours; ‘assess’ behaviour risk status and interest in change; ‘advise’ changing/reducing risk behaviours; provide behaviour change ‘assistance’; and ‘arrange’ or refer to other services for behaviour change support.³⁷

Despite the effectiveness of preventive care provision in addressing chronic disease risk behaviours in health services, little research has focused on the extent to which any elements of preventive care are delivered by mental health settings. A review of the literature identified two previous reviews of the provision of preventive care within mental health services.^{39,40} A narrative review exploring the provision of care to address smoking within psychiatric inpatient settings cited four studies from the USA and Australia, reported provision of care narratively.³⁹ A more recent review (2019) explored mental health nurses' experiences of providing physical health care, with a focus on their attitudes rather than provision of care.⁴⁰ The review included 41 studies examining general physical health care, sexual health, smoking, physical activity, and nutrition. Six included studies reported advice on regular exercise was provided 'always or very often' by 50.4% to 79.7% of participants, advice on healthy diet was provided 'always or very often' by 43.4% to 86.7% of participants, and 30.6% to 66.7% of participants reported aiding smoking cessation 'always or very often'.⁴⁰ Whilst the review utilised a broad definition of physical healthcare, limitations included: only exploring mental health nurses' provision of care; outcomes not reported by service type; no meta-analysis due to the broad inclusion criteria and different study methodologies.⁴⁰ A number of additional individual observational studies have examined preventive care provision for all four risk behaviours in mental health services, utilising varied methodologies (client and clinician self-report, and cross-sectional, pre-post, and interrupted time series surveys; and retrospective medical record audits), however findings have not been quantitatively synthesised previously.⁴¹⁻⁴⁵ As findings have not been synthesised by mental health service type, it is unknown whether rates of preventive care provision are consistent across service types or otherwise. A systematic synthesis of the extent to which preventive care is provided for all four health risk behaviours to clients of mental health services is

lacking. An identification of risk behaviours that receive inadequate care provision, or identifying which elements of care are provided least often could inform the tailoring of future interventions to increase the provision and benefits of preventive care by mental health services.

Given the limitations of previous research, a systematic review and meta-analysis was conducted of the prevalence of preventive care provision for four modifiable chronic disease risk behaviours (tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity) by mental health services. A secondary aim was to quantify pooled prevalence estimates of preventive care provision for each risk behaviour by care element and service type, and conduct a narrative synthesis where meta-analysis was not possible.

Methods

Review methods and protocol were prospectively registered with PROSPERO [reference number CRD42016049889]. The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) and Meta-Analysis of Observational Studies in Epidemiology (MOOSE) informed the development of the review protocol⁴⁶ and reporting of findings.^{47,48}

Search Methods

Four databases were searched from January 2006 to August 2017: Medline, PsycINFO, EMBASE, and CINAHL. As clinical practice guidelines for the provision of preventive care have only been introduced recently,^{49,50} the search commenced from 2006. Search terms pertained to mental illness and mental health service settings, eligible study designs, four chronic disease risk behaviours of interest, and preventive care practices. Search terms for preventive care practices used a variety of terms to capture care provided by the 5A care elements and any reports of individual care components to

account for differences in terminology internationally (Supplementary document S.3.1). Additional sources searched for eligible studies included: first 200 articles from Google Scholar; hand searching of articles published between 2015-2017 from Preventive Medicine and Psychiatric Services; and reference lists of included studies. Authors of included studies were contacted and any related publications were requested and screened for eligibility. JBa developed and executed the search strategies with assistance from a research librarian.

Study Eligibility Criteria

Study type

Descriptive studies including: observational and cross-sectional surveys; retrospective medical record audits; and longitudinal repeated measures were included. Only baseline data from experimental study designs were included.

Setting

Eligible studies were conducted in services with the primary objective of delivering mental health care to adult clients (≥ 18 years), and could consist of: bed-based (inpatient) mental health services; specialised community (outpatient) mental health services; or community psychosocial support services (non-clinical mental health services). Dual diagnosis services (mental health and substance use treatment) were included if mental health care was a primary care objective. Studies were eligible if preventive care was provided by mental health service staff in the context of routine care delivery.

Outcome measures

Eligible measures included quantitative reporting of the provision or receipt of any elements of preventive care provision for any of four chronic disease risk behaviours

(tobacco smoking, harmful alcohol consumption, inadequate nutrition, inadequate physical activity). The World Health Organisation (WHO) has released guidelines for each of the four modifiable risk behaviours,⁵¹⁻⁵⁴ and Australia,⁵⁵⁻⁵⁸ and other nations⁵⁹⁻⁷² similarly have developed ‘country specific’ definitions or guidelines as to what constitutes risk. In the present review, eligible studies were not required to report the definition of risk used for each risk behaviours and variations were expected across countries and studies.

Study Selection Process

Identified citations were compiled in Endnote,⁷³ duplicates removed, and remaining citations and abstracts uploaded to Covidence.⁷⁴ Two independent reviewers screened titles and abstracts (any of JBa, TB, PW, ES, DT, JD, RC, KB, RH, TR) and relevant full texts (JBa and one of: TB, PW, KB, AM, TR, DT, JD, RH) against predetermined eligibility criteria. Disagreements regarding study eligibility were resolved via consensus or a third reviewer (PW or KB). Corresponding authors were contacted where reported study characteristics were insufficient to determine eligibility, or where outcome data were missing or insufficiently reported.

Data Extraction

Data were extracted independently by two authors (JBa and one of: TB, AM, DT, KB, TR) using an Excel-based extraction form, with any inconsistencies resolved by a third reviewer (PW, KB, ES). Where reported, extracted data included study year, setting, sample size, data source (client report, clinician report, medical record audit), study eligibility criteria, clinical and demographic characteristics of mental health service clients and clinicians, clinician engagement in risk behaviours, policies of the mental health service related to preventive care provision, outcome measures, and information required to conduct assessment of methodological quality. Data were extracted separately

for each relevant preventive care element and for each risk behaviour (smoking, alcohol, nutrition, physical activity). For intervention studies, only baseline data were extracted. For longitudinal studies, the most recent data were extracted as it was considered to most closely represent current practice.

Data Analysis and Synthesis

Outcome measures were grouped by data type: clinician reported; client reported; or medical record audit. Preventive care reported in any form/terminology was categorised into the relevant 5A care elements (ask, assess, advise, assist, arrange/refer), and findings were reported using the framework for ease of reporting. The ‘ask’ and ‘assess’ elements of care were combined for analysis. Client reported and audit data were combined for analysis as they represented care provided to individual clients, whereas clinician reported data was reported separately as they represent the proportion of clinicians providing care to an unknown number of clients, consistent with a previous review of smoking care provision in hospitals.⁷⁵

To facilitate meta-analyses clinician reported data were converted to a common variable of ‘care provision to at least 50% of clients’. For instance, studies reporting care provision to a specific proportion of clients (such as 78%)⁷⁶⁻⁷⁹ were combined with studies reporting care to ‘more than 60% of clients’,⁸⁰ ‘50-100%’,^{43,81} and ‘80-100%’.⁴³ Clinician data utilising categorical responses to describe the frequency of care provision (for example, ‘always’) were not pooled in meta-analysis due to the subjective and nonspecific nature. Where a study reported multiple data points for a single care element and behaviour (for instance, 0% of clients were referred to a smoking cessation quitline, and 12% were referred to smoking cessation group education or treatment)⁸² both the highest and lowest proportions of care provided/received were utilised in separate meta-analyses to reflect the most and least optimistic estimations of care provision. If outcome data were

incomplete (missing numerators, denominators, or proportions), data were calculated and backfilled using available data from the studies.

Pre-specified meta-analyses were conducted in RStudio,⁸³ by JBa with the assistance of a statistician and guidance of ES and RH, where comparable outcome measures were pooled. Random-effects models were utilised to determine pooled prevalence estimates for each preventive care element by each risk behaviour; calculated as proportions and 95% confidence intervals (CIs). Random-effects models were selected as heterogeneity between studies was expected given the different contexts, settings, and delivery of preventive care reported.^{84,85} Meta-analyses were conducted where at least two studies contributed data for an outcome measure.⁸⁴ Heterogeneity in the pooled estimates was assessed via visual inspection of forest plots and consideration of the I^2 statistic.⁸⁴ Where substantial, heterogeneity was explored via subgroup and sensitivity analyses. Where data could not be combined for meta-analysis, narrative summary was undertaken.

Assessment of Methodological Quality

The methodological quality of each study was assessed independently by two reviewers (JBa and one of: AM, TR, RC, DT, JD, KB) using the Joanna Briggs Institute Critical Appraisal tool: Checklist for Prevalence Studies (Supplementary document S.3.2).⁸⁶ The following nine domains were assessed: appropriateness of sample frame; appropriateness of participant recruitment; adequacy of sample size; sufficient description of subjects and setting; analysis conducted with sufficient coverage of subgroups; measurement or classification bias; reliable measurement of condition; appropriateness of statistical analysis; and adequacy of response rate. Disagreements were resolved through consensus via discussion or with a third reviewer (KB, JBo).

Subgroup and Sensitivity Analyses

Where possible, pre-specified subgroup analyses were conducted by: mental health service type: inpatient setting; outpatient setting; and other/multiple service settings. Where heterogeneity was substantial ($I^2 > 50\%$; chi-square $p < 0.1$)⁸⁴ post-hoc subgroup analyses were conducted by data type, analysing client reported and medical record audit data separately to explore this. Post-hoc subgroup analyses were also conducted by country.

Pre-specified sensitivity analyses were conducted to exclude studies categorised as high risk of bias (scoring > 1 'no' response on methodological quality tool).⁸⁶ Additional sensitivity analyses were conducted to exclude any studies utilising data that were calculated by the reviewers for the purpose of the review. Furthermore, sensitivity analyses were conducted on clinician reported data to exclude studies reporting any data not in the form of an exact proportion of care provision (for example, '80-100%').

Assessment of Confidence in Cumulative Evidence

Confidence in the cumulative evidence of the primary review outcomes (pre-specified meta-analyses of the provision of care elements by each risk behaviour) were assessed by JBa using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.⁸⁷⁻⁹⁰

Differences Between Protocol and Review

Studies published in languages other than English were originally excluded at full text screening due to inadequate funding for translation as stated in the protocol. However, those studies were subsequently translated to determine eligibility; with consultation from corresponding authors where requested. Data extraction was conducted by two reviewers independently rather than by one reviewer, with a second reviewer checking for consistency, as stated in the protocol. Additionally, the assessment of the

cumulative evidence of the main outcomes through the GRADE approach was planned post protocol registration.

Results

Study Selection

After duplicates were removed, 16153 titles and abstracts were screened, 206 studies underwent full-text screening, with 38 studies eligible for inclusion in the review across 48 publications (Figure 3.1). Twenty-one studies reported data amenable to meta-analyses; data from 12 studies, which could not be combined for meta-analysis, were summarised narratively; and 5 studies contributed data to both meta-analyses and narrative summaries.

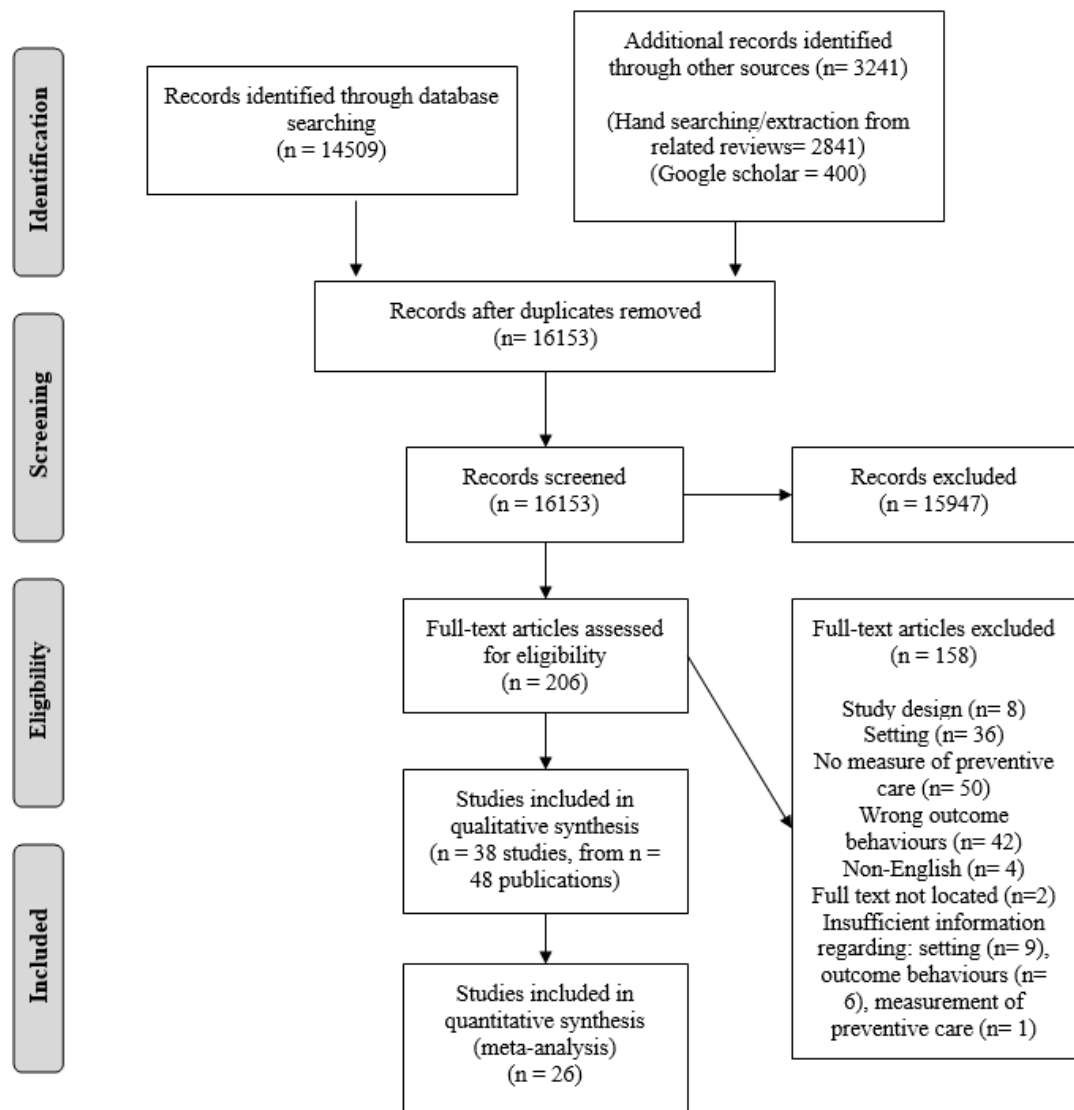


Figure 3.1 PRISMA study flow diagram of studies published from 2006-2017

Characteristics of Included Studies

The majority of the 38 studies were conducted in either Australia (14)^{41-44,80,91-99} or the USA (11).^{76,78,81,82,100-106} Eight described client reported receipt of preventive care,^{42,77,92,94,95,103,105,107} 21 described clinician reported provision of care,^{43,44,76-82,91,93,98,100,101,106,108-113} and 12 described medical record audit data;^{41,45,82,96,97,99,102,104,105,114-116} where some studies utilised more than one method of data type. Eighteen studies reported data collected in psychiatric inpatient settings;^{45,77-79,92-95,97-99,103,105-107,109,110,116} 12 in outpatient settings;^{42,43,76,80,81,96,101,104,108,114-116} and 10 in other or multiple mental health service types (Table 3.1).^{41,44,82,91,100,102,111-113,116} Of the 20 studies that utilised client or audit data, 11 reported information on client psychiatric diagnosis;^{42,45,82,92,94-96,99,103,105,114} where mood and psychotic disorders were commonly reported (Supplementary document S.3.3). Of the 21 studies that examined clinician reported data, 20 reported clinician profession;^{43,44,76,78-82,91,93,98,100,101,106,108-113} with clinical/unit managers, and nursing staff frequently surveyed.

Table 3.1 Included studies reporting the provision of preventive care in mental health services from 2006-2017

[illegible]

[illegible]

	2006- 57 (91.9%) clinicians																	
Etter ^{b107} 2007 Switzerland	2003-2004 2 inpatient psychiatric units within a hospital 49 (86%) patients	Client report	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Leyro ¹⁰³ 2013 USA	2006-2010 2 psychiatric hospitals 324 (71% and 79% per hospital) patients	Client report	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Prochaska ¹⁰⁵ 2006 USA	nr 1univeristy-based inpatient psychiatry unit 100 (87%) patients	Client report	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
	100 records	Medical record audit	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Siru ⁹² 2010 Australia	2008 Department of Psychiatry in a major teaching hospital 64 (nr) patients	Client report	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Stockings ⁹⁵ 2014 Australia	2010-2011 3 psychiatric inpatient units in a large, regional public hospital 205 (69%) patients	Client report	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Stockings ⁹⁴ 2015 Australia	2009-2010 3 psychiatric inpatient units in a large, regional public hospital 181 (90.9%) patients	Client report	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Haddad ¹⁰⁹ 2016 UK	nr 1 low secure forensic psychiatric inpatient unit	Clinician report	✗	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗

	57 (90.5%) clinicians																	
Keizer ¹¹⁰ 2014 Switzerland	2009 Department of Mental Health and Psychiatry in a large hospital 155 (72.4%) clinicians	Clinician report	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Sarna ¹⁰⁶ 2009 USA	nr Adult psychiatric inpatient settings in a Magnet-designated health care facility 100 (100%) nurses	Clinician report	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Schacht ⁷⁸ 2012 USA	2011 206 state inpatient psychiatric facilities 165 (80%) facility directors	Clinician report	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Stanton ⁹³ 2015 Australia	nr inpatient psychiatric facilities in a regional city in QLD 34 (nr) nurses	Clinician report	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✓
Wye ⁹⁸ 2009 Australia	2006 All publicly funded psychiatric inpatient units in NSW 123 (94%) nurse unit managers	Clinician report	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Zabeen ^{b79} 2015 UK	2010 Random sample of inpatient psychiatric units across England 147 (67%) unit managers	Clinician report	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Howard ⁴⁵ 2011 UK	nr 2 acute wards from a large mental health trust	Medical record audit	✓	✓	✗	✗	✓	✓	✗	✗	✓	✓	✗	✗	✓	✓	✗	✓

[illegible]

[illegible]

Stanley ⁴¹ 2013 Australia	2011-2012 1 Fremantle adult psychiatric hospital with inpatient and outpatient services, 1 Kimberley rural mental health and drug service 56 Kimberley records 228 Fremantle records	Medical record audit	✓	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗	✓	✗	✗	✗
Total ^c			23/41	22/41	25/41	12/41	7/41	3/41	1/41	2/41	4/41	8/41	0/41	2/41	4/41	9/41	0/41	4/41

* As- Ask/ Assess, Ad- Advise, At- Assist, Ar- Arrange.

✓ - Assessed, ✗ - Not assessed

nr = Not reported

^a Data not reported in paper, analysed for review purposes

^b Study reported incomplete outcome data where either the numerator or denominator of care provision/receipt was not reported and calculations were assumed.

^c Total number of data sources (41) from 38 studies reporting on the provision of preventive care

Provision of Preventive Care

Most (36) studies reported the receipt/provision of smoking cessation care, with fewer reporting the receipt/provision of care for: inadequate physical activity (10); inadequate nutrition (9); and harmful alcohol consumption (8; Table 3.1).

With regard to elements of care provision: the proportions of clients reporting being asked/clinicians reporting ‘asking’ about and/or ‘assessing’ extent of client risk behaviour was reported in 23 studies; ‘advising’ the modification of risk behaviours was reported in 25 studies; ‘assisting’ with behaviour change was reported in 22 studies; and ‘arranging’ referral or further behaviour change support was reported in 13 studies (Table 3.1).

Assessment of Methodological Quality

Most studies were of low methodological quality; 25/38 classified as high risk of bias. Most studies adequately described the subjects and setting, and had adequate response rates. Just two studies utilised appropriate statistical analysis, and no studies utilised a valid measurement of care provision; nor did data analysis provide sufficient coverage of subgroups-that is, coverage bias resulting from differing response rates among subgroups (where applicable; Supplementary document S.3.4).

Meta-Analysis of Prevalence of Preventive Care Provision

Due to space constraints, meta-analysis results presented below reflect the highest estimations of care provision across clinician, client and audit reported data. Refer to Table 3.2 for results of the lowest estimations, and Supplementary document S.3.5 for all Forest plots.

Ask/Assess

Client and audit reported care data were available for meta-analysis for all four behaviours, however clinician reported data were only available for smoking. According to the combined client and audit reported data, assessment was most likely to occur for alcohol use (62%, 95% CI: 42%-81%; I^2 99%; participants=3240; studies=6), followed by smoking (54%, 95% CI: 38%-71%; I^2 99.7%; participants=10574; studies=12; Figure 3.2), physical activity (35%, 95% CI: -1%-72%; I^2 99.6%; participants=641; studies=3), and nutrition (17%, 95% CI: 1%-35%; I^2 98.6%; participants=813; studies=3). Assessment of smoking via clinician report was somewhat higher (78%, 95% CI: 59%-96%; I^2 97.7%; participants=515; studies=4). Heterogeneity in pooled estimates was substantial (I^2 >50%; Supplementary documents S.3.5, S.3.6).

Advise

Client and audit reported data for “advice” were available for meta-analyses for all behaviours, and clinician reported data for all behaviours except alcohol. The receipt of client and audit reported advice to change at risk behaviours was similar for nutrition (47%, 95% CI: 5%-90%; I^2 95.6%; participants=152; studies=2), physical activity (46%, 95% CI: -30%-123%; I^2 99.5%; participants=190; studies=2), and alcohol (42%, 95% CI: -19%-102%; I^2 98.8%; participants=228; studies=2), yet lower for smoking (28%, 95% CI: 14%-42%; I^2 98.4%; participants=1880; studies=10; Figure 3.2). Similar proportions of advice were provided via clinician report for smoking (46%, 95% CI: 31%-61%; I^2 88.5%; participants=384; studies=3) and nutrition (54%, 95% CI: 48%-59%; I^2 0%; participants=305; studies=2), with advice for physical activity somewhat higher (72%, 95% CI: 49%-95%; I^2 95.4%; participants=211; studies=2). Heterogeneity was substantial, with the exception of clinician reported nutrition advice; however this value

is a probable underestimation of heterogeneity due to the small number of data points (Supplementary documents S.3.5, S.3.6).¹¹⁷

Assist

Meta-analyses were conducted for clinician and client/audit reported data and were possible for the provision of assistance for smoking only. The pooled prevalence of clinician reported provision of assistance for smoking was 52% (95% CI: 31%-73%; I^2 94.2%; participants=339; studies=4), while client and audit reported receipt was 37% (95% CI 13%-61%; I^2 99.7%; participants=3141; studies=8; Figure 3.2). Heterogeneity was substantial (Supplementary documents S.3.5, S.3.6).

Arrange

Client and audit reported data enabled meta-analysis for smoking and physical activity outcomes, while clinician reported data were available for meta-analysis of smoking only. The pooled prevalence of clinician reported arrangement of smoking cessation care was 30% (95% CI: 1%-59%; I^2 95.6%; participants=211; studies=2), whilst the client and audit reported receipt was 21% (95% CI: -7%-49%; I^2 98.9%; participants=388; studies=3; Figure 3.2). Client and audit reported receipt of care arranged for physical activity was 35% (95% CI: 10%-59%; I^2 87.8%; participants=190; studies=2). Heterogeneity was substantial (Supplementary documents S.3.5, S.3.6).

Table 3.2 Summary of effects of all meta-analyses of included studies published from 2006-2017

Outcome ^a	% (95% CI)	<i>I</i> ² (%)	<i>p</i>	n	n of studies
Meta-analysis results:					
Overall clinician reported data- highest estimates of care provision					
Ask/Assess					
Smoking	78 (59%-96%)	97.7	<.01	515	4
Advise					
Smoking	46 (31%-61%)	88.5	<.01	384	3
Nutrition	54 (48%-59%)	0	0.78	305	2
Physical activity	72 (49%-95%)	95.4	<.01	304	2
Assist					
Smoking	52 (31%-73%)	94.2	<.01	339	4
Arrange					
Smoking	30 (1%-59%)	95.6	<.01	211	2
Overall clinician reported data- lowest estimates of care provision					
Ask/Assess					
Smoking	78 (59%-96%)	97.7	<.01	515	4
Advise					
Smoking	43 (32%-54%)	78.5	<.01	384	3
Nutrition	54 (48%-59%)	0	0.78	305	2
Physical activity	72 (49%-95%)	95.4	<.01	304	2
Assist					
Smoking	39 (12%-67%)	97.8	<.01	339	4
Arrange					
Smoking ^b	7 (0%-20%)	90.0	<.01	229	2
Overall client and audit reported data- highest estimates of care provision					
Ask/Assess					
Smoking	54 (38%-71%)	99.7	<.01	10574	12
Alcohol	62 (42%-81%)	99.0	<.01	3240	6
Nutrition ^b	17 (0%-35%)	98.6	<.01	813	3
Physical activity ^b	35 (0%-72%)	99.6	<.01	641	3
Advise					
Smoking	28 (14%-42%)	98.4	<.01	1880	10
Alcohol ^b	42 (0%-100%)	98.8	<.01	228	2
Nutrition	47 (5%-90%)	95.6	<.01	152	2
Physical activity ^b	46 (0%-100%)	99.5	<.01	190	2
Assist					
Smoking	37 (13%-61%)	99.7	<.01	3141	8
Arrange					
Smoking ^b	21 (0%-49%)	98.9	<.01	388	3
Physical activity	35 (10%-59%)	87.8	<.01	190	2
Overall client and audit reported data- lowest estimates of care provision					
Ask/Assess					
Smoking	41 (22%-61%)	99.6	<.01	10574	12
Alcohol	62 (42%-81%)	99.0	<.01	3240	6

Nutrition ^b	17 (0%-35%)	98.6	<.01	813	3
Physical activity ^b	35 (0%-72%)	99.6	<.01	641	3
Advise					
Smoking	25 (10%-40%)	99.2	<.01	1880	10
Alcohol ^b	42 (0%-100%)	98.8	<.01	228	2
Nutrition	47 (5%-90%)	95.6	<.01	152	2
Physical activity ^b	46 (0%-100%)	99.5	<.01	190	2
Assist					
Smoking	31 (7%-56%)	99.8	<.01	3141	8
Arrange					
Smoking ^b	3 (0%-7%)	85.5	<.01	388	3
Physical activity ^b	10 (0%-29%)	84.0	0.01	190	2

^a Meta-analyses were not possible for all health behaviours by all care elements due to insufficient numbers of studies ($n < 2$) contributing data.

^b In some cases approximate confidence intervals for the proportion gave limits outside 0 and 1. These cases have been truncated to 0 or 1 as appropriate.

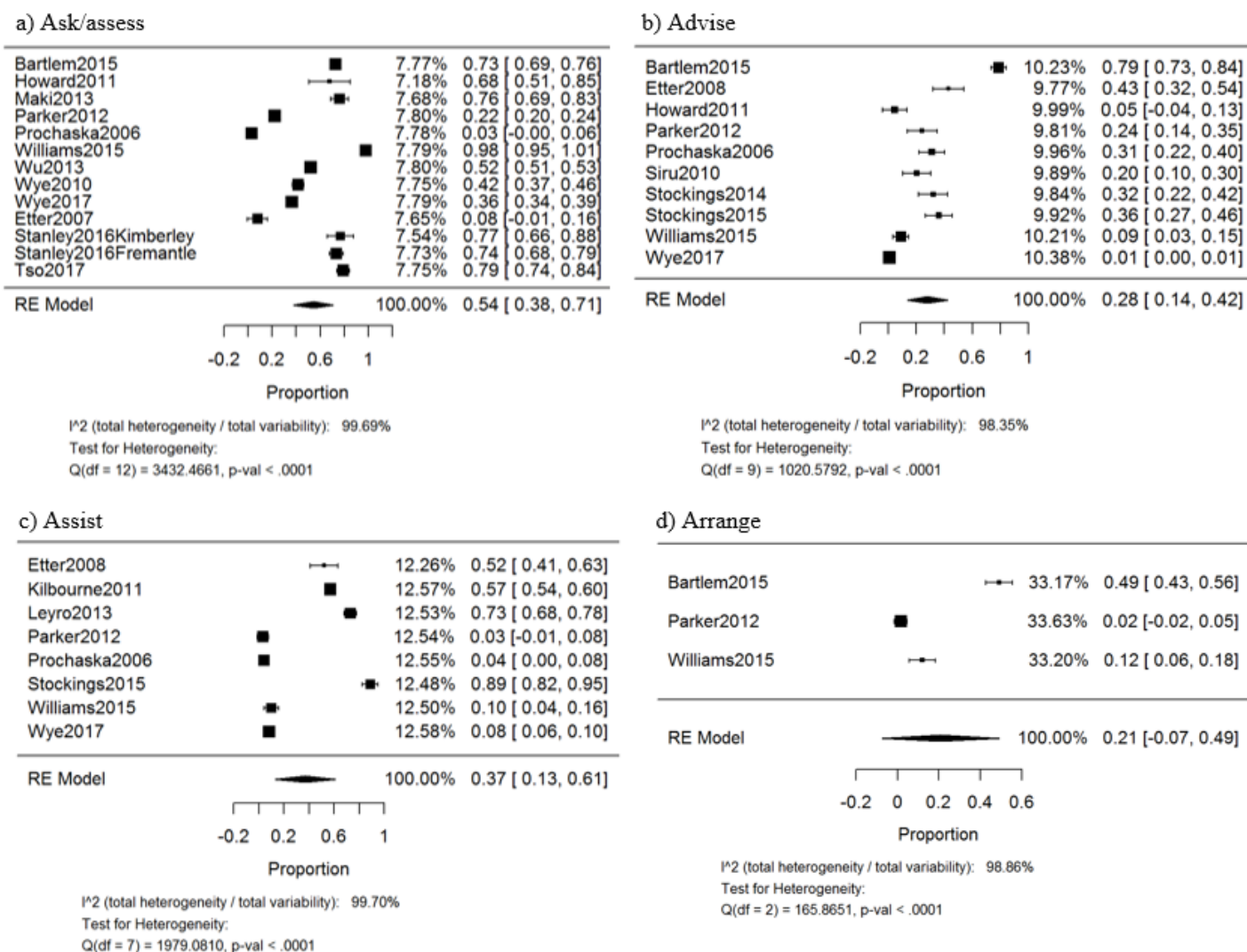


Figure 3.2 Forest plots of the overall client and audit reported highest estimates of smoking cessation care provision by care element: a) ask/assess, b) advise, c) assist, and d) arrange

Note: Error-bars represent 95% confidence intervals; included studies published from 2006-2017. At times, 95% confidence intervals exceed the boundaries of the proportion (between 0 and 1), as the random effects binomial proportion interval (Wald interval) assumes a normal distribution

Assessment of Confidence in Cumulative Evidence

GRADE ratings for outcome measures were initially classified as ‘low’ as the included data were observational.⁸⁹ The quality of evidence (GRADE) in all meta-analyses for all elements of care provision, across all four risk behaviours, was downgraded to ‘very low’ due to risk of bias, and/or inconsistency, and/or imprecision of results (Supplementary document S.3.6).⁹⁰

Narrative Synthesis

Seventeen studies reported data not conducive to meta-analysis. Thirteen of these studies reported data using categorical responses describing the frequency of clinician care provision (for example, ‘always’).^{44,82,91,93,98,100,101,106,108-111,113} Two of the 17 studies, one utilising client reported data and one clinician report, were not included in the meta-analyses as no other studies reported data points for the same risk behaviour and care element.^{42,43} Five of the 17 studies, also utilised categorical responses, reporting preventive care outcomes in mean scores rather than proportions: for smoking: ask/assess;^{76,91} advise;⁷⁶ assist;^{44,76,100,112} and arrange;⁷⁶ and advice for nutrition and physical activity;¹⁰⁰ and assistance for alcohol, nutrition, and physical activity (Supplementary document S.3.3).⁴⁴

Ask/Assess

The proportions of clinicians reporting ‘often’ or ‘always’ providing assessment care for smoking was 26.1-100%.^{82,91,101,106,108,111} Proportions of clinicians reporting providing 80-100% of clients with assessment was greatest for alcohol (89.4%), followed by physical activity (59.6%), and nutrition (13.2%).⁴³

Advise

The highest proportions of clinicians reporting ‘often’ or ‘always’ providing advice were found for nutrition (61-100%)^{44,100,109,113} and physical activity (53-100%),^{44,93,100,109,113} with a more variable range for smoking (16-100%).^{82,98,101,106,108} Additionally, 80.1% of clinicians were reported to provide advice to reduce alcohol consumption to 80-100% of clients.⁴³

Assist

Between 5-92.9% of clinicians reported ‘often’ or ‘always’ providing clients with assistance for smoking,^{44,82,98,100,101,106,108,109,111,113} and 86.2% reported ‘often’ or ‘always’ providing assistance for alcohol consumption.⁴⁴ No studies reported on assistance for nutrition or physical activity.

Arrange

Between 8-94% of clinicians reported ‘often’ or ‘always’ arranging care for smoking for clients.^{82,98,101,106,111} Higher proportions of clinicians reported arranging care for 80-100% of clients for alcohol consumption (60.9%), compared to physical activity (40.1%) and nutrition (22.5%).⁴³ Additionally, 38% of clients reported receiving care for alcohol, and 43% reported receiving care for nutrition (Supplementary document S.3.3).⁴²

Subgroup and Sensitivity Analyses

Service type

Pre-specified subgroup analyses were conducted by mental health service type: inpatient; outpatient; and other/multiple settings (Supplementary documents S.3.5, S.3.7). With respect to subgroup analyses of clinician reported data, provision of care did not differ significantly in inpatient or outpatient settings relative to the overall pooled estimate.

Subgroup analyses of client and audit reported data of care provision by setting revealed non-significant trends of variability in pooled prevalence estimates between settings. Client and audit reported care for smoking ask/assessment was lower in inpatient settings (31%), and higher in outpatient (70%) and other settings (68%) relative to the overall pooled estimate (54%). Ask/assessment of alcohol consumption was lower in outpatient settings (49%) and higher in other settings (83%) compared to the pooled estimate (62%). Additionally, receipt for smoking cessation assistance was lower in other settings (23%) and higher in inpatient settings (45%) relative to the overall pooled estimate (37%; Supplementary document S.3.7).

Heterogeneity remained substantial for all individual subgroup analyses with the exception of: clinician reported provision of nutrition advice in outpatient settings (I^2 0%); and client receipt of alcohol ask/assessment in other settings (I^2 0%; Supplementary document S.3.6), however these values are likely an underestimation of heterogeneity due to small number of data points.¹¹⁷ To explore substantial heterogeneity, a further post-hoc subgroup analysis of client and audit data separately by setting type was conducted, however heterogeneity remained substantial with the exception of audit data of smoking advice in inpatient settings (I^2 0%; Supplementary document S.3.7).

Post-hoc subgroup analyses were conducted by country, where possible (Australia only for clinician reported data; and Australia, UK, and US for client and audit data). With respect to Australian clinician reported data, no significant differences were found compared to the overall meta-analyses. Moreover, subgroup analyses using client and audit reported data yielded no significant differences between the countries or the overall estimates (Supplementary document S.3.7).

Sensitivity analyses

Pre-specified sensitivity analyses were conducted to exclude studies at high risk of bias. All studies reporting clinician data were assessed at high risk of bias; therefore analysis was not possible. Sensitivity analyses of client and audit reported care excluding studies at high risk of bias revealed a similar pooled prevalence to all possible comparisons (within 6%) with the overall meta-analyses results (Supplementary document S.3.8).

Post-hoc sensitivity analyses were conducted to exclude any data calculated by the authors for the purpose of the review. This eliminated all clinician reported analyses bar one, where clinician reported ask/assess of smoking was similar to overall care provision estimates; as were all client and audit reported sensitivity analyses excluding calculated data (Supplementary document S.3.8).

Finally, sensitivity analyses utilising only exact proportions of clinician reported care provision estimates yielded just one analysis, where the pooled prevalence of provision of assistance for smoking did not differ from the overall estimate (Supplementary document S.3.8).

Discussion

This is the first review to comprehensively synthesise the international evidence on the provision of preventive care by mental health services for four modifiable chronic disease risk behaviours by individual preventive care elements and by service type. Meta-analysis revealed sub-optimal levels of care provision (defined as <80% of clients in receipt of care in previous research)¹¹⁸⁻¹²⁰ across clinician and client/audit reported data for each of the four risk behaviours and all analysed care elements. Relatively few of the included studies examined the provision of care for behaviours other than smoking and across all care elements. Estimations of care provision by care element varied across risk

behaviours revealing no clear patterns. Similarly, subgroup analyses did not reveal any consistent trends across settings or country, likely due to the small number of studies available. Further research is needed to explore the extent to which different mental health settings provide preventive care for harmful alcohol consumption, inadequate nutrition, and inadequate physical activity.

One of the key findings of the review was the wide variation in how care was measured across the included studies; hampering comparisons across studies. Moreover, the creation of the pooled clinician measure lacked specificity whereby estimates of care could only be calculated for ‘at least 50% of clients’. Despite these constraints, pooled estimates of care provision suggest between one-third and three-quarters (36-78%) of clinicians are providing at least 50% of clients with preventive care for the behaviours and care elements analysed. Whilst these findings suggest overall sub-optimal levels of care provision, many clinicians are currently providing care to at least 50% of clients suggesting an attempt to incorporate preventive care into service practice where clinicians are aware of the requirement.^{29-32,34-36,38} However, less than a third of studies reported any details on any policies or procedures operational within the settings studied regarding the requirements of preventive care provision.^{41-43,94,95,97,103,107,110,116}

Another key finding of the review was the dearth of previous research assessing the extent to which care is provided for behaviours other than smoking in mental health services. No included studies reported on the provision of assistance for improving nutrition or physical activity by clinician nor client, nor audit reported data. Similarly no studies reported provision of assistance for alcohol consumption by client or audit report, and only one study (in the narrative synthesis report)⁴⁴ reported on the provision of assistance for alcohol consumption by clinician reported data. As such, the current provision of care in the form of assistance to address nutrition, physical activity, and

alcohol consumption is largely unknown and requires further investigation in subsequent research.

The findings of this review confirm sub-optimal reports of the provision of preventive care reported in individual identified studies and the previous narrative review of smoking cessation care provision in inpatient settings;³⁹ suggesting a need for further research to address barriers to the provision of preventive care. Previous research conducted in mental health settings has identified multiple barriers to the provision of preventive care at the clinician and service level.^{76,80,81,91,108,123-130} To address such barriers, various strategies have been tested and demonstrated to reduce clinician burden in providing preventive care and increase the provision of care such as: reduction of the '5As' model to '2As and R';^{131,132} incorporation of tools such as prompts, recording and arrange/referral protocols;¹³³⁻¹³⁵ and training in the provision of care and referral options.¹³⁶ Alternatively, the institution of a specialist preventive care provider embedded in mental health services, relieving mental health clinicians of the role of preventive care provision, has been trialled through limited research and found to increase care provision.¹³⁷⁻¹³⁹ Further research could focus on the design of practice change interventions to address identified barriers and increase the provision of care across mental health services. Additionally, the review investigated care provision for the four leading modifiable chronic disease risk behaviours. Future research could examine the provision of care by mental health services for other modifiable risk behaviours, such as sleep; more recently recognised as a risk factor for chronic disease.^{140,141}

Study Limitations and Strengths

This is the first review to comprehensively synthesise the international published evidence on the provision of preventive care by mental health services for four health risk behaviours by individual preventive care elements and by service type.

The review is limited by the variability and heterogeneity of included individual studies. Substantial heterogeneity remained throughout the majority of meta-analyses and subgroup analyses, contributing to the very low quality assessment of the cumulative evidence. As included studies were observational to reflect real-world practice and not conducted under strict controlled conditions, some heterogeneity is to be expected. Such heterogeneity might be explained by between-study differences in methodology including measurements and definitions of care elements used to assess care provision, or by population characteristics such as country; clinician qualification/profession; or psychiatric diagnosis of clients.^{121,122} Heterogeneity may also result from true differences in provision of care impacted by unknown characteristics, such as whether or not the settings studied operated under specific preventive care policies; as changes in smoke-free policies have resulted in changes in smoking cessation care provision.⁷⁷ As mentioned above, limited studies provided information on whether or not a service operated under specific preventive care policies, and few studies that mentioned active policies or procedures provided any description of such procedures.^{41-43,94,95,110} Future research on preventive care provision in mental health settings could seek to utilise uniformed measurements of preventive care provision and elucidate the preventive care policy and procedural contexts in which services operate.

Review findings should be considered with caution due to the very low quality of cumulative evidence, suggesting future studies are likely to change the estimates; and in light of the following limitations. The majority of studies were categorised as high risk of bias. Data relied on self-report measures and medical record audit; where clinician self-report may over-estimate care provision, whilst audit data may reflect an underestimation of care provision;¹⁴² suggesting client reported data may be a useful additional measure in future research where feasible.¹⁴² However, client report may also be susceptible to

recall bias.¹⁴² Future research could seek to compare the accuracy of such measures in the context of preventive care in mental health services.

The variability in assessment and reporting of outcome measures by included studies limited comparability and resulted in many meta-analysis outcomes being based on a limited number of studies. Clinician reported data could not be pooled to create an estimate of care provision to all clients, rather the more conservative estimate of care provision to at least 50% of clients was analysed. Finally, heterogeneity remained substantial despite subgroup and sensitivity analyses suggesting between-study differences that could not be explored due to inconsistencies or insufficient reporting of study measures and characteristics.

Conclusion

This review found suboptimal provision of preventive care for tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity in mental health settings across all analysed care elements. These findings are important to mental health service clinicians and managers as they suggest current preventive care is suboptimal across risk behaviours and service types; suggesting a need to improve the quality of interventions to increase the provision of preventive care. Utilisation of consistent care provision and reporting measures across all mental health services, relating to care provided to individual clients, would facilitate further synthesis of the prevalence of care provision. Future studies need to investigate methods to increase clinician delivery of preventive care in mental health services, which have an organisational culture and service issues that pose idiosyncratic challenges to the field of implementation science.^{143,144}

References

1. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. *The British journal of psychiatry : the journal of mental science*. 2010;196(2):116-121.
2. Laursen TM, Wahlbeck K, Hallgren J, et al. Life expectancy and death by diseases of the circulatory system in patients with bipolar disorder or schizophrenia in the Nordic countries. *PloS one*. 2013;8(6):e67133.
3. Wahlbeck K, Westman J, Nordentoft M, Gissler M, Laursen TM. Outcomes of Nordic mental health systems: life expectancy of patients with mental disorders. *The British journal of psychiatry : the journal of mental science*. 2011;199(6):453-458.
4. Chang CK, Hayes RD, Perera G, et al. Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. *PloS one*. 2011;6(5):e19590.
5. Lawrence D, Hancock K, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *Bmj*. 2013;346:f2539.
6. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: A systematic review and meta-analysis. *JAMA psychiatry*. 2015;72:334-341.
7. Olfson M, Gerhard T, Huang C, Crystal S, Stroup T. Premature mortality among adults with schizophrenia in the United States. *JAMA psychiatry*. 2015;72:1172-1181.
8. Erlangsen A, Andersen PK, Toender A, Laursen TM, Nordentoft M, Canudas-Romo V. Cause-specific life-years lost in people with mental disorders: a

- nationwide, register-based cohort study. *The Lancet Psychiatry*. 2017;4(12):937-945.
9. Callaghan RC, Veldhuizen S, Jeysingh T, et al. Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *J Psychiatr Res*. 2014;48(1):102-110.
 10. Markkula N, Harkanen T, Perala J, et al. Mortality in people with depressive, anxiety and alcohol use disorders in Finland. *British Journal of Psychiatry*. 2012;200(2):143-149.
 11. Scott D, Happell B. The high prevalence of poor physical health and unhealthy lifestyle behaviours in individuals with severe mental illness. *Issues in mental health nursing*. 2011;32(9):589-597.
 12. Stanley S, Laugharne J. The impact of lifestyle factors on the physical health of people with a mental illness: a brief review. *International journal of behavioral medicine*. 2014;21(2):275-281.
 13. Australian Institute of Health and Welfare. Risk factors contributing to chronic disease. Cat no. PHE157. In. Canberra: AIHW; 2012.
 14. World Health Organization. Global action plan for the prevention and control of noncommunicable diseases 2013-2020. In. Geneva: WHO; 2013.
 15. Hensrud D. Clinical preventive medicine in primary care: background and practice: 1. Rationale and current preventive practices. *Mayo Clin Proc*. 2000;75(2):165-172.
 16. Woolf S, Krist A, Rothenich S. Joining hands: partnerships between physicians and the community in the delivery of preventive care. In. Washington DC: Center for American Progress; 2006.

17. Hulscher M, Wensing M, van der Weijden T, Grol R. Interventions to implement prevention in primary care. *Cochrane Database of Systematic Reviews*. 1997;1:CD000362.
18. Australian Health Ministers' Advisory Council. National strategic framework for chronic conditions. In. Canberra: Australian Government; 2017.
19. Rees K, Dyakova M, Ward K, Thorogood M, Brunner E. Dietary advice for reducing cardiovascular risk. *Cochrane Database of Systematic Reviews*. 2013(3):Art. No.: CD002128.
20. Hillsdon M, Foster C, Thorogood M. Interventions for promoting physical activity. *Cochrane Database Syst Rev*. 2005(1):CD003180.
21. Rice VH, Hartmann-Boyce J, Stead LF. Nursing interventions for smoking cessation. *Cochrane Database Syst Rev*. 2013(8):CD001188.
22. Rigotti NA, Clair C, Munafo MR, Stead LF. Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev*. 2012(5):CD001837.
23. Brunner E, Rees K, Ward K, Burke M, Thorogood M. Dietary advice for reducing cardiovascular risk. In: *Cochrane Database of Systematic Reviews*. Issue 4. CD002128; 2007.
24. Foster C, Hillsdon M, Thorogood M. Interventions for promoting physical activity. In: *Cochrane Reviews*. Issue 1. CD003180; 2005.
25. Verhaeghe N, De Maeseneer J, Maes L, Van Heeringen C, Annemans L. Effectiveness and cost-effectiveness of lifestyle interventions on physical activity and eating habits in persons with severe mental disorders: a systematic review. *The international journal of behavioral nutrition and physical activity*. 2011;8:28.

26. Cabassa LJ, Ezell JM, Lewis-Fernandez R. Lifestyle interventions for adults with serious mental illness: A systematic literature review. *Psychiatric Services*. 2010;61(8):774-782.
27. Naslund JA, Whiteman KL, McHugo GJ, Aschbrenner KA, Marsh LA, Bartels SJ. Lifestyle interventions for weight loss among overweight and obese adults with serious mental illness: A systematic review and meta-analysis. *General hospital psychiatry*. 2017;47:83-102.
28. Happell B, Davies C, Scott D. Health behaviour interventions to improve physical health in individuals diagnosed with a mental illness: a systematic review. *International journal of mental health nursing*. 2012;21(3):236-247.
29. NSW Department of Health. Physical health care of mental health consumers. In: Sydney: NSW Department of Health; 2017.
30. NSW Department of Health. Physical health care within mental health services. In. Sydney, NSW: Department of Health; 2017.
31. NSW Mental Health Commission. Living Well: A Strategic Plan for Mental Health in NSW In: Commission NMH, ed. Sydney 2014.
32. National Preventive Health Taskforce. Australia: the healthiest country by 2020 - A discussion paper. In. Canberra: Commonwealth of Australia; 2008.
33. Royal Australian College of General Practitioners. Smoking, nutrition, alcohol, physical activity (SNAP): A population health guide to behavioural risk factors in general practice. In: Melbourne: Royal Australian College of General Practitioners; 2004.
34. Agency for Healthcare Research and Quality. Guide to Clinical Preventive Services 2010-2011. In: AHRQ Publication No. 10-05145, Rockville, MD.; 2010.

35. National Institute for Health and Care Excellence. Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care (Updated edition) Clinical guideline 82. In: The British Psychological Society & The Royal College of Psychiatrists; 2010.
36. National Institute for Health and Care Excellence. Smoking cessation in secondary care: Acute, maternity and mental health services. In. Vol public health guidance 48. London: NICE; 2013.
37. Glasgow RE, Goldstein MG, Ockene JK, Pronk NP. Translating what we have learned into practice. Principles and hypotheses for interventions addressing multiple behaviors in primary care. *American journal of preventive medicine*. 2004;27(2 Suppl):88-101.
38. US Department of Health and Human Services. The Guide to Clinical Preventive Services. In. Rockville MD: Agency for Healthcare Research and Quality. Pub. No. 09-IP006; 2009.
39. Wye P, Bowman J, Wiggers J, Freund M, Wolfenden L, Stockings E. Treating nicotine dependence in Australian mental health hospitals. *Mental Health and Substance Use Journal*. 2011;2(130).
40. Dickens GL, Ion R, Waters C, Atlantis E, Everett B. Mental health nurses' attitudes, experience, and knowledge regarding routine physical healthcare: Systematic, integrative review of studies involving 7,549 nurses working in mental health settings. *BMC nursing*. 2019;18(16).
41. Stanley SH, Laugharne J. Clinical guidelines for the physical care of mental health consumers: Multi-site service evaluation project 2013. In: Neurosciences SoPaC, ed. Crawley: University of Western Australia; 2013.

42. Bartlem K, Bowman J, Freund M, et al. Acceptability and Receipt of Preventive Care for Chronic-Disease Health Risk Behaviors Reported by Clients of Community Mental Health Services. *Psychiatric Services*. 2015;66(8):857-864.
43. Bartlem KM, Bowman JA, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American Journal of Preventive Medicine*. 2014;47(6):762-770.
44. Happell B, Platania-Phung C, Scott D. Are nurses in mental health services providing physical health care for people with serious mental illness? An Australian perspective. *Issues in mental health nursing*. 2013;34(3):198-207.
45. Howard L, Gamble C. Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient care settings. *Journal of Psychiatric & Mental Health Nursing*. 2011;18(2):105-112.
46. Moher D, Shamseer L, Clarke M, et al. Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) 2015 statement. *Systematic Reviews*. 2015;4(1).
47. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA statement. *PLoS Med*. 2009;6:e1000097.
48. Stroup DF, Berlin SC, Olkin I, et al. Meta-analysis of observational studies in epidemiology: A proposal for reporting. *JAMA*. 2000;283(15):2008-2012.
49. Fiore MC, Jaen CR, Baker TB, et al. Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guidelines. In. Rockville, MD: US Department of Health and Human Services. Public Health Service; 2008.
50. Department of Health N. Physical health care within mental health services. In: Office MHaDaA, ed. Sydney: NSW Health; 2009.

51. World Health Organization. WHO report on the global tobacco epidemic, 2017: Monitoring tobacco use and prevention policies. In. Geneva: WHO; 2017.
52. World Health Organization. Global status report on alcohol and health 2018. In: 3.0IGO LCB-N-S, ed. Geneva: World Health Organization; 2018.
53. World Health Organization. Global recommendations on physical activity for health. In. Geneva: WHO; 2011.
54. World Health Organization. Diet, nutrition and the prevention of chronic diseases. Report of a joint WHO/FAO expert consultation. In. Geneva: WHO; 2003.
55. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. In: Canberra: Commonwealth of Australia; 2009.
56. National Health and Medical Research Council. Eat for health: Australian dietary guidelines summary. In: Canberra: Australian Government; 2013.
57. Department of Health. Make your move-sit less be active for life! In. Canberra: Commonwealth of Australia; 2014.
58. Ministerial Council on Drug Strategy. National drug strategy 2010-2015. In. Perth: Commonwealth of Australia; 2011.
59. Piercy KL, Troiano RP, Ballard RM, et al. The Physical Activity Guidelines for AmericansPhysical Activity Guidelines for AmericansPhysical Activity Guidelines for Americans. *JAMA*. 2018;320(19):2020-2028.
60. Her Majesty's Government. Factsheet 4: Physical activity guidelines for adults 19-64 years. In: Health Do, ed. London: Her Majesty's Government; 2011.
61. Canadian Society for Exercise Physiology. Canadian physical activity guidelines: For adults 18-64 years. In. Ottawa: Canadian Society for Exercise Physiology; 2011.

62. Ministry of Health. Eating and activity guidelines for New Zealand adults. In. Wellington: Ministry of Health; 2015.
63. U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015-2020 dietary guidelines for Americans. 8th Edition. In. Washington DC: U.S. Department of Health and Human Services; 2015.
64. Public Health England. Government dietary recommendations. In. London: Public Health England; 2016.
65. Health Canada. Canada's dietary guidelines. In. Ottawa: Health Canada; 2019.
66. Centers for Disease Control and Prevention. Best practices for comprehensive tobacco control programs - 2014. In: U.S. Department of Health and Human Services CfDcAP, ed. Atlanta: Centres for Disease Control and Prevention; 2014.
67. Centers for Disease Control and Prevention. Alcohol use and your health factsheet. In. CDC2018.
68. Department of Health. UK Chief Medical Officers' low risk drinking guidelines. In. London: Department of Health; 2016.
69. Department of Health and Social Care. Tobacco control plan: Delivery plan: 2017-2022. In. London: Department of Health and Social Care; 2018.
70. Health Canada. Canada's tobacco strategy. In. Ottawa: Health Canada; 2018.
71. Ministry of Health. New Zealand smoking cessation guidelines. In. Wellington: Ministry of Health; 2007.
72. Butt P, Berirness D, Gliksman L, Paradis C, Stockwell T. Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking. In. Ottawa: Canadian Centre on Substance Abuse; 2011.
73. *EndNote X8* [computer program]. Philadelphia: Clarivate Analytics; 2016.

74. *Covidence systematic review software* [computer program]. Melbourne, Australia: Veritas Health Innovation.
75. Freund M, Campbell E, Paul C, et al. Smoking care provision in hospitals: a review of prevalence. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2008;10(5):757-774.
76. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community mental health journal*. 2007;43(3):251-266.
77. Etter M, Khan AN, Etter JF. Acceptability and impact of a partial smoking ban followed by a total smoking ban in a psychiatric hospital. *Preventive medicine*. 2008;46(6):572-578.
78. Schacht L, Ortiz G, Lane MB, Jr. Smoking policies and practices in state psychiatric facilities: Survey results from 2011. In. Alexandria, VA.: National Association of State Mental Health Program Directors Research Institute.; 2012.
79. Zabeen S, Tsourtos G, Campion J, Lawn S. Type of unit and population served matters when implementing a smoke-free policy in mental health settings: Perceptions of unit managers across England. *International Journal of Social Psychiatry*. 2015;61(7):700-710.
80. Anderson AE, Bowman JA, Knight J, et al. Smoking cessation care provision and support procedures in Australian community mental health centers. *Psychiatric Services*. 2013;64(7):707-710.
81. Chwastiak L, Cruza-Guet MC, Carroll-Scott A, Sernyak M, Ickovics J. Preventive counseling for chronic disease: missed opportunities in a community mental health center. *Psychosomatics*. 2013;54(4):328-335.

82. Williams JM, Miskimen T, Minsky S, et al. Increasing tobacco dependence treatment through continuing education training for behavioral health professionals. *Psychiatric Services*. 2015;66(1):21-26.
83. RStudio Team. RStudio: Integrated development for R. 2015; <http://www.rstudio.com/>.
84. Deeks JJ, Higgins JPT, Altman DG, on behalf of the Cochrane Statistical Methods Group. Chapter 9: Analysing data and undertaking meta-analyses. In: Higgins JPT, Churchill R, Chandler J, Cumpston MS, eds. *Cochrane handbook for systematic reviews of interventions*. Version 5.2.0 [updated June 2017]. The Cochrane Collaboration; 2017.
85. Borenstien M, Hedges LV, Higgins JPT, Rothstein HR. *Introduction to meta-analysis*. West Sussex, UK: John Wiley & Sons, Ltd.; 2009.
86. Munn Z, Moola S, Lisy K, Riitano D, Tufanaru C. Methodological guidance for systematic reviews of observational epidemiological studies reporting prevalence and cumulative incidence data. *International Journal of Evidence-Based Healthcare*. 2015;13:147-153.
87. GRADE Working Group. Grading quality of evidence and strength of recommendations. *Bmj*. 2004;328:1490.
88. Guyatt GH, Oxman AD, Vist GE, et al. GRADE: An emerging consensus on rating quality of evidence and strength of recommendations. *Bmj*. 2008;336:924-926.
89. Guyatt GH, Oxman AD, Vist GE, Kunz R, Falck-Ytter Y, Schunemann HJ. GRADE: what is "quality of evidence" and why is it important to clinicians? *Bmj*. 2008;336:995-998.

90. Ryan R, Hill S. How to GRADE the quality of the evidence. Version 3.0. 2016. <http://cccr.org.cochrane.org/author-resources>.
91. Ashton M, Lawn S, Hosking JR. Mental health workers' views on addressing tobacco use. *Australian & New Zealand Journal of Psychiatry*. 2010;44(9):846-851.
92. Siru R, Hulse GK, Khan RJK, Tait RJ. Motivation to quit smoking among hospitalised individuals with and without mental health disorders. *Australian & New Zealand Journal of Psychiatry*. 2010;44(7):640-647.
93. Stanton R, Happell B, Reaburn P. Investigating the exercise-prescription practices of nurses working in inpatient mental health settings. *International journal of mental health nursing*. 2015;24(2):112-120.
94. Stockings EA, Bowman JA, Bartlem KM, et al. Implementation of a smoke-free policy in an inpatient psychiatric facility: Patient-reported adherence, support, and receipt of nicotine-dependence treatment. *International journal of mental health nursing*. 2015;24(4):342-349.
95. Stockings EAL, Bowman JA, Baker AL, et al. Impact of a postdischarge smoking cessation intervention for smokers admitted to an inpatient psychiatric facility: A randomized controlled trial. *Nicotine and Tobacco Research*. 2014;16(11):1417-1428.
96. Tso G, Kumar P, Jayasooriya T, Kisely S, Siskind D. Metabolic monitoring and management among clozapine users. *Australasian Psychiatry*. 2017;25(1):48-52.
97. Wye P, Bowman J, Wiggers J, et al. An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital. *Australian & New Zealand Journal of Public Health*. 2010;34(3):298-303.

98. Wye PM, Bowman JA, Wiggers JH, et al. Smoking restrictions and treatment for smoking: policies and procedures in psychiatric inpatient units in Australia. *Psychiatric Services*. 2009;60(1):100-107.
99. Wye PM, Stockings EA, Bowman JA, Oldmeadow C, Wiggers JH. Effectiveness of a clinical practice change intervention in increasing the provision of nicotine dependence treatment in inpatient psychiatric facilities: An implementation trial. *BMC Psychiatry Vol 17 2017, ArtID 56*. 2017;17.
100. Bolton PS, Knight M, Kopeski LM. Metabolic Syndrome. *J Psychosoc Nurs Ment Health Serv*. 2016;54(11):44-53.
101. Himelhoch S, Riddle J, Goldman HH. Barriers to Implementing Evidence-Based Smoking Cessation Practices in Nine Community Mental Health Sites. *Psychiatric Services*. 2014;65(1):75-80.
102. Kilbourne AM, Pirraglia PA, Lai Z, et al. Quality of general medical care among patients with serious mental illness: does colocation of services matter? *Psychiatric Services*. 2011;62(8):922-928.
103. Leyro TM, Hall SM, Hickman N, Kim R, Hall SE, Prochaska JJ. Clinical management of tobacco dependence in inpatient psychiatry: provider practices and patient utilization. *Psychiatric Services*. 2013;64(11):1161-1165.
104. Maki M, Bjorklund P. Improving cardiovascular disease screening in community mental health centers. *Perspectives in Psychiatric Care*. 2013;49(3):179-186.
105. Prochaska JJ, Fletcher L, Hall SE, Hall SM. Return to smoking following a smoke-free psychiatric hospitalization. *American Journal on Addictions*. 2006;15(1):15-22.

106. Sarna L, Bialous SA, Wells MJ, Kotlerman J. Smoking among psychiatric nurses: does it hinder tobacco dependence treatment? *Journal of the American Psychiatric Nurses Association*. 2009;15(1):59-67.
107. Etter M, Etter JF. Acceptability and impact of a partial smoking ban in a psychiatric hospital. *Preventive medicine*. 2007;44(1):64-69.
108. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
109. Haddad M, Llewellyn-Jones S, Yarnold S, Simpson A. Improving the physical health of people with severe mental illness in a low secure forensic unit: An uncontrolled evaluation study of staff training and physical health care plans. *International journal of mental health nursing*. 2016;25(6):554-565.
110. Keizer I, Gex-Fabry M, Bruegger A, Croquette P, Khan AN. Staff representations and tobacco-related practices in a psychiatric hospital with an indoor smoking ban. *International journal of mental health nursing*. 2014;23(2):171-182.
111. Ballbe M, Nieva G, Mondon S, et al. Smoke-free policies in psychiatric services: identification of unmet needs. *Tobacco Control*. 2012;21(6):549-554.
112. Guo S-E, Wang A-L, Shu B-C. Self-efficacy in providing smoking-cessation services among psychiatric nurses in central and southern Taiwan: An exploratory study. *International journal of mental health nursing*. 2015;24(2):158-168.
113. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.

114. Corradi-Webster CM, Laprega MR, Furtado EF. Do psychiatry residents document outpatients' alcohol problems? *Revista de Psiquiatria do Rio Grande do Sul*. 2009;31(3):187-191.
115. Wu CY, Chang CK, Robson D, et al. Evaluation of smoking status identification using electronic health records and open-text information in a large mental health case register. *PLoS ONE [Electronic Resource]*. 2013;8(9):e74262.
116. Parker C, McNeill A, Ratschen E. Tailored tobacco dependence support for mental health patients: A model for inpatient and community services. *Addiction*. 2012;107(Suppl 2):18-25.
117. von Hippel PT. The heterogeneity statistic I^2 can be biased in small meta-analyses. *BMC Medical Research Methodology*. 2015;15(35).
118. Bartlem K, Bowman J, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American journal of preventive medicine*. 2014;47(6):762-770.
119. McElwaine K, Freund M, Campbell E, et al. Clinician assessment, advice and referral for multiple health risk behaviors: Prevalence and predictors of delivery by primary health care nurses and allied health professionals. *Patient education and counseling*. 2014;94(2):193-201.
120. Freund M, Campbell E, Paul C, Sakrouge R, Wiggers J. Smoking care provision in smoke-free hospitals in Australia. *Preventive medicine*. 2005;41:151-158.
121. Haidich AB. Meta-analysis in medical research. *Hippokratia*. 2010;14(1):29-37.
122. Glasziou PP, Sanders SL. Investigating causes of heterogeneity in systematic reviews. *Statistics in Medicine*. 2002;21:1503-1511.

123. Johnson K, Fry C. The attitudes and practices of community managed mental health service staff in addressing physical health: Findings from a targeted online survey. *Advances in Mental Health*. 2013;11(3):163-171.
124. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.
125. Happell B, Scott D, Platania-Phung C, Nankivell J. Should we or shouldn't we? Mental health nurses' views on physical health care of mental health consumers. *International journal of mental health nursing*. 2012;21(3):202-210.
126. Hyland B, Judd F, Davidson S, Jolley D, Hocking B. Case managers' attitudes to the physical health of their patients. *Australian and New Zealand Journal of Psychiatry*. 2003;37(6):710-714.
127. Organ B, Nicholson E, Castle D. Implementing a physical health strategy in a mental health service. *Australasian psychiatry : bulletin of Royal Australian and New Zealand College of Psychiatrists*. 2010;18(5):456-459.
128. Happell B, Scott D, Nankivell J, Platania-Phung C. Screening physical health? Yes! But...: nurses' views on physical health screening in mental health care. *Journal of Clinical Nursing*. 2013;22(15-16):2286-2297.
129. Dunbar L, Brandt T, Wheeler A, Harrison J. Barriers and solutions to implementing metabolic risk assessment in a secondary mental health service. *Australasian Psychiatry*. 2010;18(4):322-325.
130. Nash M. Physical care skills: a training needs analysis of inpatient and community mental health nurses. *Mental Health Practice*. 2005;9(4):20-23.

131. Schroeder SA. What to do with a patient who smokes. *Journal of the American Medical Association*. 2005;294(4):482-487.
132. Revell C, Schroeder S. Simplicity matters: Using system-level changes to encourage clinician intervention in helping tobacco users quit. *Nicotine and Tobacco Research*. 2005;7(S1):S67-S69.
133. Shojania K, Jennings A, Mayhew A, Ramsay C, Eccles M, Grimshaw J. The effects of on-screen, point of care computer reminders on processes and outcomes of care. In: *Cochrane Database of Systematic Reviews*. Issue 3. Art. No.: CD001096.; 2009.
134. Wolfenden L, Wiggers J, Campbell E, Knight J, Kerridge R, Spigelman A. Providing comprehensive smoking cessation care to surgical patients: the case for computers. *Drug and alcohol review*. 2009;28:60-65.
135. Krist A, Woolf S, Frazier C, et al. An electronic linkage system for health behavior counseling: Effect on delivery of the 5A's. *American journal of preventive medicine*. 2008;35(5S):S350-358.
136. Sheffer M, Baker T, Fraser D, Adsit R, McAfee T, Fiore M. Fax referrals, academic detailing, and tobacco quitline use: a randomized trial. *American journal of preventive medicine*. 2012;42(1):21-28.
137. Osborn DP, Nazareth I, Wright CA, King MB. Impact of a nurse-led intervention to improve screening for cardiovascular risk factors in people with severe mental illnesses. Phase-two cluster randomised feasibility trial of community mental health teams. *BMC health services research*. 2010;10:61.
138. McKenna B, Furness T, Wallace E, et al. The effectiveness of specialist roles in mental health metabolic monitoring: a retrospective cross-sectional comparison study. *BMC psychiatry*. 2014;14:234.

139. Cunningham C, Peters K, Mannix J. Physical health inequities in people with severe mental illness: identifying initiatives for practice change. *Issues in mental health nursing*. 2013;34(12):855-862.
140. von Ruesten A, Weikert C, Fietze I, Boeing H. Association of sleep duration with chronic diseases in the European Prospective Investigation into Cancer and Nutrition (EPIC)-Potsdam study. *PloS one*. 2012;7(1):e30972-e30972.
141. Liu Y, Wheaton AG, Chapman DP, Croft JB. Sleep duration and chronic diseases among U.S. adults age 45 years and older: evidence from the 2010 Behavioral Risk Factor Surveillance System. *Sleep*. 2013;36(10):1421-1427.
142. Hrisos S, Eccles MP, Francis JJ, et al. Are there valid proxy measures of clinical behaviour? A systematic review. *Implementation science : IS*. 2009;4:37.
143. Sandstrom B, Willman A, Svensson B, Borglin G. Perceptions of national guidelines and their (non) implementation in mental healthcare: A deductive and inductive content analysis. *Implementation Science*. 2015;10(1):43.
144. Michie S, Pilling S, Garety P, et al. Difficulties implementing a mental health guideline: An exploratory investigation using psychological theory. *Implementation Science*. 2007;2:8

SUPPLEMENTARY APPENDIX TO: SYSTEMATIC REVIEW AND META-ANALYSIS OF THE PROVISION OF PREVENTIVE CARE FOR MODIFIABLE CHRONIC DISEASE RISK BEHAVIOURS BY MENTAL HEALTH SERVICES

The following supplementary appendices are additional components of the Chapter 3 Review, which were not included in the published paper but were made available through online supplementary material. These include: Medline search strategy; Joanna Briggs' Institute Critical Appraisal Checklist for Studies Reporting Prevalence Data; table of included studies reporting the provision of preventive care; summary of critical appraisal of methodological quality of included studies; forest plots for all meta-analyses and pre-specified subgroup analyses by setting type; table of meta-analyses results with GRADE ratings and reasons for downgrading; table of subgroup analysis results; table of sensitivity analysis results; PRISMA checklist, and; references of included studies.

Supplementary Document 3.1 Medline search strategy: search executed October 22nd 2016*

*search updated August 8th 2017

#	Searches	Results
1	exp Mental Disorders/	1078739
2	Mental Health/	27505
3	mental disorder.mp.	5604
4	mental illness.mp.	18312
5	mental health services/ or community mental health services/ or emergency services, psychiatric/ or social work, psychiatric/	49196
6	community psychiatry/ or preventive psychiatry/	1950
7	inpatients/ or outpatients/	26900
8	Hospitals, Psychiatric/	24049
9	Community Mental Health Centers/	2801
10	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9	1150721
11	(non governmentorgani?ation* or nongovernment organi?ation*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	468
12	residential facilities/ or assisted living facilities/	6014
13	Charities/	3550
14	consumerorgani?ation*.mp.	1372
15	health planning organi?ation*.mp.	874
16	health facilities/ or ambulatory care facilities/ or rehabilitation centers/	36156
17	Preventive Health Services/	12138
18	home care services/ or home care services, hospital-based/	31719
19	Home Care Agencies/	1283
20	hospitali?ation.mp.	153513
21	Patients/	18533
22	Health Services Research/	33670
23	Nursing/	50127
24	Psychiatric Nursing/	16153
25	Public Health Nursing/	9961

26	5 or 6 or 7 or 8 or 9 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25	440798
27	Cross-Sectional Studies/	229722
28	Observational Study/	27330
29	(surveys and questionnaires).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	363714
30	Health Care Surveys/	28014
31	Self Report/	16727
32	Prevalence/	230449
33	Medical Audit/	15935
34	Medical Records/	64296
35	Program Evaluation/	52931
36	Health Services Research/	33670
37	cross-sectionalsurve*.mp.	22100
38	cross-sectional stud*.mp.	243762
39	observational stud*.mp.	74646
40	27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39	968337
41	preventive health services/ or "early intervention (education)"/ or health education/ or exp health promotion/ or primary prevention/ or secondary prevention/	156569
42	consumer health information/ or patient education as topic/	79021
43	Primary Health Care/	62902
44	"Delivery of Health Care"/	74519
45	Evidence-Based Medicine/	63055
46	Health Knowledge, Attitudes, Practice/	87420
47	health behavior/ or motor activity/ or exp "tobacco use"/ or smoking/	259045
48	"tobacco use cessation"/ or smoking cessation/	24951
49	brief advice.mp.	336
50	Nicotine/	23301
51	(referral and consultation).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]	58952

52	(assess* adj7 (tobacco or smok* or nicotine or alcohol or drinking or nutrition or fruit or vegetable or exercise or physical or activity)).mp.	105219
53	(screen* adj7 (tobacco or smok* or nicotine or alcohol or drinking or nutrition or fruit or vegetable or exercise or physical or activity)).mp.	20821
54	"Attitude of Health Personnel"/	103116
55	Guideline Adherence/	25731
56	risk assessment/ or risk factors/	821078
57	Nutrition Assessment/	12027
58	Needs Assessment/	25425
59	counseling/ or directive counseling/	33541
60	Motivational Interviewing/	864
61	"Tobacco Use Cessation Products"/ or Tobacco/ or "Tobacco Use Cessation"/ or "Tobacco Use Disorder"/	37842
62	smoking*.tw.	164691
63	nutrition*.mp.	290777
64	Fruit/	33432
65	Vegetables/	20712
66	Diet/	134772
67	Exercise/	81399
68	Physical Fitness/	24707
69	Sedentary Lifestyle/	5240
70	physicalactivit*.tw.	68225
71	drinking behavior/ or alcohol drinking/	64668
72	Binge Drinking/	969
73	Chronic Disease/	242593
74	Obesity/ or Overweight/ or Body Weight/	314053
75	policy/ or smoke-free policy/	1859
76	41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75	2643897
77	10 and 26 and 40 and 76	10163
78	limit 77 to (humans and yr="2006 -Current")	6251

Supplementary Document 3.2 JBI Critical Appraisal Checklist for Studies

Reporting Prevalence Data

Reviewer _____ Date _____

Author _____ Year _____ Record Number _____

	Yes	No	Unclear	Not applicable
1. Was the sample frame appropriate to address the target population?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were study participants sampled in an appropriate way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the sample size adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were the study subjects and the setting described in detail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Was the data analysis conducted with sufficient coverage of the identified sample?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were valid methods used for the identification of the condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Was the condition measured in a standard, reliable way for all participants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was there appropriate statistical analysis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Was the response rate adequate, and if not, was the low response rate managed appropriately?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

Supplementary Document 3.3 Table of included studies reporting the provision of preventive care in mental health services from 2006-2017

Table 3.3 Table of included studies reporting the provision of preventive care in mental health services from 2006-2017

Author/ year published/ country	Year undertaken/ setting/ sample size (participation rate)/ Clinician profession and/or client psychiatric diagnosis (proportion) when reported	Data source	Data collection tool/ validity and reliability	Risk factor	Risk factor/ preventive care practices	Level of care provided % (95% confidence interval) Mean (SD)
Outpatient/community settings						
Anderson ^{b1} 2013 Australia	2009 79 community mental health services 79 (94%) service managers Centre manager (100%)	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Smoking status recorded for more than 60% of clients <u>Advise:</u> Negotiate a quit date for more than 60% of clients Brief advice offered to more than 60% of clients <u>Assist:</u> Smoking cessation care was frequently or always initiated as a systematic clinical procedure for all clients Monitoring quit attempts for more than 60% of clients Monitoring withdrawal symptoms for more than 60% of clients	56% (nr) 0% (na) 47% (nr) 19% (nr) 12% (nr) 11% (nr) 11% (nr)

					Providing written materials on quitting for more than 60% of clients	8% (nr)
					Providing extended advice for more than 60% of clients	34% (nr)
					More than 60% of clients provided with minimum acceptable smoking cessation care (recording client smoking status and offering smoking cessation brief advice, referral, or both).	37% (nr)
					Education about risks provided to more than 60% of clients	
					Recommended use of NRT provided to more than 60% of clients	26% (nr)
					Monitoring the effects of NRT to more than 60% of clients	11% (nr)
					Monitoring of medication needs affected by changes in smoking for more than 60% of clients	22% (nr)
					NRT to more than 60% of clients	4% (nr)
					<u>Arrange:</u>	
					Referral elsewhere excluding quitlines offered to more than 60% of clients	15% (nr)
					Referral to a quitline offered to more than 60% of clients	14% (nr)
Bartlem ² 2015 Australia	2011-2012 12 community mental health services from one health district in NSW 558 (72%) clients Depression (63%); bipolar disorder (22%); schizophrenia or psychotic illness (31%); anxiety disorder (39%); other (3%)	Client report	Computer assisted telephone interview, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Clinician assessed risk status during appointment	73% (69.1-76.5)
					<u>Advise:</u> Clinician advised to modify 'at risk' behaviour	79% (73.4-84.1)
					<u>Arrange:</u> 'at risk' clients received:	
					information about helplines	41% (34.3-84.1)
					provider offered to arrange referral	7% (3.7-10.4)
					advised to speak to GP	13% (8.4-17.2)
					advised to use other support types	29% (22.8-34.7)

Alcohol	advised to use any referral or follow-up	49% (24-55.7)
	<u>Ask/ Assess:</u>	
	Clinician assessed risk status during appointment	76% (72.2-79.4)
	<u>Advise:</u>	
	Clinician advised to modify 'at risk' behaviour	73% (66.3-78.7)
	<u>Arrange:</u>	
	'at risk' clients received:	
	advised to speak to GP	12% (7-16)
	advised to use other support types	38% (30.7-44.3)
	advised to use any referral or follow-up	38% (30.7-44.3)
Nutrition	<u>Ask/ Assess:</u>	
	Clinician assessed risk status during appointment	26% (22-29.3)
	<u>Advise:</u>	
	Clinician advised to modify 'at risk' behaviour	69% (60.3-76.8)
	<u>Arrange:</u>	
	'at risk' clients received:	
	information about helplines	20% (13-27.3)
	provider offered to arrange referral	1% (0-2.4)
	advised to speak to GP	2% (0-3.9)
	advised to use other support types	31% (22.4-38.9)
Physical Activity	advised to use any referral or follow-up	43% (33.9-51.6)
	<u>Ask/ Assess:</u>	
	Clinician assessed risk status during appointment	57% (53.2-61.4)
	<u>Advise:</u>	
	Clinician advised to modify 'at risk' behaviour	85% (79.7-90.7)
	<u>Arrange:</u>	
	'at risk' clients received:	
	information about helplines	12% (7.2-17.5)
	provider offered to arrange referral	4% (0.8-6.6)
	advised to speak to GP	2% (0-4)
		41% (33.7-49)

					advised to use other support types advised to use any referral or follow-up	46% (38.5-54.1)
Bartlem ³ 2014 Australia	2010 All public community mental health services in one local health district in NSW 151 (89%) clinicians Nursing (42.4%); allied health (35.8%); medical practitioner (21.9%)	Clinician report	Computer assisted telephone interview, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Proportion of all new clients during the past 2 months assessed for risk behaviour: 0% 1-49% 50-79% 80-100% <u>Advise:</u> Proportion of 'at risk' clients advised to: Quit smoking 0% 1-49% 50-79% 80-100% Use NRT 0% 1-49% 50-79% 80-100% To quit smoking or use NRT 0% 80-100% <u>Arrange:</u> Proportion of 'at risk' clients who received: Talk about helpline 0% 1-49% 50-79% 80-100% Arrange with helpline 0% 1-49% 50-79% 80-100%	7.9% (nr) 4% (nr) 7.9% (nr) 80.1% (nr) 31.8% (nr) 10.6% (nr) 6.6% (nr) 51% (nr) 34.4% (nr) 15.2% (nr) 11.3% (nr) 39.1% (nr) 22.5% (nr) 58.3% (nr) 50.3% (nr) 21.9% (nr) 12.6% (nr) 15.2% (nr) 92.7% (nr) 6% (nr) 1.3% (nr) 0% (nr)

	Advised to talk to GP	
	0%	34.3% (nr)
	1-49%	21.2% (nr)
	50-79%	17.9% (nr)
	80-100%	26.5% (nr)
	Advised other referral	
	0%	43.7% (nr)
	1-49%	17.9% (nr)
	50-79%	15.9% (nr)
	80-100%	22.5% (nr)
	Advised any referral/follow-up option	
	0%	22.5% (nr)
	80-100%	39.7% (nr)
Alcohol	<u>Ask/ Assess:</u>	
	Proportion of all new clients during the past 2 months assessed for risk behaviour:	
	0%	2% (nr)
	1-49%	5.3% (nr)
	50-79%	3.3% (nr)
	80-100%	89.4% (nr)
	<u>Advise:</u>	
	Proportion of 'at risk' clients advised to reduce alcohol consumption:	
	0%	13.9% (nr)
	1-49%	4% (nr)
	50-79%	2% (nr)
	80-100%	80.1% (nr)
	<u>Arrange:</u>	
	Proportion of 'at risk' clients who received:	
	Advised to talk to GP	
	0%	41.1% (nr)
	1-49%	15.9% (nr)
	50-79%	15.9% (nr)
	80-100%	27.2% (nr)
	Advised other referral	
	0%	17.9% (nr)

	1-49%	11.9% (nr)
	50-79%	16.7% (nr)
	80-100%	53.6% (nr)
	Advised any referral/follow-up option	
	0%	14.6% (nr)
	80-100%	60.9% (nr)
Nutrition	<u>Ask/ Assess:</u>	
	Proportion of all new clients during the past 2 months assessed for risk behaviour:	
	0%	
	1-49%	33.8% (nr)
	50-79%	33.1% (nr)
	80-100%	19.1% (nr)
	<u>Advise:</u>	13.2% (nr)
	Proportion of 'at risk' clients advised to eat more fruit or vegetables:	
	0%	
	1-49%	39.7% (nr)
	50-79%	7.3% (nr)
	80-100%	6.6% (nr)
	<u>Arrange:</u>	46.3% (nr)
	Proportion of 'at risk' clients who received:	
	Talk about helpline	
	0%	85.4% (nr)
	1-49%	6.6% (nr)
	50-79%	4% (nr)
	80-100%	4% (nr)
	Arrange with helpline	
	0%	97.4% (nr)
	1-49%	2% (nr)
	50-79%	0.7% (nr)
	80-100%	0% (na)
	Advised to talk to GP	
	0%	68.3% (nr)
	1-49%	9.9% (nr)
	50-79%	9.3% (nr)

	80-100%	12.6% (nr)
	Advised other referral	
	0%	48.3% (nr)
	1-49%	19.2% (nr)
	50-79%	16.6% (nr)
	80-100%	15.9% (nr)
	Advised any referral/follow-up option	
	0%	44.4% (nr)
	80-100%	22.5% (nr)
Physical Activity	<u>Ask/ Assess:</u>	
	Proportion of all new clients during the past 2 months assessed for risk behaviour:	
	0%	3.3% (nr)
	1-49%	13.9% (nr)
	50-79%	23.2% (nr)
	80-100%	59.6% (nr)
	<u>Advise:</u>	
	Proportion of 'at risk' clients advised to increase physical activity:	
	0%	9.9% (nr)
	1-49%	6.6% (nr)
	50-79%	9.3% (nr)
	80-100%	74.2% (nr)
	<u>Arrange:</u>	
	Proportion of 'at risk' clients who received:	
	Talk about helpline	
	0%	83.4% (nr)
	1-49%	7.9% (nr)
	50-79%	4.6% (nr)
	80-100%	4% (nr)
	Arrange with helpline	
	0%	96.7% (nr)
	1-49%	1.3% (nr)
	50-79%	1.3% (nr)
	80-100%	0.7% (nr)
	Advised to talk to GP	

					0%	55.6% (nr)
					1-49%	14.6% (nr)
					50-79%	11.9% (nr)
					80-100%	17.9% (nr)
					Advised other referral	
					0%	21.2% (nr)
					1-49%	25.8% (nr)
					50-79%	23.2% (nr)
					80-100%	29.8% (nr)
					Advised any referral/follow-up option	
					0%	17.2% (nr)
					80-100%	40.1% (nr)
Chwastiak ^{b4} 2013 USA	2011 1 community mental health centre 154 (71.6%) clinicians Psychiatrist (20.3%); nurse (16.3%); psychologist (9.2%); social worker or master's level counsellor (31.4%); case manager/other mental health worker (22.9%)	Clinician report	Internet based survey, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Provide specific counselling or recommendations about smoking to 50% or more of clients	33% (nr)
				Nutrition	<u>Advise:</u> Provide specific counselling or recommendations about poor nutrition to 50% or more of clients	54.5% (nr)
				Physical Activity	<u>Advise:</u> Provide specific counselling or recommendations about physical activity to 50% or more of clients	60.1% (nr)
Himelhock ⁵ 2014 USA	2011 9 community mental health settings 95 (100%) clinicians 50 (52.6%) were recruited from outpatient mental health clinics, and 45 (47.3%) were recruited from the psychosocial rehabilitation programs. Primarily psychiatrists and	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Ask smokers about interest in quitting Never Rarely Sometimes Often Always Identify a patient's smoking status at a typical visit Never Rarely	5% (nr) 14% (nr) 35% (nr) 32% (nr) 14% (nr) 4% (nr) 14% (nr)

master's-level therapists (nr)	Sometimes	40% (nr)
	Often	30% (nr)
	Always	12% (nr)
	<u>Advise:</u>	
	Advise to quit smoking on a typical visit	
	Never	4% (nr)
	Rarely	27% (nr)
	Sometimes	37% (nr)
	Often	23% (nr)
	Always	10% (nr)
	Provide brief counselling about how to quit smoking on a typical visit	
	Never	12% (nr)
	Rarely	23% (nr)
	Sometimes	46% (nr)
	Often	18% (nr)
	Always	1% (nr)
	<u>Assist:</u>	
	Give out written stop-smoking materials on a typical visit	
	Never	30% (nr)
	Rarely	37% (nr)
	Sometimes	22% (nr)
	Often	10% (nr)
	Always	1% (nr)
	Discuss use of medications to stop smoking on a typical visit	
	Never	25% (nr)
	Rarely	26% (nr)
	Sometimes	34% (nr)
	Often	14% (nr)
	Always	1% (nr)
	<u>Arrange:</u>	
	Refer to a nurse or someone else in the office for more information about quitting smoking on a typical visit	

					Never	38% (nr)
					Rarely	25% (nr)
					Sometimes	19% (nr)
					Often	17% (nr)
					Always	1% (nr)
					Refer patients for telephone counselling on a typical visit	
					Never	59% (nr)
					Rarely	17% (nr)
					Sometimes	14% (nr)
					Often	10% (nr)
					Always	0% (na)
					Suggest a follow-up visit or phone call about quitting smoking on a typical visit	
					Never	48% (nr)
					Rarely	22% (nr)
					Sometimes	19% (nr)
					Often	11% (nr)
					Always	0% (na)
Johnson ⁶	2006	Clinician	Paper based	Smoking	<u>Ask/ Assess:</u>	
2009	8 community mental	report	questionnaire, <i>Cactus</i>		Assessing smoking status at intake	
Canada	health teams and 14		<i>Healthcare Provider</i>		Never/rarely	47.5% (nr)
	contracted community		<i>Survey</i> based on Sarna ⁷ ,		Sometimes	18.8% (nr)
	agencies		no measure of validity or		Often/always	30.5% (nr)
	282 (32-38%) clinicians		reliability reported		Missing	3.2% (nr)
	Physician (7%); nurse				Assess clients' interest in reducing or quitting smoking	
	(23%); other professional				Never/rarely	32.3% (nr)
	(20%); paraprofessional				Sometimes	44.7% (nr)
	(45%)				Often/always	21.3% (nr)
					Missing	1.8% (nr)
					<u>Advise:</u>	
					Discuss tobacco use with clients	
					Never/rarely	35.5% (nr)
					Sometimes	46.8% (nr)
					Often/always	16% (nr)

					Missing	1.8% (nr)
					<u>Assist:</u>	
					Provide individual counselling	
					Never/rarely	46.8% (nr)
					Sometimes	30.1% (nr)
					Often/always	19.9% (nr)
					Missing	3.2% (nr)
					Communicate with team members about clients' smoking cessation plans and progress	
					Never/rarely	47.5% (nr)
					Sometimes	19.5% (nr)
					Often/always	31.5% (nr)
					Missing	1.4% (nr)
Price ⁸	2005	Clinician	Paper based	Smoking	<u>Ask/ Assess:</u>	
2007	78 community mental	report	questionnaire, 83% test-		Identify and document smoking status for	40.2 (32.2)
USA	health centres with Ohio		retest reliability, no		each patient at each visit	
	Department of Mental		measure of validity		Assess whether the patient is willing to make	42.3 (30.4)
	Health certification		reported		a quit attempt within the next 30 days	
	80 (53%) psychiatrists				<u>Advise:</u>	
	Psychiatrists (100%)				Give clear, strong advice to quit with a	60.6 (27.1)
					personalised message about the impact of	
					smoking on health	
					<u>Assist:</u>	
					Encourage the use of problem solving skills	41.6 (35.1)
					for smoking cessation	
					Provide self-help smoking cessation materials	19.7 (27.8)
					to patients who smoke	
					Use counselling to help the patient quit	37.1 (33.3)
					smoking	
					Prescribe NRT	28.6 (35.8)
					Prescribed some form of NRT	65% (nr)
					Prescribed zyban/Wellbutrin	55% (nr)
					Prescribed patch	51% (nr)
					Prescribed gum	34% (nr)
					<u>Arrange:</u>	
						25.5 (29.1)

					Providing/arranging for social support to help stop smoking Refer patient to outside agencies who conduct smoking cessation programs	40.2 (77.8)
Corradi-Webster ⁹ 2009 Brazil	2000-2004 1 psychiatric outpatient clinic 127 records Schizophrenia (26.8%); bipolar disorder; (23.6%); depressive episode (25.9%); phobic anxiety disorders (2.4%); other anxiety disorder (21.3%)	Medical record audit	Medical chart review	Alcohol	Ask/ Assess: Any mention of alcohol consumption in medical record	18.1% (nr)
Maki ^{b10} 2013 USA	nr 1 community mental health centre 129 records	Medical record audit	Medical chart review	Smoking	Ask/ Assess: Tobacco use discussed	76.2% (nr)
Tso ¹¹ 2017 Australia	2014-2015 Community mental health clinics at 2 public hospitals 251 records Schizophrenia (94%); other (6%)	Medical record audit	Medical chart review	Smoking Alcohol	Ask/ Assess: Smoking status documented Ask/ Assess: Alcohol status documented	79.3% (nr) 53.4% (nr)
Wu ¹² 2013 UK	2008-2011 South London and Maudsley (SLaM) Case Register 5588 records	Medical record audit	Medical chart review	Smoking	Ask/ Assess: Smoking status recorded in medical record (structured field) Total Cases receiving active mental health care for at least 12 months Smoking status recorded in medical record (structured field + unstructured text) Total Cases receiving active mental health care for at least 12 months	 9.8% (nr) 11.6% (nr) 52% (nr) 64% (nr)

Inpatient settings					
Etter ^{b13} 2008 Switzerland	2003-2006 2 inpatient psychiatric units within a hospital 2006- 77 (67.5%) patients	Client report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<p><u>Advise:</u> Advised to quit smoking by physician or nurse in 2006 (total smoking ban) 42.6% (nr)</p> <p><u>Assist:</u> Assisted to quit smoking by physician or nurse in 2006 (total smoking ban) 19.6% (nr) Provided medication to quit smoking by physician or nurse in 2006 (total smoking ban) 52.2% (nr)</p> <p><u>Assist:</u> Proportion of patients provided help to quit smoking in 2006 (total smoking ban) 58.2% (nr) Proportion of patients provided NRT medication in 2006 (total smoking ban) 74.5% (nr)</p>
	2005-2006 2 inpatient psychiatric units within a hospital 2006- 57 (91.9%) clinicians	Clinician report			
Etter ^{b14} 2007 Switzerland	2003-2004 2 inpatient psychiatric units within a hospital 49 (86%) patients	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<p><u>Ask/ Assess:</u> Asked if intended to quit smoking by physician or nurse 7.7% (nr)</p> <p><u>Advise:</u> Advised to quit smoking by physician or nurse 15.4% (nr) Encouraged to smoke less or quit by physician or nurse 33.4% (nr) Informed about risks of smoking to health 10.3% (nr)</p> <p><u>Assist:</u> Helped to quit smoking by physician or nurse 2.6% (nr) Received medication to quit smoking from physician or nurse 5.1% (nr) Received booklet about smoking from physician or nurse 2.6% (nr) Informed about nicotine withdrawal symptoms by physician or nurse 2.6% (nr)</p>
Leyro ¹⁵ 2013 USA	2006-2010 2 psychiatric hospitals 324 (71% and 79% per hospital) patients Primary unipolar depression (43.8%);	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<p><u>Assist:</u> Offered NRT by a clinician directly on hospital admission 73% (nr)</p>

	primary bipolar depression (21%); primary psychotic disorder (25%); other (10.2%)					
Prochaska ¹⁶ 2006 USA	nr 1 university-based inpatient psychiatry unit 100 (87%) patients Major depressive disorder (55%); bipolar affective disorder (37%); Posttraumatic stress disorder (37%); generalised anxiety disorder (35%); schizophrenia (8%); schizophreniform disorder (4%); alcohol dependence (34%); drug dependence (30%) 100 records	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Received encouragement to quit from a mental healthcare provider <u>Assist:</u> NRT was NOT offered during inpatient stay	31% (nr) 20% (nr)
		Medical record audit	Medical chart review		<u>Ask/ Assess:</u> Diagnosis of nicotine dependence in discharge summary <u>Advise:</u> Recorded advised to quit smoking while hospitalised <u>Assist:</u> Provided NRT on discharge Tobacco use included as a target on the master treatment plan	3% (nr) 2% (nr) 4% (nr) 1% (nr)
Siru ¹⁷ 2010 Australia	2008 Department of Psychiatry in a major teaching hospital 64 (nr) patients	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Received advice to cut down	20.3% (nr)

	Personality disorder (25%); substance use disorder (18.8%); depressive disorder (14.1%); psychotic disorder (12.5%); adjustment disorder (12.5%); anxiety disorder (7.8%); bipolar disorder (6.3%); other (3.1%)					
Stockings ¹⁸ 2014 Australia	2010-2011 3 psychiatric inpatient units in a large, regional public hospital 205 (69%) patients Schizophrenia and related psychosis (33.7%); substance-related disorder (21.5%); unipolar depressive disorder (18.5%); bipolar disorder (14.1%); anxiety and stress-related disorders (4.9%); personality disorders (2.9%); other (4.4%)	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Received advice to quit during admission	32% (nr)
Stockings ¹⁹ 2015 Australia	2009-2010 3 psychiatric inpatient units in a large, regional public hospital 181 (90.9%) patients Mood disorders (42%); schizophrenia and related psychosis (38.1%)	Client report	Face-to-face questionnaire, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Received brief advice to quit <u>Assist:</u> Offered NRT Nicotine-dependence treatment received None Brief advice to quit Adjunct NRT Adjunct NRT + patch Adjunct NRT + brief advice to quit	36.1% (nr) 88.7% (nr) 20.6% (nr) 7.2% (nr) 22.7% (nr) 20.6% (nr) 8.2% (nr)

					Patch + brief advice to quit	1% (nr)
					‘Optimal’: adjunct NRT + patch + brief advice to quit	19.6% (nr)
Haddad ²⁰ 2016 UK	nr 1 low secure forensic psychiatric inpatient unit 57 (90.5%) clinicians Registered nurse (52.6%)	Clinician report	Paper based questionnaire, <i>Physical Health Attitude Scale (PHASe): Mental Health Nurse Physical Health Practices</i> , reported content and construct validity and adequate internal consistency of 28 item scale ²¹ , reliability and validity of additional 14 items relating to frequency of involvement in care provision not reported	Smoking	<u>Assist:</u> Always/very often helping clients to stop smoking	31% (nr)
				Nutrition	<u>Advise:</u> Always/very often giving clients advice on eating healthy	61% (nr)
				Physical Activity	<u>Advise:</u> Always/often giving clients advice on benefits of regular exercise	62% (nr)
Keizer ²² 2014 Switzerland	2009 Department of Mental Health and Psychiatry in a large hospital 155 (72.4%) clinicians Psychiatrists and psychologists (42.4%); other health-care staff (57.8%)	Clinician report	Questionnaire, format not reported, no measure of validity or reliability reported	Smoking	<u>Advise:</u> Remind patients about rules of smoking ban Never A few times a month A few times a week About once a day Several times a day Provide general information or minimal counselling Never A few times a month A few times a week About once a day Several times a day <u>Assist:</u> Hand out booklets or other documentation about tobacco Never	4.6% (nr) 24.6% (nr) 26.9% (nr) 18.5% (nr) 25.4% (nr) 19% (nr) 35.7% (nr) 35.7% (nr) 8.7% (nr) 0.8% (nr) 57.3% (nr)

A few times a month	31.5% (nr)
A few times a week	8.9% (nr)
About once a day	1.6% (nr)
Several times a day	0.8% (nr)
Management of patients' cigarettes	
Never	11% (nr)
A few times a month	17.3% (nr)
A few times a week	25.2% (nr)
About once a day	13.4% (nr)
Several times a day	33.1% (nr)
Prescribe or manage NRT	
Never	15.6% (nr)
A few times a month	28.9% (nr)
A few times a week	31.3% (nr)
About once a day	18.8% (nr)
Several times a day	5.5% (nr)
Individually counsel or support a patient wanting to reduce or quit smoking	
Never	26% (nr)
A few times a month	46.5% (nr)
A few times a week	18.1% (nr)
About once a day	7.9% (nr)
Several times a day	1.6% (nr)
<u>Arrange:</u>	
Refer a patient to another service for tobacco use	
Never	65.6% (nr)
A few times a month	25.6% (nr)
A few times a week	4% (nr)
About once a day	4.8% (nr)
Several times a day	0% (na)
Request intervention of a nurse specialised in tobacco addiction	
Never	78.7% (nr)
A few times a month	15.7% (nr)
A few times a week	3.9% (nr)

					About once a day	0.8% (nr)
					Several times a day	0.8% (nr)
Sarna ²³	nr	Clinician	Internet based	Smoking	<u>Ask/ Assess:</u>	
2009	Adult psychiatric inpatient	report	questionnaire, <i>The</i>		Asked about tobacco use	
USA	settings in a Magnet-		<i>Helping Smokers Quit</i>		Always	67% (nr)
	designated health care		(<i>HSQ</i>) survey reliability		Usually	20% (nr)
	facility		established in oncology		Sometimes	9% (nr)
	100 (100%) nurses		nursing population		Rarely/never	4% (nr)
	Nurse (100%)		($\alpha=0.92$), no measure of		Assessed interest in quitting smoking	
			validity reported		Always	50% (nr)
					Usually	24% (nr)
					Sometimes	20% (nr)
					Rarely/never	6% (nr)
					<u>Advise:</u>	
					Advised a patient to quit smoking	
					Always	37% (nr)
					Usually	33% (nr)
					Sometimes	19% (nr)
					Rarely/never	11% (nr)
					<u>Assist:</u>	
					Assist with smoking cessation, including	
					recommending pharmacotherapy	
					Always	34% (nr)
					Usually	15% (nr)
					Sometimes	31% (nr)
					Rarely/never	20% (nr)
					Recommend cessation medications	
					Always	20% (nr)
					Usually	29% (nr)
					Sometimes	29% (nr)
					Rarely/never	22% (nr)
					<u>Arrange:</u>	
					Referral to tobacco cessation resources in the	
					community, and recommending telephone	
					quitline	
					Always	6% (nr)

					Usually	15% (nr)
					Sometimes	24% (nr)
					Rarely/never	55% (nr)
					Refer to cessation resources	
					Always	6% (nr)
					Usually	14% (nr)
					Sometimes	27% (nr)
					Rarely/never	53% (nr)
					Refer to quitline	
					Always	3% (nr)
					Usually	5% (nr)
					Sometimes	14% (nr)
					Rarely/never	78% (nr)
Schacht ²⁴	2011	Clinician	Internet based	Smoking	Ask/ Assess:	
2012	206 state inpatient	report	questionnaire, no		Assess smoking status at intake	
USA	psychiatric facilities		measure of validity or		Smoking facilities	100% (nr)
	165 (80%) facility		reliability reported		Non-smoking facilities	97% (nr)
	directors				Include smoking status in aftercare plan	
	Majority of respondents				Smoking facilities	32% (nr)
	were facility directors (nr)				Non-smoking facilities	40% (nr)
					Include smoking status in aftercare plan for	
					next provider	
					Smoking facilities	32% (nr)
					Non-smoking facilities	40% (nr)
Stanton ²⁵	nr	Clinician	Paper based	Physical	Advise:	
2015	inpatient psychiatric	report	survey, <i>Exercise in</i>	Activity	Prescribe exercise:	
Australia	facilities in a regional city		<i>Mental Illness</i>		Never	18% (nr)
	in QLD		<i>Questionnaire- Health</i>		Occasionally	29% (nr)
	34 (nr) nurses		<i>Professionals Version</i>		Most of the time	32% (nr)
	Nurse (100%)		<i>(EMIQ-HP)</i> good-to-		Always	21% (nr)
			excellent test-retest		Occasionally, most of the time, always	72% (nr)
			reliability (intraclass		Exercise recommendations to exercise:	
			correlation coefficient:		Daily	46% (nr)
			0.61-1.00), no measure		At low intensity	36% (nr)
			of validity reported		For 30 minutes	36% (nr)
					Using aerobic exercises	86% (nr)

					<u>Arrange:</u>	
					Method used to prescribe exercise:	
					Referral to community programs	21% (nr)
					Referral to exercise professionals	21% (nr)
Wye ²⁶ 2009 Australia	2006 All publicly funded psychiatric inpatient units in NSW 123 (94%) nurse unit managers Nurse unit managers (96%)	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u>	
					Smoking status assessed	
					0%	13% (nr)
					1-50%	20% (nr)
					51-99%	17% (nr)
					100%	50% (nr)
					Assessment tool used to assess nicotine dependence	
					0%	95% (nr)
					1-50%	3% (nr)
					51-99%	2% (nr)
					100%	0% (na)
					Smoking status recorded	
					0%	21% (nr)
					1-50%	23% (nr)
					51-99%	19% (nr)
					100%	37% (nr)
					diagnosis of nicotine dependence recorded	
					0%	70% (nr)
					1-50%	21% (nr)
					51-99%	5% (nr)
100%	4% (nr)					
					<u>Advise:</u>	
					Provision of brief advice to quit	
					Always	17% (nr)
					Frequently	35% (nr)
					Sometimes	77% (nr)
					Never	7% (nr)
					Provision of brief advice to cut down	
					Always	18% (nr)
					Frequently	40% (nr)
					Sometimes	39% (nr)

Never	3% (nr)
Provision of repeated advice to quit	
Always	5% (nr)
Frequently	11% (nr)
Sometimes	59% (nr)
Never	25% (nr)
<u>Assist:</u>	
Provision of education about risks of smoking	
Always	16% (nr)
Frequently	32% (nr)
Sometimes	46% (nr)
Never	6% (nr)
Provision of information on methods of quitting	
Always	14% (nr)
Frequently	32% (nr)
Sometimes	45% (nr)
Never	9% (nr)
Provision of written materials about quitting	
Always	13% (nr)
Frequently	15% (nr)
Sometimes	52% (nr)
Never	20% (nr)
Negotiate a quit-smoking date with patient	
Always	2% (nr)
Frequently	3% (nr)
Sometimes	53% (nr)
Never	43% (nr)
Recommend NRT	
Always	17% (nr)
Frequently	31% (nr)
Sometimes	42% (nr)
Never	10% (nr)
Provide NRT	
Always	30% (nr)
Frequently	20% (nr)

					Sometimes	34% (nr)
					Never	16% (nr)
					<u>Arrange:</u>	
					Refer to quitline	
					Always	3% (nr)
					Frequently	13% (nr)
					Sometimes	51% (nr)
					Never	33% (nr)
Zabeen ^{b27} 2015 UK	2010 Random sample of inpatient psychiatric units across England 147 (67%) unit managers Unit managers (100%)	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Assist:</u> NRT offered to patients to support cessation or temporary abstinence Residential rehabilitation units (open security) Semi-locked units (acute inpatient, low secure) Locked units (high secure, medium secure, Psychiatric Intensive Care Unit)	15.6% (nr) 28.6% (nr) 53.1% (nr)
Howard ²⁸ 2011 UK	nr 2 acute wards from a large mental health trust 28 records Mental health nurse documentations (100%) Schizophrenia (71.4%); bipolar affective disorder (7.1%); schizoaffective disorder (14.3%); unspecified psychotic disorder (3.6%)	Medical record audit	Audit of nursing entries only: nursing admission documentation, care plan, one to one sessions, daily evaluations, and evidence of referrals to services such as the gym.	Smoking	<u>Ask/ Assess:</u> Assessment of smoking habits Full record Partial record No record <u>Advise:</u> Advising on smoking cessation Full record Partial record No record	28.5% (nr) 39.3% (nr) 32.2% (nr) 3.6% (nr) 0% (na) 96.4% (nr)
				Alcohol	<u>Ask/ Assess:</u> Assessment of alcohol intake Full record Partial record No record <u>Advise:</u> Providing advice about alcohol use Full record Partial record No record	21.4% (nr) 39.3% (nr) 39.3% (nr) 3.6% (nr) 7.1% (nr) 89.3% (nr)

				Nutrition	<u>Ask/ Assess:</u> Assessment of dietary intake Full record Partial record No record <u>Advise:</u> Providing dietary advice Full record Partial record No record	 3.6% (nr) 25% (nr) 71.4% (nr) 3.6% (nr) 21.4% (nr) 75% (nr)
				Physical Activity	<u>Ask/ Assess:</u> Assessment of physical activity Full record Partial record No record <u>Advise:</u> Providing advice about physical activity Full record Partial record No record <u>Arrange:</u> Referring to gym/physical activity Full record Partial record No record	 3.6% (nr) 3.6% (nr) 92.8% (nr) 3.6% (nr) 3.6% (nr) 92.8% (nr) 21.4% (nr) 0% (na) 78.6% (nr)
Wye ²⁹ 2010 Australia	2005-2006 1 large adult psychiatric hospital 1000 (99%) records	Medical record audit	Retrospective medical chart review	Smoking	<u>Ask/ Assess:</u> Smoking status recorded on admission form Smoking status recorded on diagnoses summary Smoking status recorded in any location Documentation of nicotine dependence Smoking status recorded on discharge summary	 28.8% (nr) 41.6% (nr) 41.6% (nr) 0% (na) 5.7% (nr)
Wye ³⁰ 2017 Australia	2009-2010 2 general locked adult inpatient psychiatric	Medical record audit	Medical chart review	Smoking	<u>Ask/ Assess:</u> Assessment of smoking status Assessment of nicotine dependence	 36.4% (32.6-40.3) 4.7% (3.1-6.4)

	facilities in one health district in NSW 1054 records Schizophrenia and related disorders (25%); adjustment disorder (17%); unipolar affective disorders (19%); bipolar disorder (8.7%); borderline personality disorder (10%); other mental disorder (4%); drug use disorders (11%); dementias (1.2%)				<u>Advise:</u> Provision of brief advice to quit anywhere on medical record 0.9% (0.1-1.6) <u>Assist:</u> Prescription of any form of NRT on the medication chart 8.1% (5.9-10.2) Provision of nicotine dependence treatment on discharge record 8.8% (6.6-11.1)
Other settings					
Ashton ³¹ 2010 Australia	2007 45 government and non-government mental health organisations in Adelaide, SA 324 (60%) team members Nurse (51.2%); support worker (14.8%); social worker (9%); psychiatrist or medical officer (6.2%); occupational therapist (5.2%); psychologist (3.4%); peer worker (1.5%); administration officer (0.6%); manager (0.3%); physiotherapist (0.3%); unspecified (7.4%)	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Raises the issue of tobacco use with patients 5.7 (2.7) Raises tobacco use only when concerned about their patients' tobacco use or if their patient raises the issue 36% (nr) Raises the issue of tobacco use with patients often or as part of assessment 26.1% (nr)
Ballbe ³² 2012 Spain	2008-2009 186 Inpatient and outpatient mental health services in Catalonia	Clinician report	Internet based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Smoking always/often identified in care plan Acute services 64% (nr) Subacute, medium and long stay service 50% (nr)

186 (96.9%) Clinical managers Clinical managers (100%)					Dual diagnosis and detoxification services	60% (nr)
					Day hospital	43.3% (nr)
					Day centre	45% (nr)
					Smoking always/often recorded in medical file	
					Acute services	84% (nr)
					Subacute, medium and long stay service	76.5% (nr)
					Dual diagnosis and detoxification services	93.3% (nr)
					Day hospital	83.3% (nr)
					Day centre	55% (nr)
					<u>Assist:</u>	
					Smoking intervention always/often offered to patients	
					Acute services	44% (nr)
					Subacute, medium and long stay service	38.2% (nr)
					Dual diagnosis and detoxification services	33.3% (nr)
					Day hospital	46.7% (nr)
					Day centre	33.3% (nr)
					<u>Arrange:</u>	
					Follow-up at discharge always/often provided	
					Acute services	44% (nr)
					Subacute, medium and long stay service	35.3% (nr)
					Dual diagnosis and detoxification services	53.3% (nr)
					Day hospital	56.7% (nr)
					Day centre	53.3% (nr)
Bolton ^{a33} 2016 USA	2015 Members of the American Psychiatric Nurses Association 26 (nr) clinicians Prescriber (42.2%); staff nurse (20.7%); clinician/therapist (8.4%); Other (28.5%)	Clinician report	Paper based questionnaire, <i>Physical Health Attitude Scale (PHASe): Mental Health Nurse Physical Health Practices</i> , reported content and construct validity and adequate internal consistency of 28 item scale ²¹ , reliability and validity of additional 14 items	Smoking	<u>Assist:</u> Helping clients to stop smoking Community mental health centre Never Rarely Often Very often Always Psychiatric hospital Never Rarely Often	3.4 (0.63) 0% (na) 7.1% (0-21.4) 50% (21.4-71.4) 42.9% (21.4-71.4) 0% (na) 3.8 (1.14) 0% (na) 16.7% (0-41.7) 25% (0-50)

			relating to frequency of involvement in care provision not reported	Nutrition	Very often Always <u>Advise:</u> Giving clients advice on how to eat healthy Community mental health centre Never Rarely Often Very often Always Psychiatric hospital Never Rarely Often Very often Always	25% (0-50) 33.3% (8.3-58.3) 3.5 (0.65) 0% (na) 0% (na) 57.1% (35.7-85.7) 35.7% (14.3-57.1) 7.1% (0-21.4) 3.4 (0.9) 0% (na) 16.7% (0-41.7) 33.3% (8.3-58.3) 41.7% (16.7-75) 8.3% (0-25)
				Physical Activity	<u>Advise:</u> Giving clients advice on benefits of regular exercise Community mental health centre Never Rarely Often Very often Always Psychiatric hospital Never Rarely Often Very often Always	 3.8 (0.58) 0% (na) 0% (na) 28.6% (7.1-27.1) 64.3% (35.7-85.7) 7.1% (0-21.4) 3.4 (0.9) 0% (na) 16.7% (0-41.7) 33.3% (8.3-58.3) 41.7% (16.7-66.7) 8.3% (0-25)
Guo ³⁴ 2015 Taiwan	nr 2 community psychiatric hospitals providing inpatient and outpatient services	Clinician report	Questionnaire format not reported, no measure of validity or reliability reported	Smoking	<u>Assist:</u> Frequency of smoking-related resource use Frequency of having provided or assisted with smoking-cessation services	 13.56 (3.67) 23.6 (5.1)

193 (96.9%) clinicians Psychiatric nurse (100%)						
Happell ^{a35} 2013 Australia	2012 Members of the Australian College of Mental Health Nurses 559 (19.6%) mental health nurses Mental health nurse (100%)	Clinician report	Paper based questionnaire, <i>Physical Health Attitude Scale (PHASe): Mental Health Nurse Physical Health Practices</i> , reported content and construct validity and adequate internal consistency of 28 item scale ²¹ , reliability and validity of additional 14 items relating to frequency of involvement in care provision not reported	Smoking	<u>Assist:</u> How often do you help consumers to stop smoking	3.18 (1.03)
					Never	4.7% (3.0-6.3)
					Rarely	20.3% (17.0-23.6)
					Often	39% (34.9-42.9)
					Very often	24.7% (21.3-28.1)
					Always	11.3% (8.8-14.0)
				Alcohol	<u>Assist:</u> How often to you provide consumers with information and support to stop or reduce alcohol intake	3.58 (1.002)
					Never	2% (0.9-3.2)
					Rarely	11.8% (9.3-14.7)
					Often	32.6% (28.6-36.7)
					Very often	33.4% (29.9-37.7)
					Always	20.2% (16.8-23.8)
				Nutrition	<u>Advise:</u> How often do you give consumers advice for a healthy diet	3.55 (0.93)
					Never	1.4% (0.5-2.5)
					Rarely	10.2% (7.7-12.9)
					Often	36.7% (32.6-40.6)
					Very often	35.4% (31.7-39.2)
					Always	16.3% (13.4-19.5)
				Physical Activity	<u>Advise:</u> How often do you given consumers advice on the benefits of exercising regularly	3.76 (0.97)
					Never	1.6% (0.7-2.7)
					Rarely	7% (5.0-8.9)
					Often	31.3% (27.4-35.1)
					Very often	34.3% (30.4-38.1)
					Always	25.8% (22.2-29.3)

Robson ³⁶ 2013 UK	2006-2007 Mental health nurses recruited from a large National Health Service Mental Health Trust in the UK 585 (52%) mental health nurses Mental health nurse (100%)	Clinician report	Paper based questionnaire, <i>Physical Health Attitude Scale (PHASe): Mental Health Nurse Physical Health Practices</i> , reported content and construct validity and adequate internal consistency of 28 item scale ²¹ , reliability and validity of additional 14 items relating to frequency of involvement in care provision not reported	Smoking	<u>Assist:</u> Always/very often helping clients to stop smoking	50.3% (nr)
				Nutrition	<u>Advise:</u> Always/very often giving clients advice on how to eat healthily	86.7% (nr)
				Physical Activity	<u>Advise:</u> Always/very often giving clients advice on the benefits of regular exercise	79.6% (nr)
Williams ³⁷ 2015 USA	2012 30 outpatient or partial- hospitalisation settings of state-wide behavioural health agency 18 (90%) clinicians Psychiatrists (65%); Nurse (30%); Advanced practice RN (5%)	Clinician report	Paper based questionnaire, no measure of validity or reliability reported	Smoking	<u>Ask/ Assess:</u> Sometimes/usually asked about tobacco use	100% (nr)
					Sometimes/usually asked if interested in quitting	94% (nr)
					<u>Advise:</u> Sometimes/usually advised quitting	
					<u>Assist:</u> Sometimes/usually NRT discussed	100% (nr)
					<u>Arrange:</u> Sometimes/usually referred to another provider	83% (nr)
					Sometimes/usually referred to quitline	94% (nr)
						77% (nr)
	100 records Psychosis (41%); depression (32%); bipolar disorder (18%); anxiety (8%); personality or other (1%)	Medical record audit	Medical chart review		<u>Ask/ Assess:</u> Asked about tobacco use	98% (nr)
					Asked if interested in quitting	44% (nr)
					Amount of tobacco assessed	95% (nr)
					Tobacco noted on problem list	35% (nr)
					Tobacco use in progress notes	29% (nr)
					Tobacco use in treatment plan	20% (nr)
					<u>Advise:</u>	

					Advised to quit	9% (nr)
					<u>Assist:</u>	
					NRT discussed	10% (nr)
					Tobacco treatment medication prescribed	3% (nr)
					<u>Arrange:</u>	
					Referred to group education or treatment	12% (nr)
					Referred to another provider	7% (nr)
					Referred to quitline	0% (na)
Kilbourne ³⁸ 2011 USA	2006-2007 VA Mental Health Programs with and without colocated general medical services 7514 (7.1%) records	Medical record audit	Medical chart review	Smoking	<u>Assist:</u> Receipt of at least 3 tobacco-cessation counselling sessions	
					Total	57% (nr)
					Colocated services	54% (nr)
					Not colocated services	58% (nr)
				Alcohol	<u>Ask/ Assess:</u> Alcohol misuse screening	
					Total	83% (nr)
					Colocated services	85% (nr)
					Not colocated services	82% (nr)
Parker ³⁹ 2012 UK	2010-2011 Adult mental health treatment services in the United Kingdom's largest Mental Health Trust 85 inpatient records 2028 community patient records	Medical record audit	Medical chart review	Smoking	<u>Ask/ Assess:</u> Community patients: electronic record of smoking status	22% (nr)
					<u>Advise:</u> Number of smokers given advice	
					Acute inpatient ward 1	0% (na)
					Acute inpatient ward 2	13% (nr)
					Rehabilitation inpatient ward 1	31% (nr)
					Rehabilitation inpatient ward 2	39% (nr)
					Total inpatient wards	24% (nr)
					<u>Assist:</u> Number of smokers offered support	
					Acute inpatient ward 1	0% (na)
					Acute inpatient ward 2	0% (na)
					Rehabilitation inpatient ward 1	8% (nr)
					Rehabilitation inpatient ward 2	0% (na)
					Total inpatient wards	2% (nr)

					Number of smokers with NRT prescription		
					Acute inpatient ward 1	0% (na)	
					Acute inpatient ward 2	0% (na)	
					Rehabilitation inpatient ward 1	8% (nr)	
					Rehabilitation inpatient ward 2	4% (nr)	
					Total inpatient wards	3% (nr)	
					<u>Arrange:</u>		
					Referred to National Health Service Stop Smoking Services		
					Total inpatient wards	2% (nr)	
Stanley ⁴⁰ 2013 Australia	2011-2012 1 Fremantle adult psychiatric hospital with inpatient and outpatient services, 1 Kimberley rural mental health and drug service 56 Kimberley records 228 Fremantle records	Medical record audit	Medical chart review, Kimberley: <i>MRK92</i> <i>Metabolic Monitoring</i> <i>Tool</i> Fremantle: Service's Physical Health Screen Form	Smoking	<u>Ask/ Assess:</u> Kimberley: Cigarettes (yes/no/quantity) in file Fremantle: smoking information in file Recorded on form, for those with form Smoking information recorded in overall audit	76.7% (nr) 73.7% (nr) 51.8% (nr) 24.6% (nr)	
					Alcohol	<u>Ask/ Assess:</u> Kimberley: alcohol quantity/frequency in file	78.6% (nr)
					Nutrition	<u>Ask/ Assess:</u> Fremantle: nutritionist information in file Recorded on form, for those with form Nutritionist information recorded in overall audit Eating guide information in file Recorded on form, for those with form Eating guide recorded in overall audit	0% (na) 0.8% (nr) 0.4% (nr) 0% (na) 0.8% (nr) 0.4% (nr)
					Physical Activity	<u>Ask/ Assess:</u> Fremantle: activity level information in file Activity level record on form, for those with form Activity level recorded in overall audit	0% (na) 1.8% (nr) 0.9% (nr)

nr= not reported

na= not applicable

^a data not reported in paper, analysed for review purposes^b Study reported incomplete outcome data where either the numerator or denominator of care provision/receipt was not reported and calculations were assumed.

Supplementary Document 3.4 Summary of critical appraisal of methodological quality of included studies

Table 3.4 Summary of critical appraisal of methodological quality of included studies

Study	Sample frame appropriate	Appropriate participant recruitment	Adequate sample size	Subjects and setting described	Data analysis covered sample	Valid measurement of condition	Condition measured reliably	Appropriate statistical analysis	Adequate response rate	Total Y
Anderson ¹	U	Y	U	Y	NA	N	Y	N	Y	4
Ashton ³¹	U	U	U	Y	NA	N	U	U	U	1
Ballbe ³²	U	Y	U	Y	U	N	Y	N	Y	4
Bartlem ²	U	Y	U	Y	NA	U	U	Y	Y	4
Bartlem ³	U	Y	U	Y	NA	N	U	N	Y	3
Bolton ³³	U	U	U	Y	U	U	Y	NA	U	2
Chwastiak ⁴	U	U	U	Y	NA	N	U	N	Y	2
Corradi- Webster ⁹	N	U	U	Y	NA	U	U	N	U	1
Etter ¹³	U	U	U	N	NA	N	N	N	Y	1
Etter ¹⁴	Y	Y	U	N	NA	U	U	N	Y	3
Guo ³⁴	U	U	U	N	NA	N	U	U	Y	1
Haddad ²⁰	Y	N	U	N	NA	U	Y	N	Y	3
Happell ³⁵	U	U	U	Y	NA	N	Y	NA	U	2
Himelhock ⁵	N	U	U	N	NA	N	U	N	Y	1
Howard ²⁸	N	Y	U	Y	NA	U	U	N	NA	2
Johnson ⁶	N	U	U	Y	NA	N	N	N	NA	1
Keizer ²²	Y	Y	U	N	NA	N	U	N	Y	3
Kilbourne ³⁸	Y	U	Y	N	NA	U	U	N	NA	2
Leyro ¹⁵	U	U	U	Y	NA	U	U	N	Y	2
Maki ¹⁰	U	U	U	Y	NA	U	U	N	NA	1
Parker ³⁹	U	U	U	Y	NA	U	U	N	NA	1
Price ⁸	U	U	U	Y	NA	N	Y	N	U	2
Prochaska ¹⁶	N	U	U	Y	NA	U	U	N	Y	2

Robson ³⁶	U	Y	Y	Y	NA	U	Y	N	U	4
Sarna ²³	N	U	U	U	NA	N	Y	N	U	1
Schacht ²⁴	Y	Y	U	U	U	N	Y	N	Y	4
Siru ¹⁷	U	U	U	Y	NA	U	U	N	U	1
Stanley ⁴⁰	N	U	U	Y	NA	U	Y	N	NA	2
Stanton ²⁵	U	U	U	Y	NA	N	U	N	Y	2
Stockings ¹⁸	U	Y	U	Y	U	U	U	N	Y	3
Stockings ¹⁹	U	U	U	U	NA	U	U	N	Y	1
Tso ¹¹	U	U	U	Y	NA	U	U	N	NA	1
Williams ³⁷	U	U	U	U	NA	N	Y	N	Y	2
Wu ¹²	U	Y	Y	N	NA	U	Y	N	NA	3
Wye ²⁹	Y	Y	Y	Y	NA	U	Y	N	NA	5
Wye ²⁶	Y	Y	U	Y	NA	N	Y	N	Y	5
Wye ³⁰	N	U	Y	Y	NA	U	Y	Y	NA	4
Zabeen ²⁷	Y	U	U	U	U	N	Y	N	Y	3
Total	Y	8	13	5	25	0	0	16	2	20

Y- Yes, N- No, U- Unclear, NA- Not applicable

Supplementary Document 3.5 Forest plots for all meta-analyses and pre-specified subgroup analyses by setting type*

*Forest plots for additional subgroup analyses and sensitivity analyses are available upon request from the corresponding author

Meta-analyses

Ask/assess

Smoking

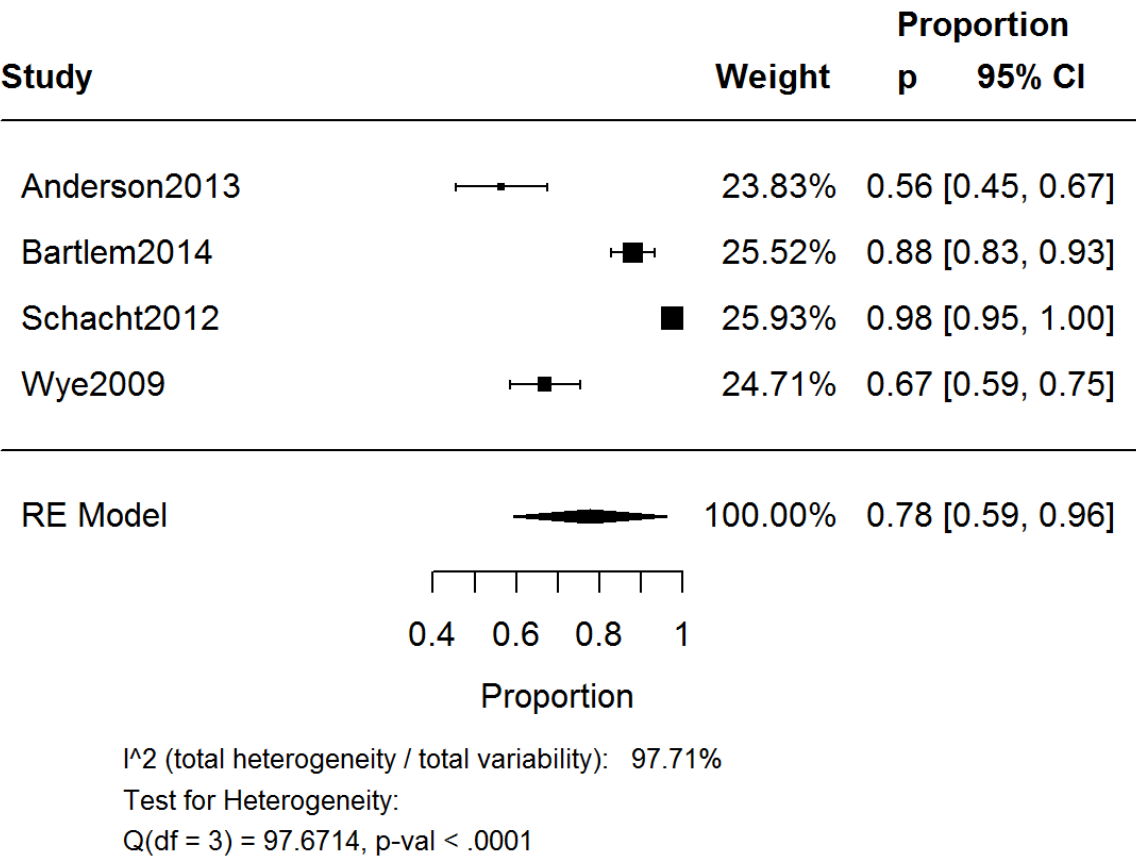


Figure 3.3 Overall clinician reported highest estimates of care provision: Ask/assess for smoking

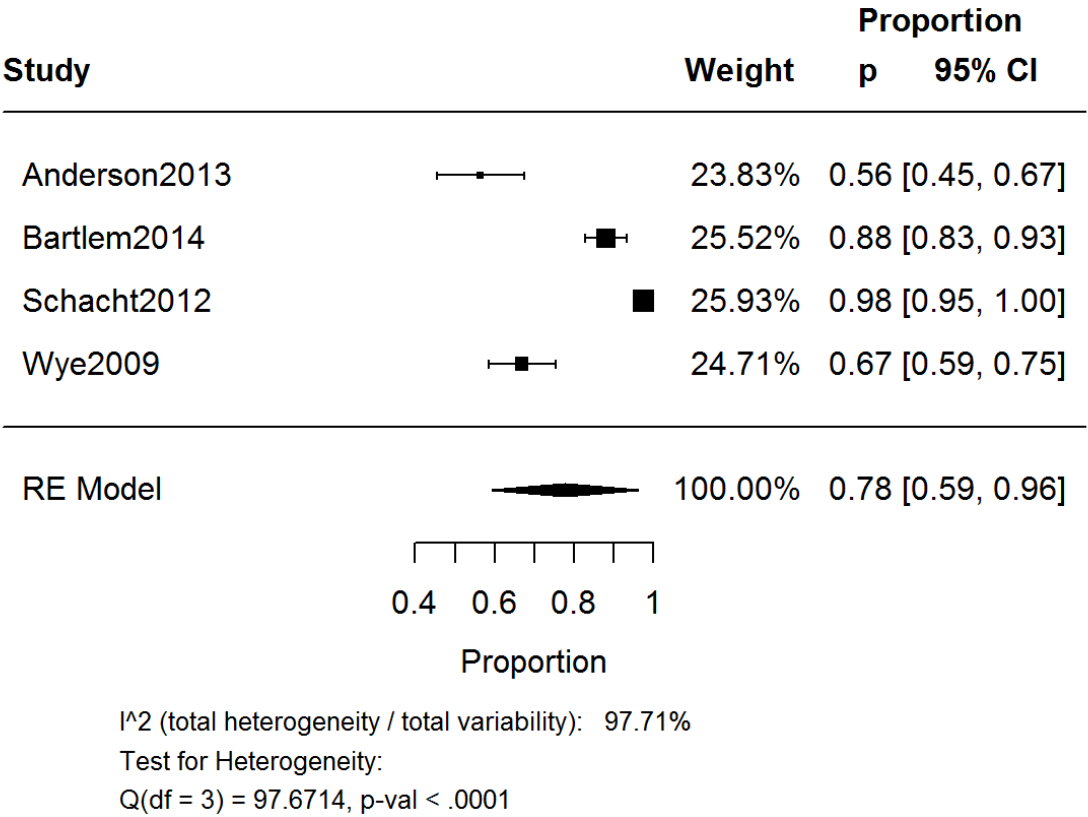


Figure 3.4 Overall clinician reported lowest estimates of care provision: Ask/assess for smoking

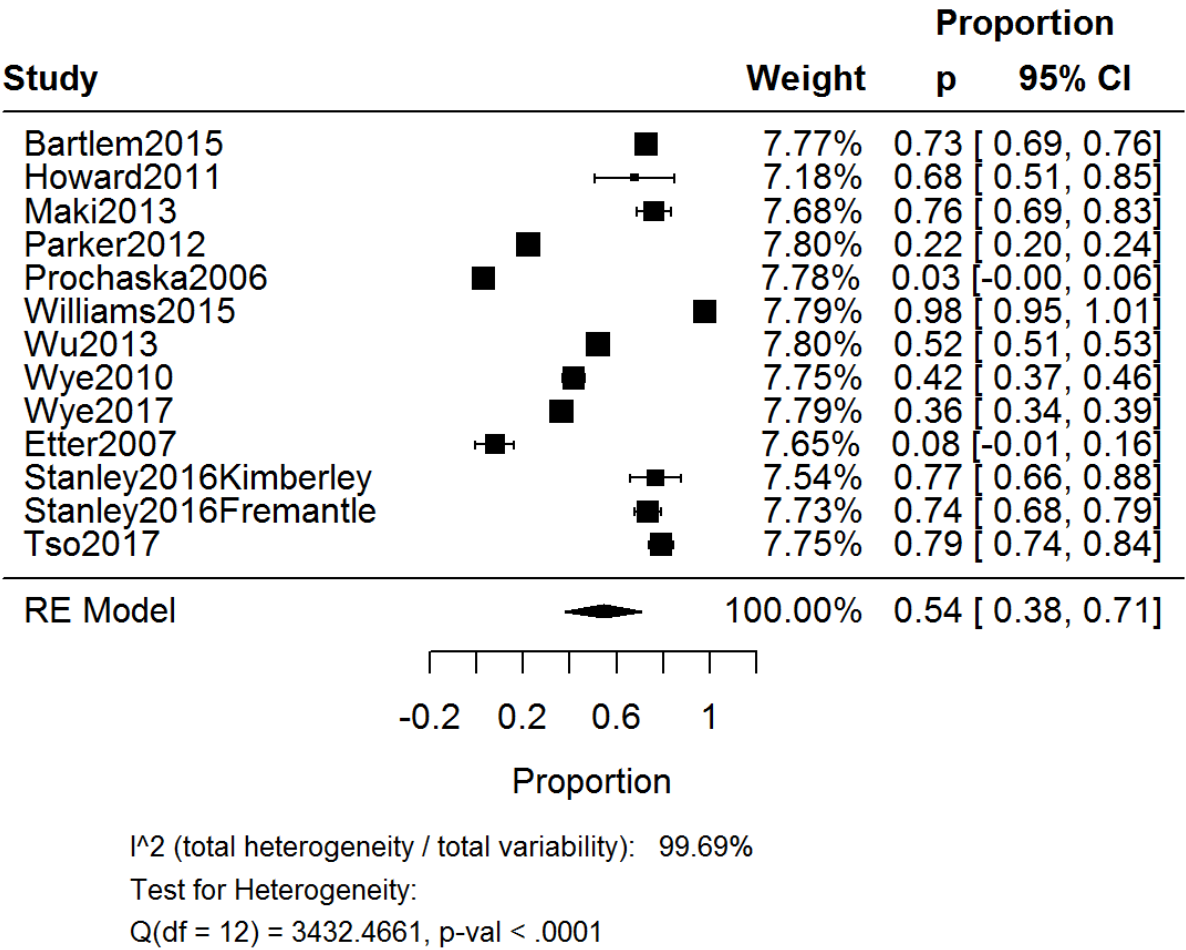


Figure 3.5 Overall client and audit reported highest estimates of care provision: Ask/assess for smoking

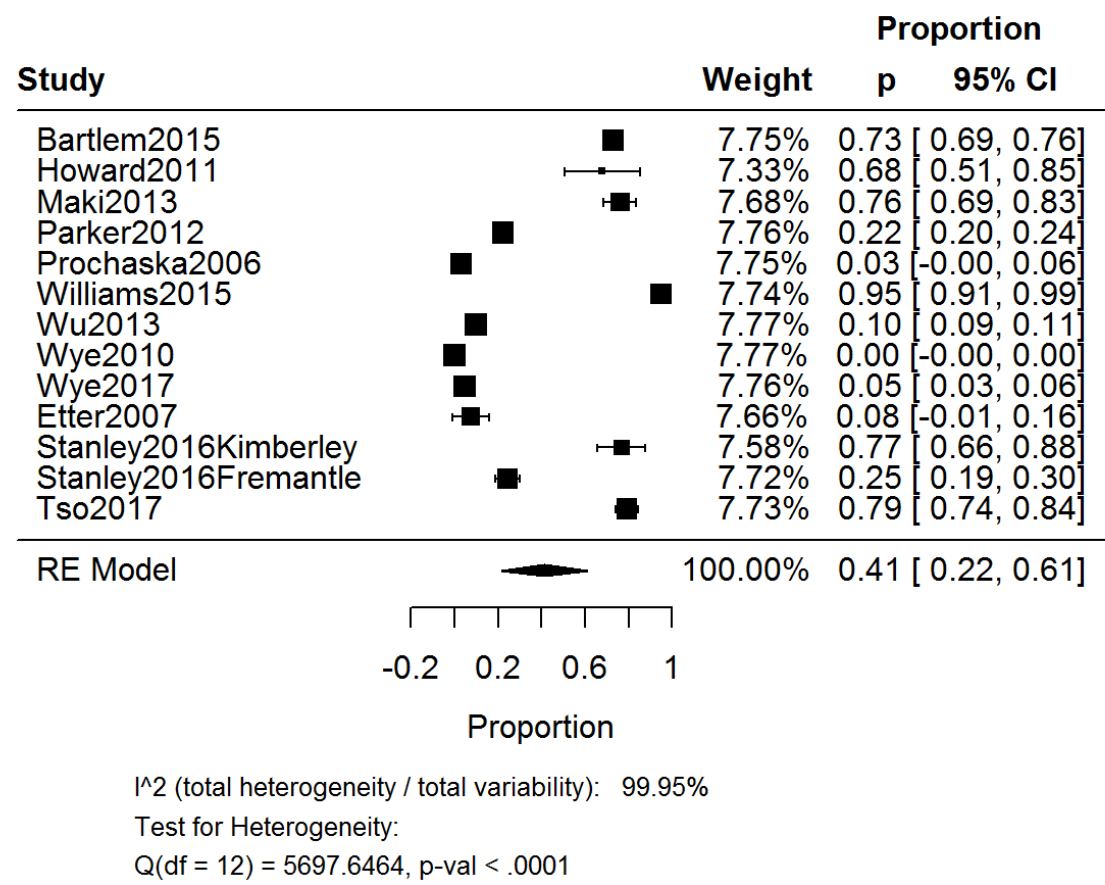


Figure 3.6 Overall client and audit reported lowest estimates of care provision: Ask/assess for smoking

Alcohol

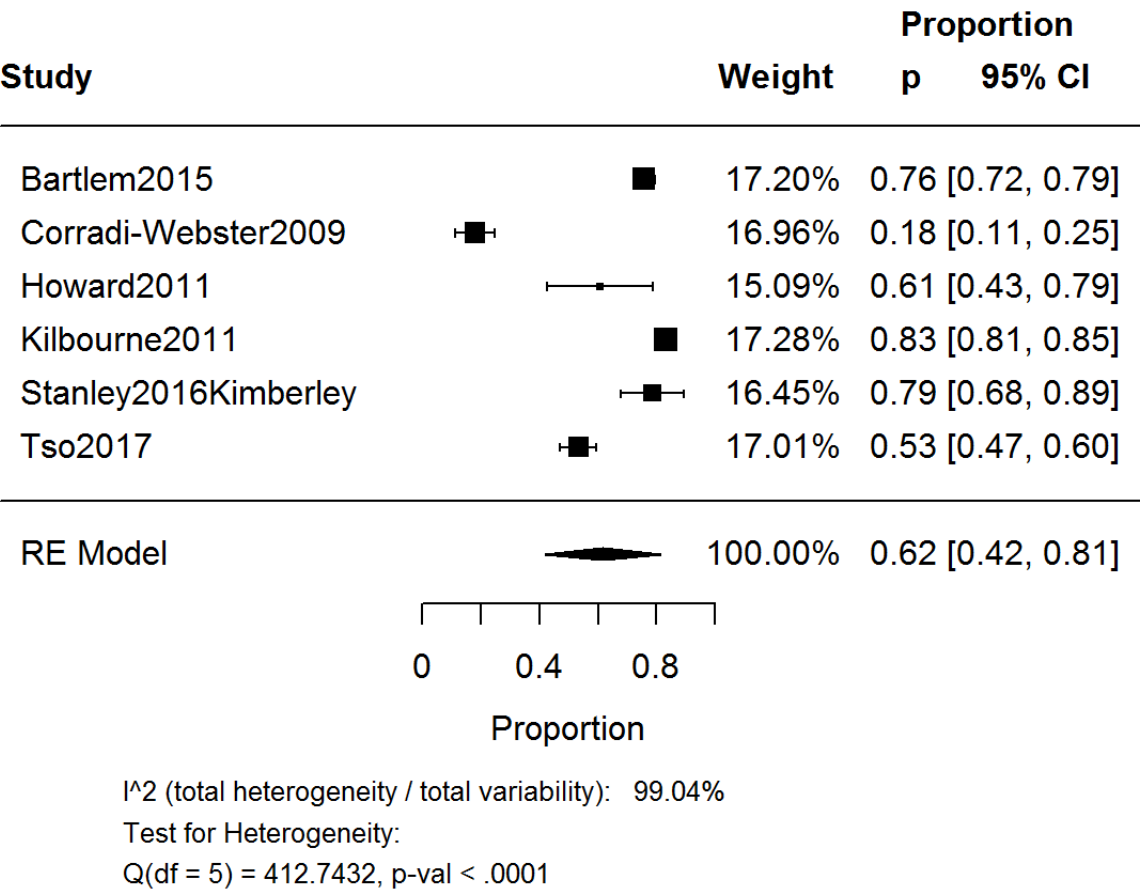


Figure 3.7 Overall client and audit reported highest estimates of care provision: Ask/assess for alcohol

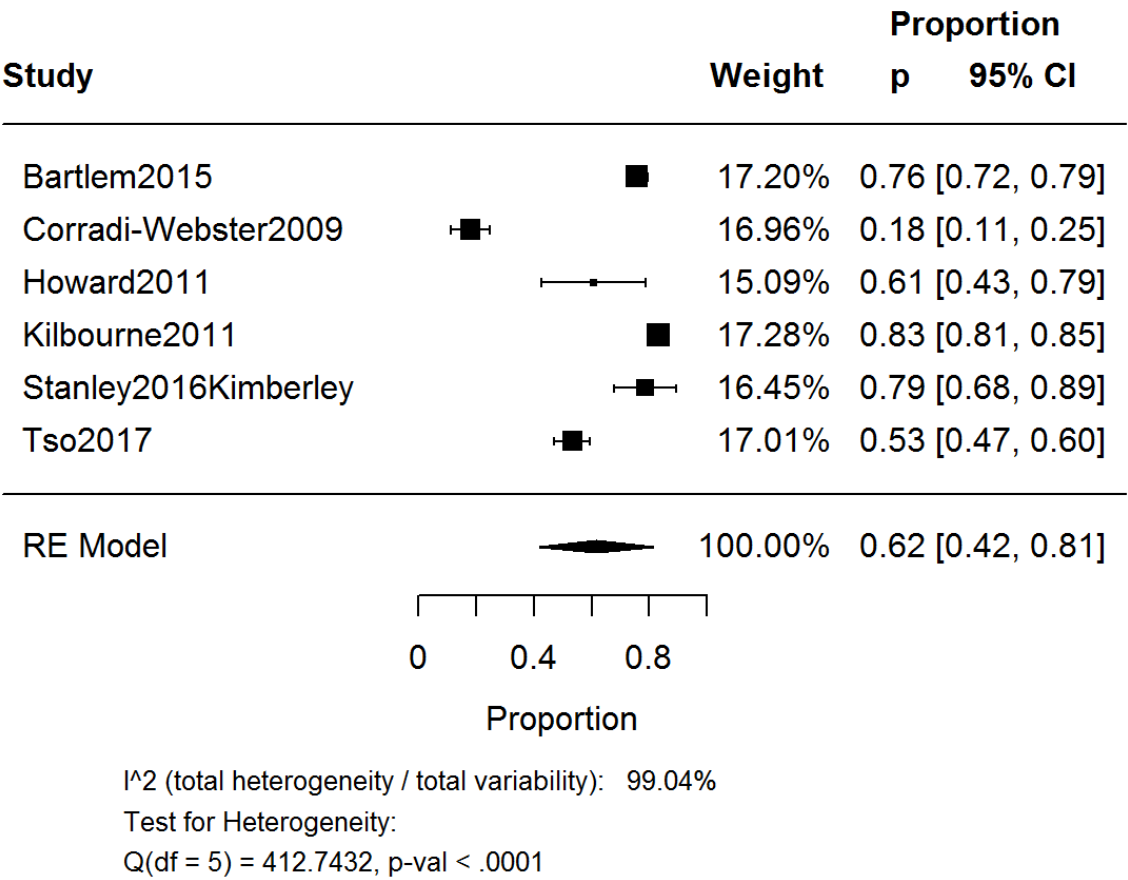


Figure 3.8 Overall client and audit reported lowest estimates of care provision: Ask/assess for alcohol

Nutrition

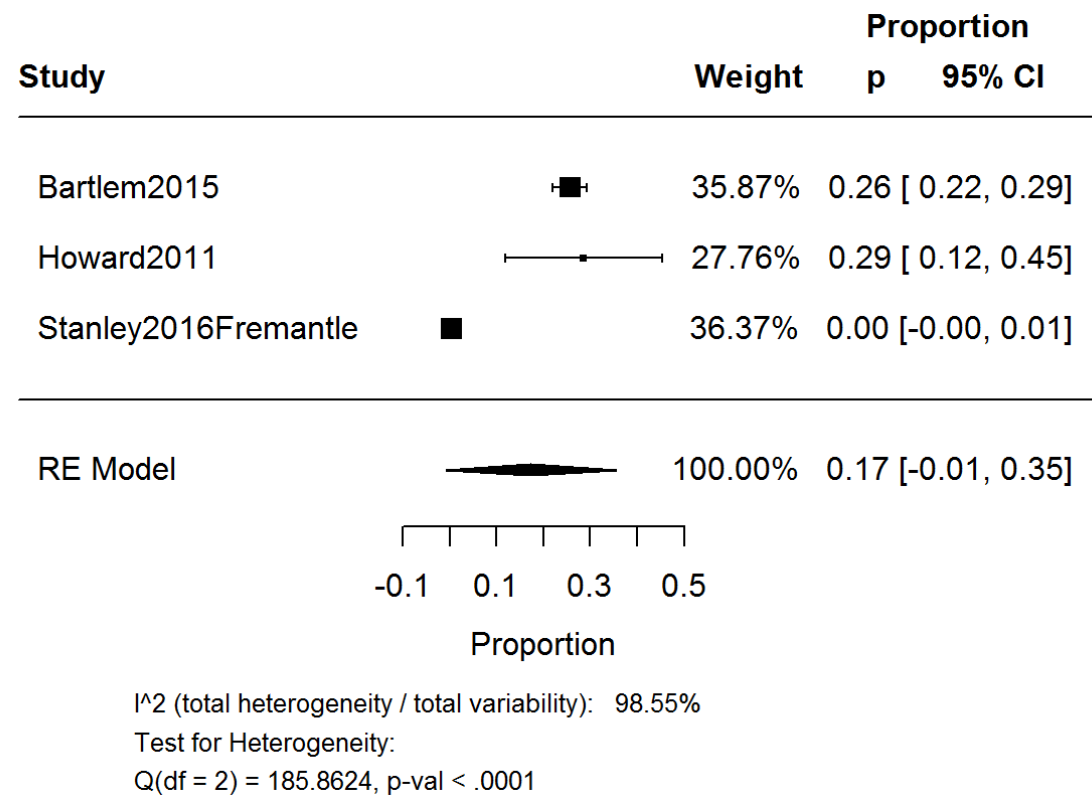


Figure 3.9 Overall client and audit reported highest estimates of care provision: Ask/assess for nutrition

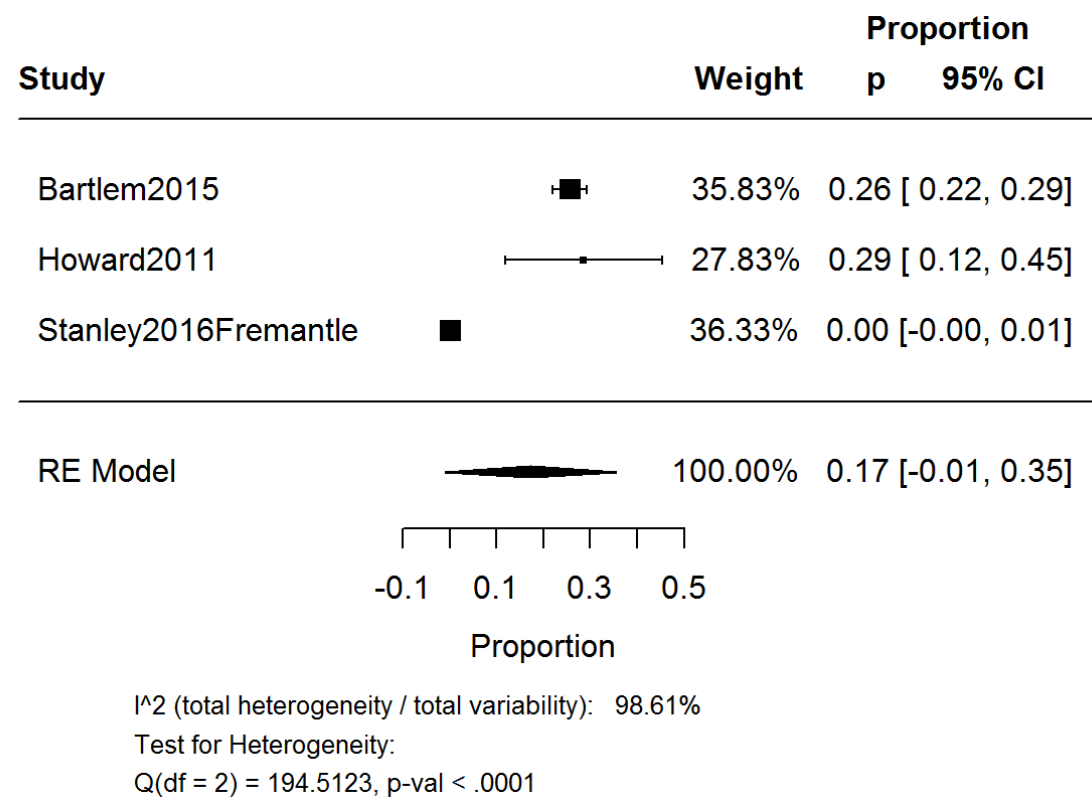


Figure 3.10 Overall client and audit reported lowest estimates of care provision: Ask/assess for nutrition

Physical activity

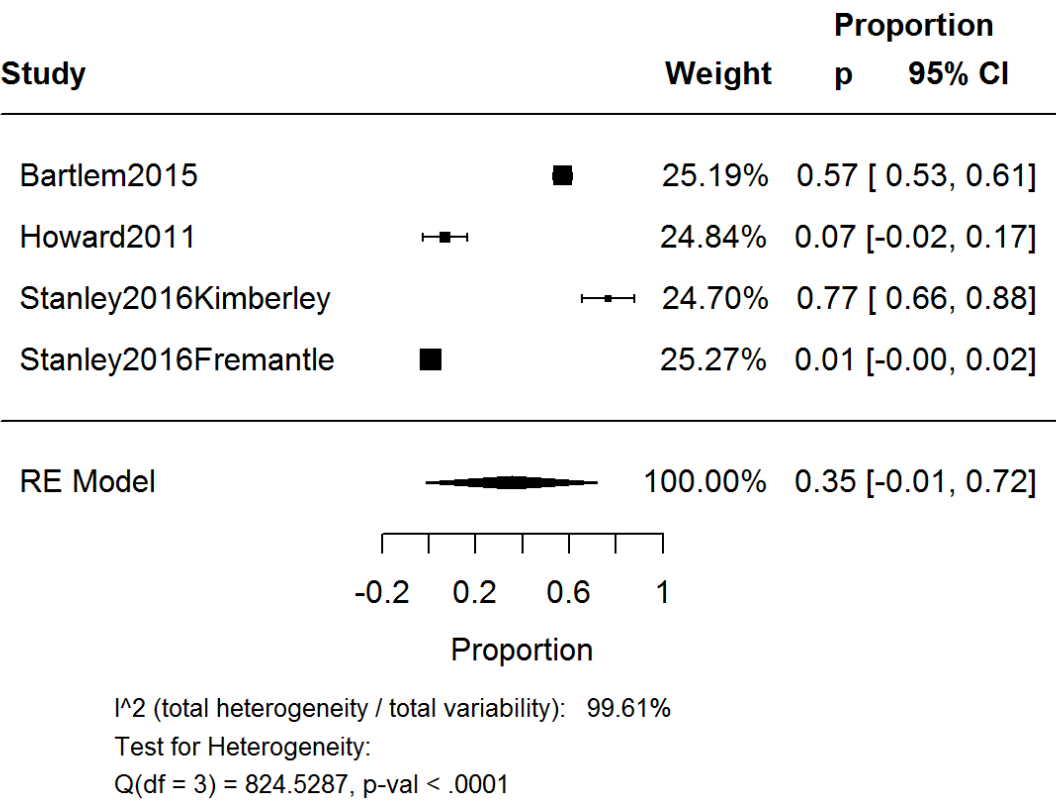


Figure 3.11 Overall client and audit reported highest estimates of care provision: Ask/assess for physical activity

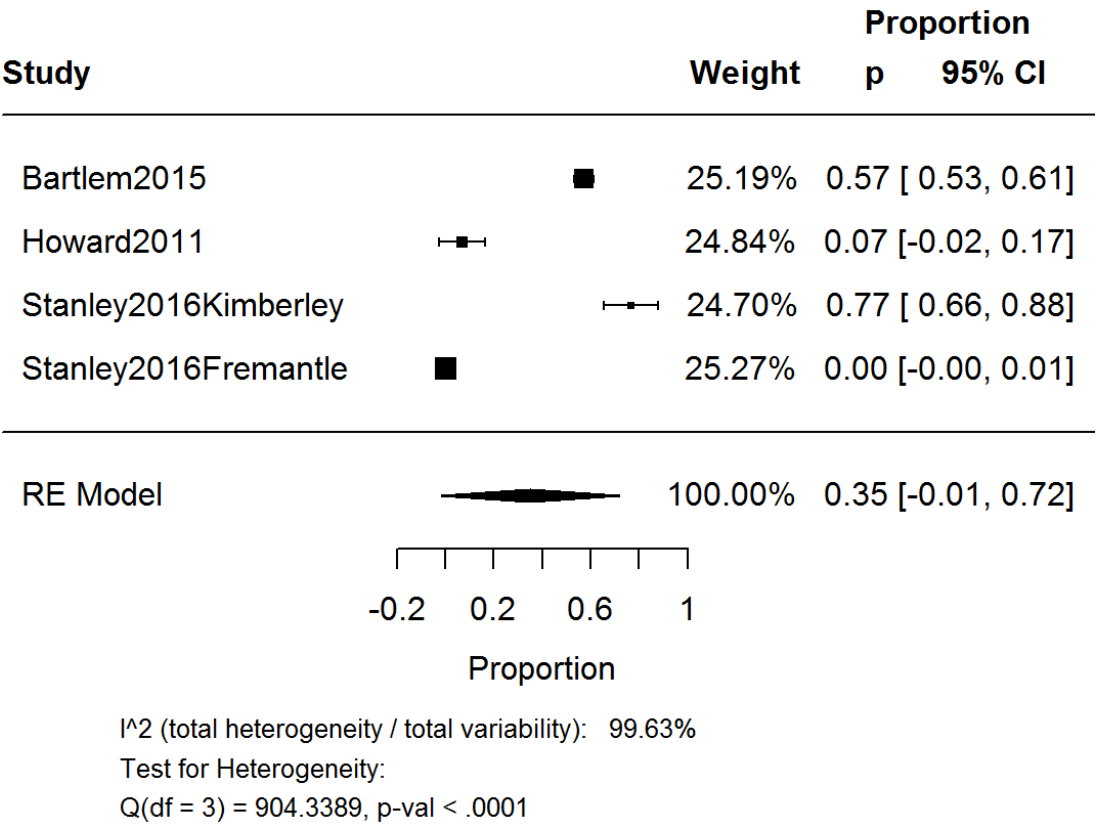


Figure 3.12 Overall client and audit reported lowest estimates of care provision: Ask/assess for physical activity

Advise
Smoking

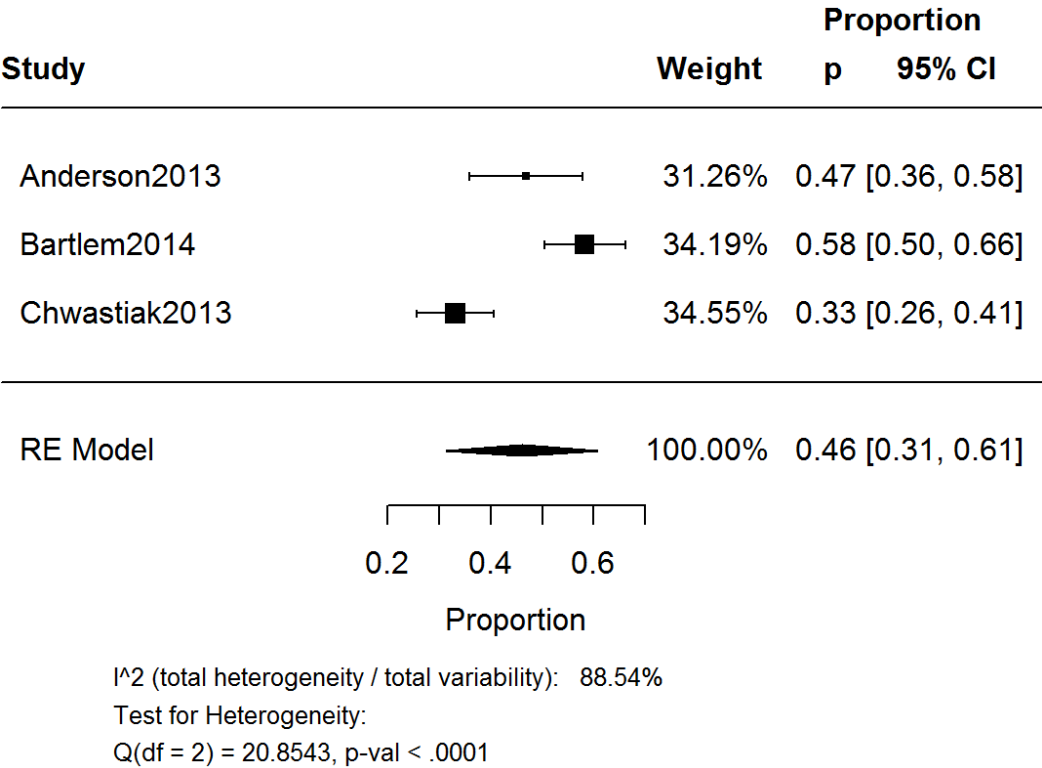


Figure 3.13 Overall clinician reported highest estimates of care provision: Advise for smoking

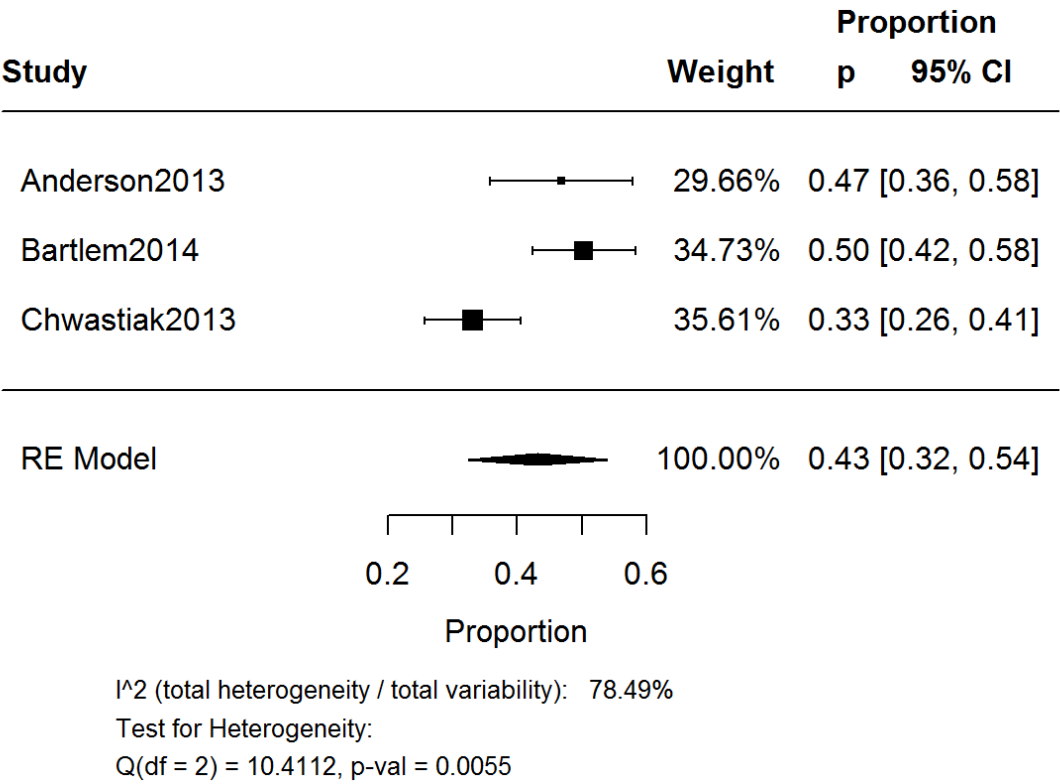


Figure 3.14 Overall clinician reported lowest estimates of care provision: Advise for smoking

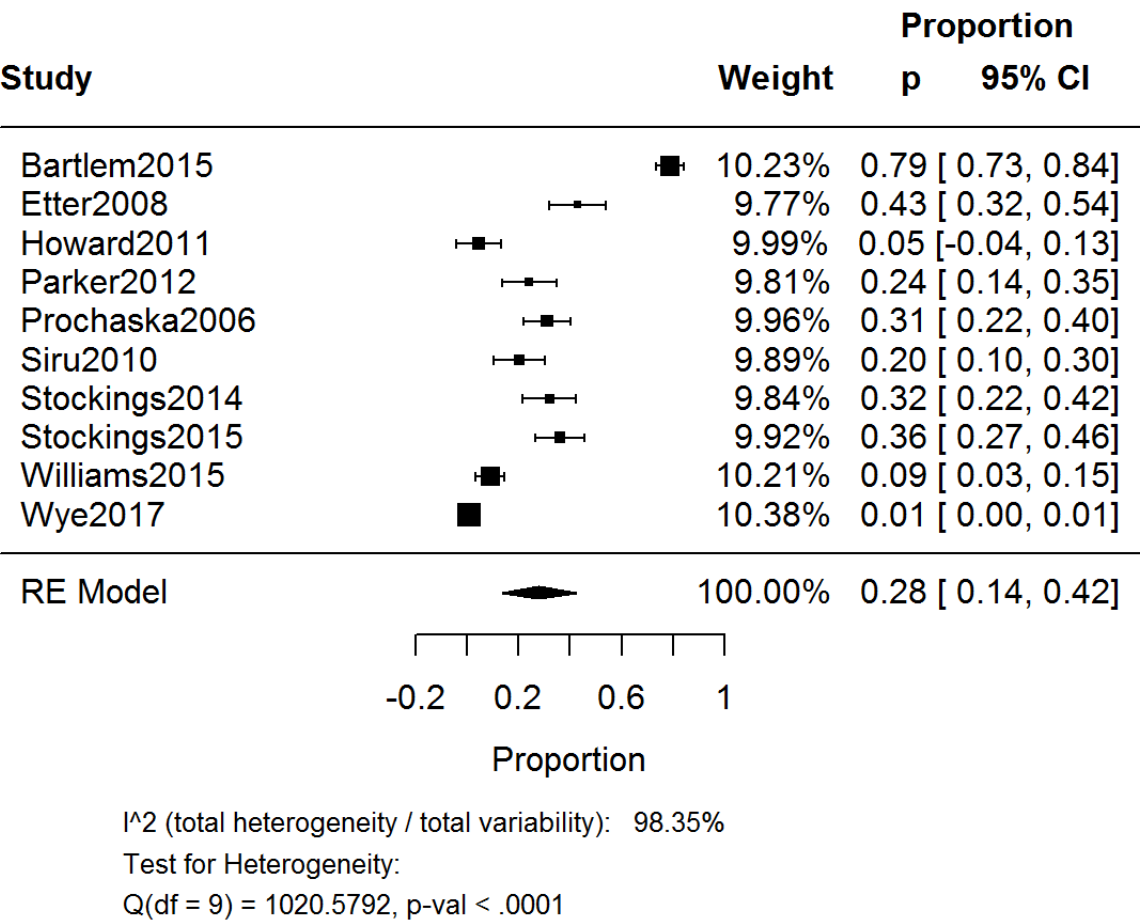


Figure 3.15 Overall client and audit reported highest estimates of care provision: Advise for smoking

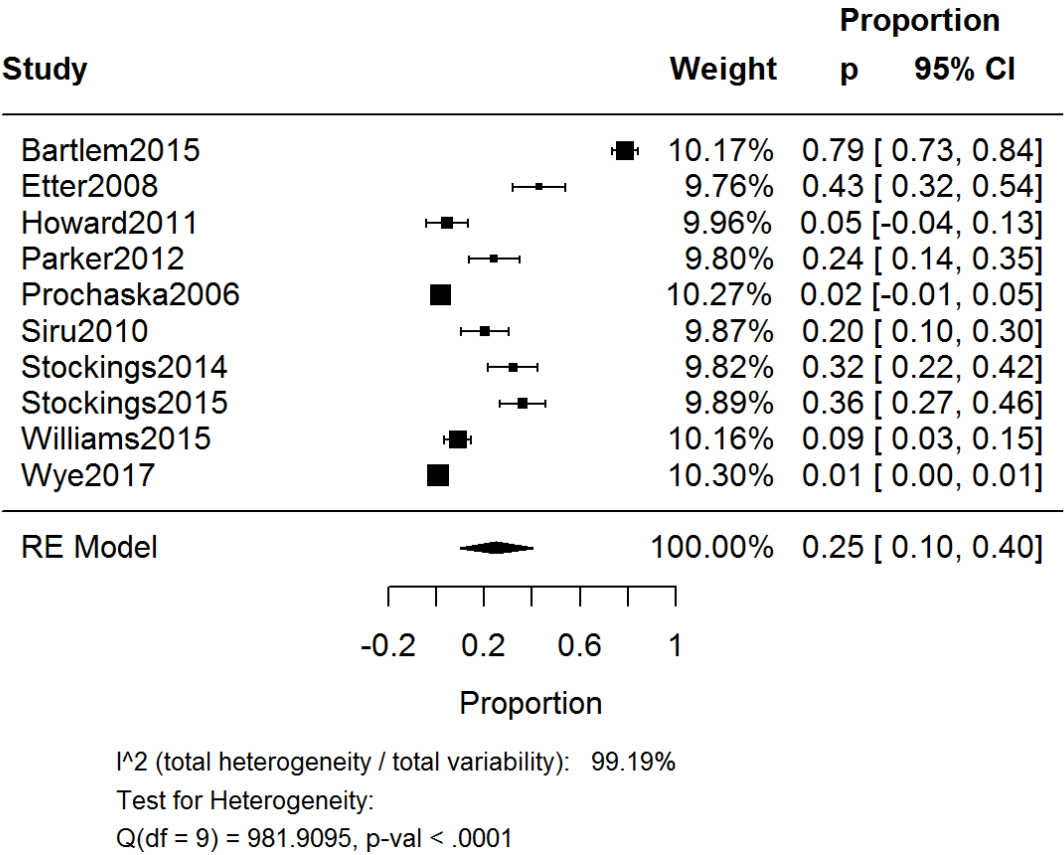


Figure 3.16 Overall client and audit reported lowest estimates of care provision: Advise for smoking

Alcohol

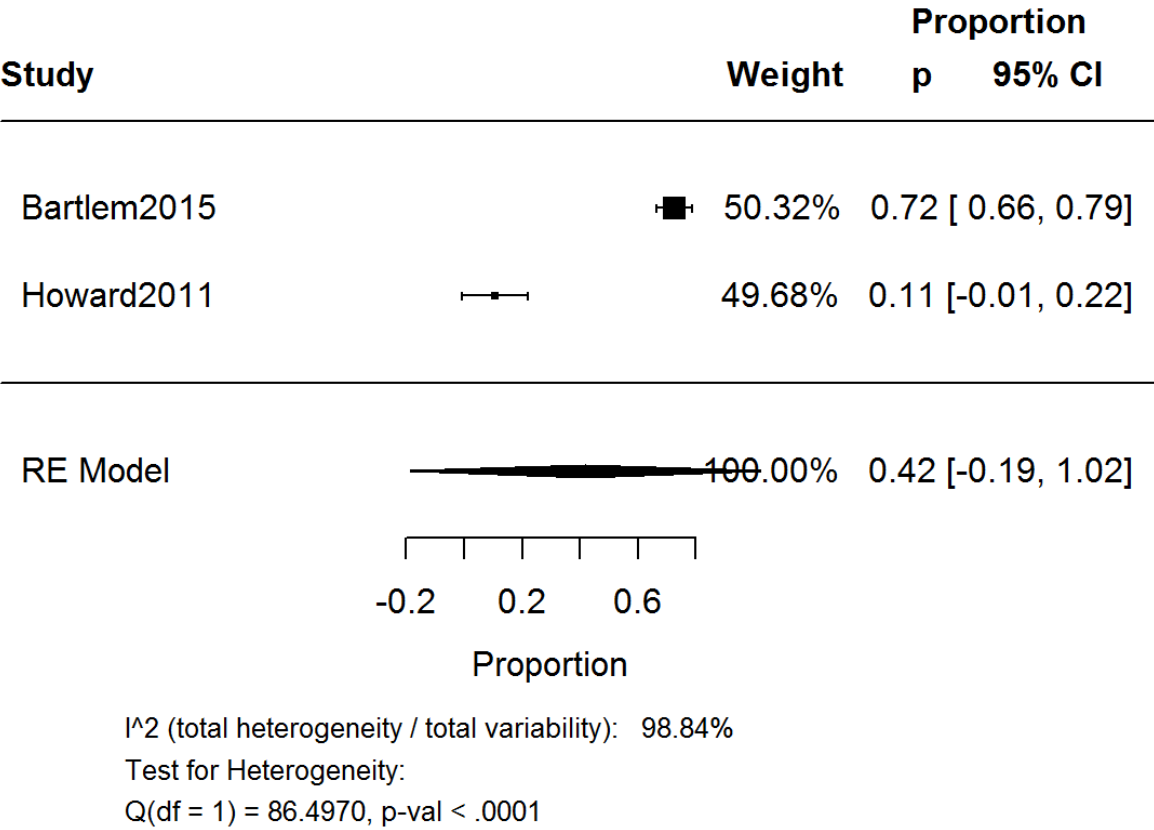


Figure 3.17 Overall client and audit reported highest estimates of care provision: Advise for alcohol

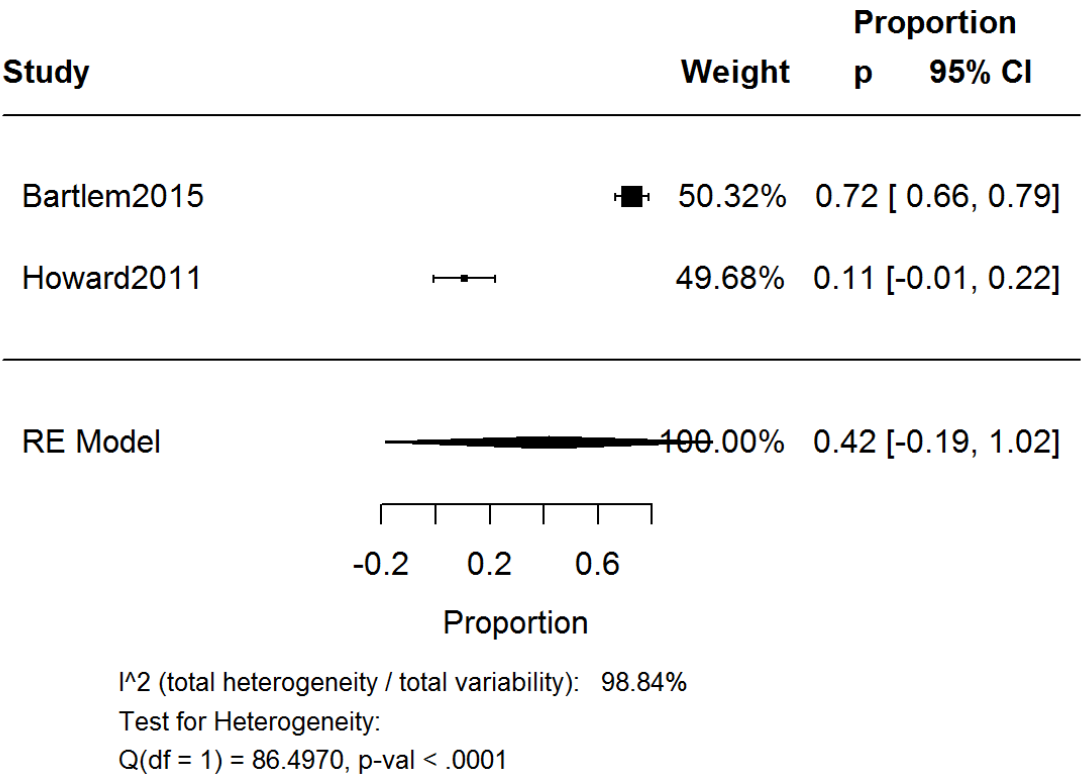


Figure 3.18 Overall client and audit reported lowest estimates of care provision: Advise for alcohol

Nutrition

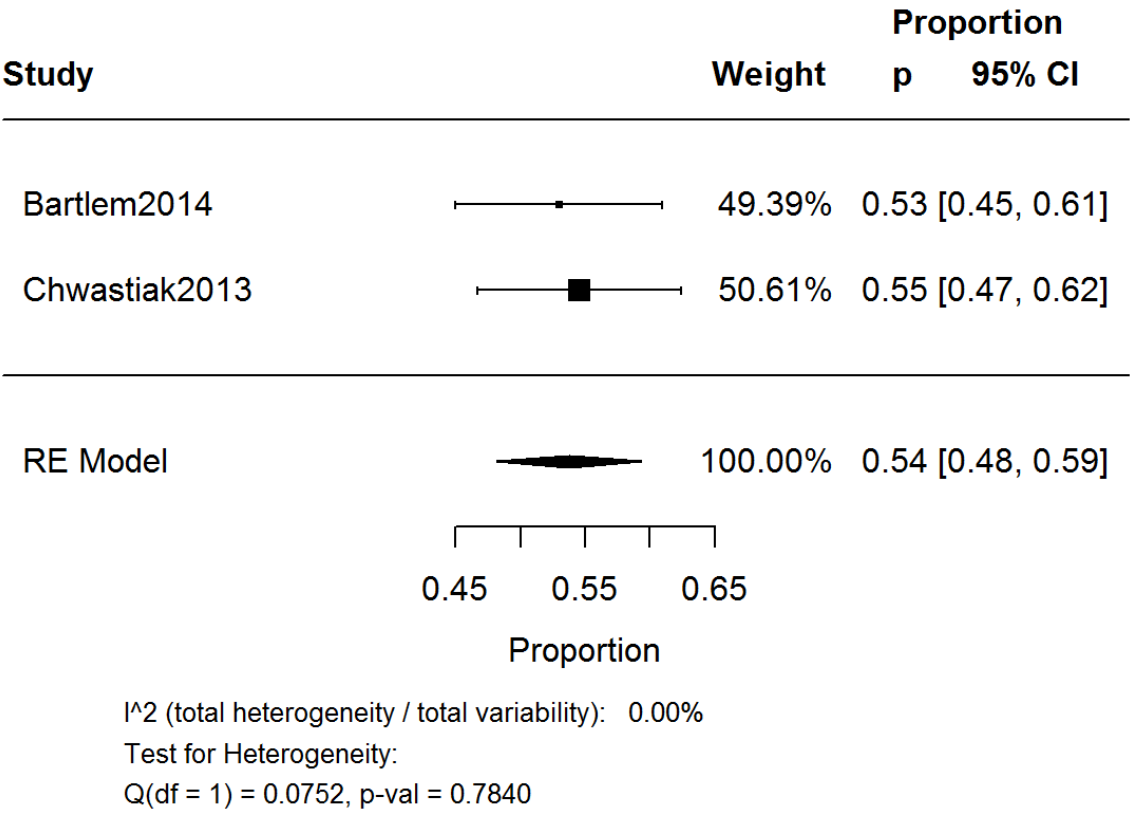


Figure 3.19 Overall clinician reported highest estimates of care provision: Advise for nutrition

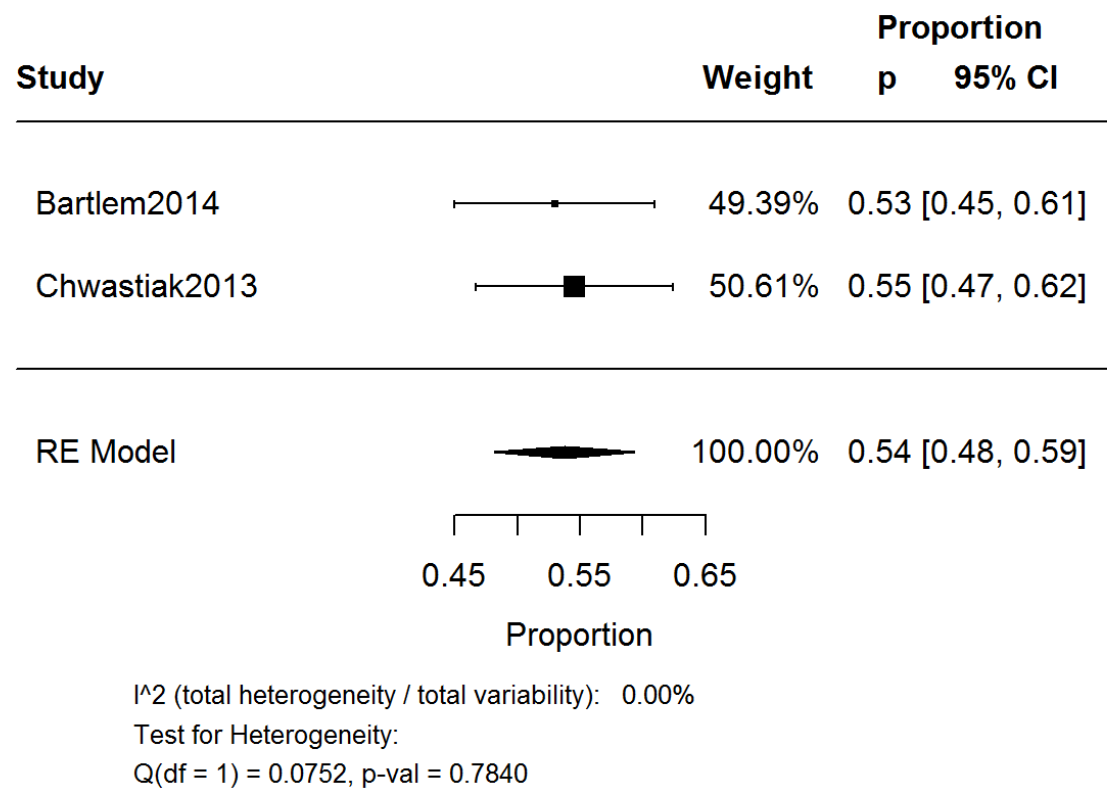


Figure 3.20 Overall clinician reported lowest estimates of care provision: Advise for nutrition

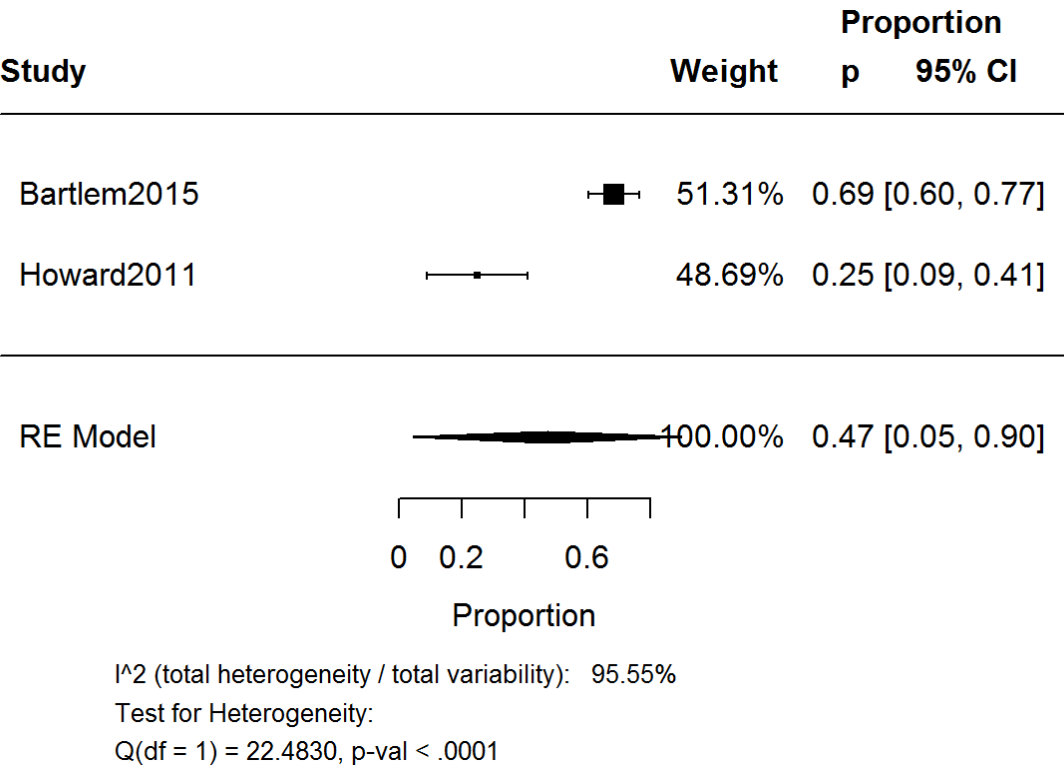


Figure 3.21 Overall client and audit reported highest estimates of care provision: Advise for nutrition

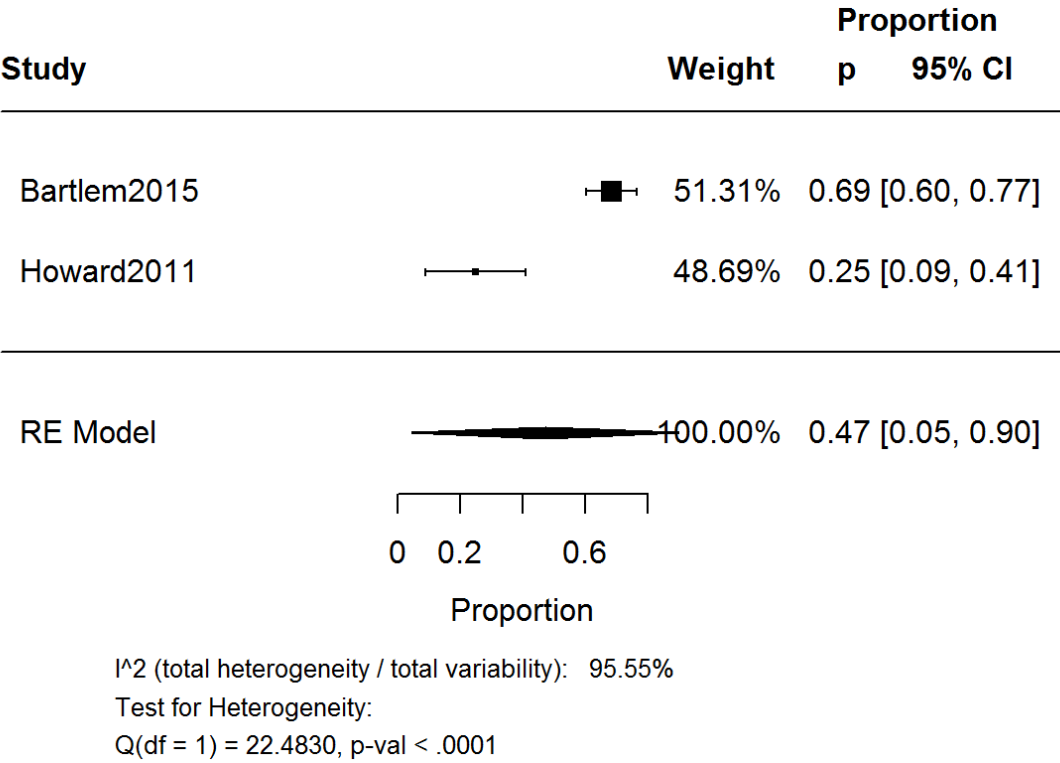


Figure 3.22 Overall client and audit reported lowest estimates of care provision: Advise for nutrition

Physical activity

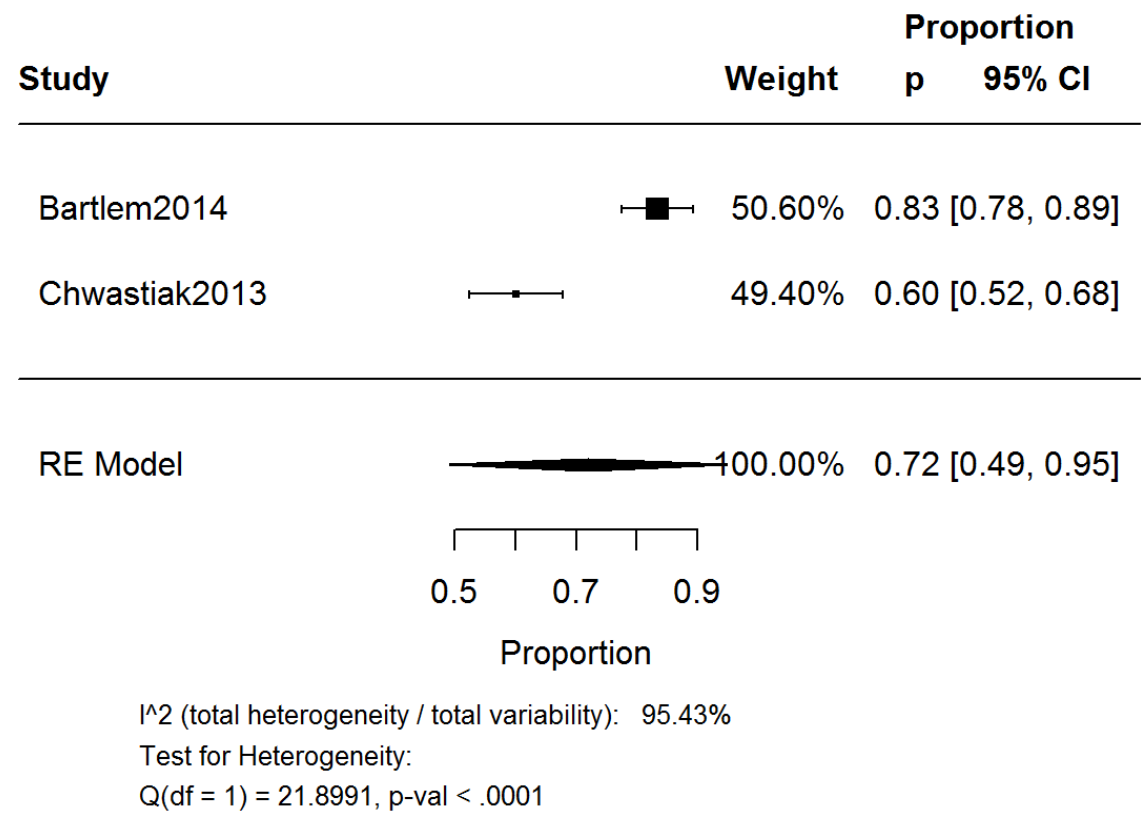


Figure 3.23 Overall clinician reported highest estimates of care provision: Advise for physical activity

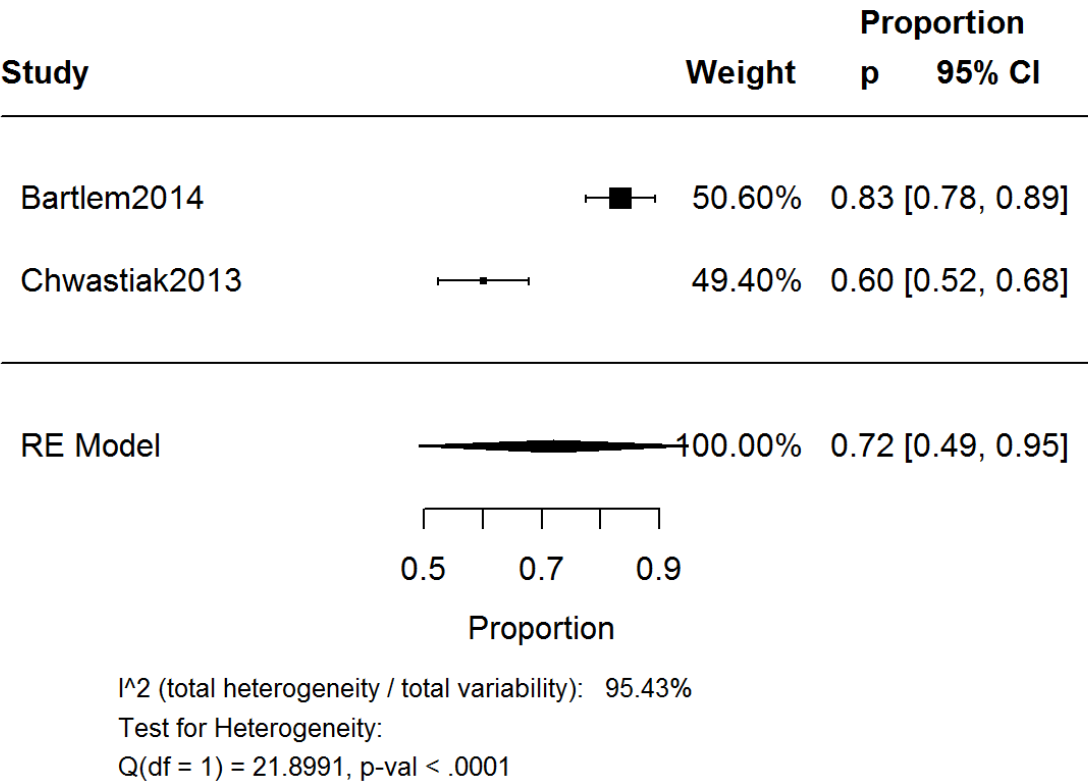


Figure 3.24 Overall clinician reported lowest estimates of care provision: Advise for physical activity

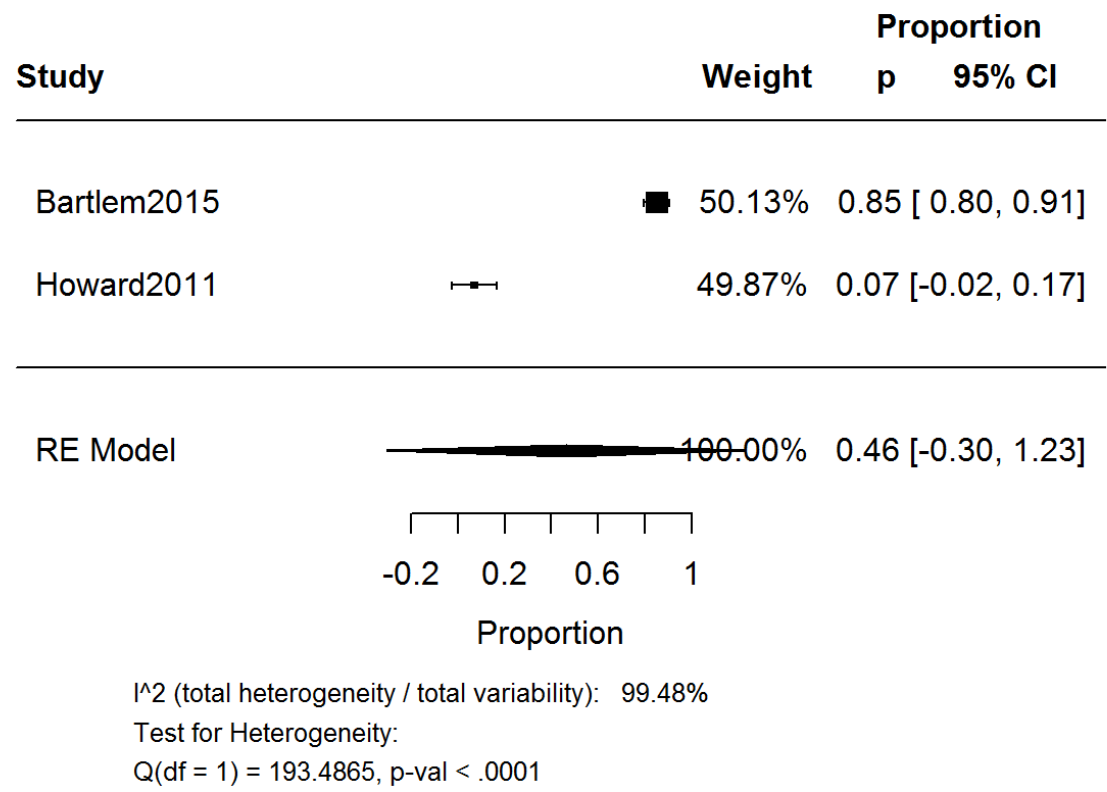


Figure 3.25 Overall client and audit reported highest estimates of care provision: Advise for physical activity

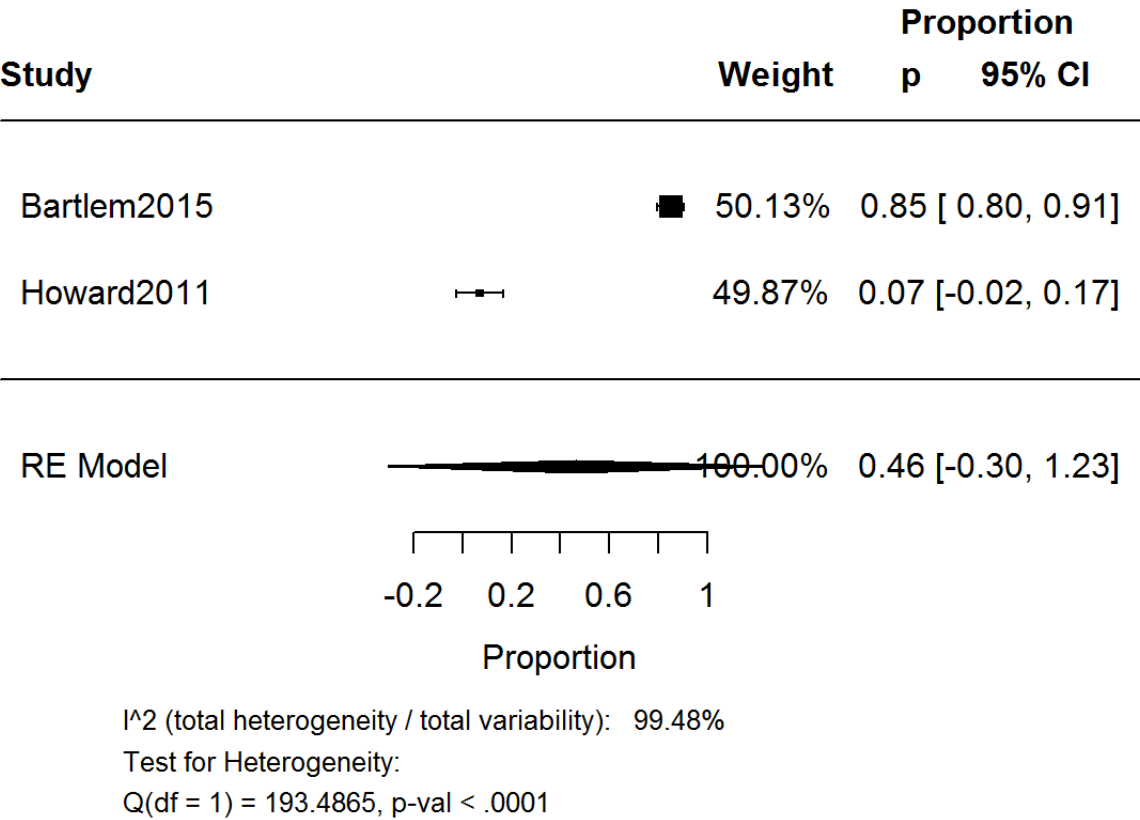


Figure 3.26 Overall client and audit reported lowest estimates of care provision: Advise for physical activity

Assist
Smoking

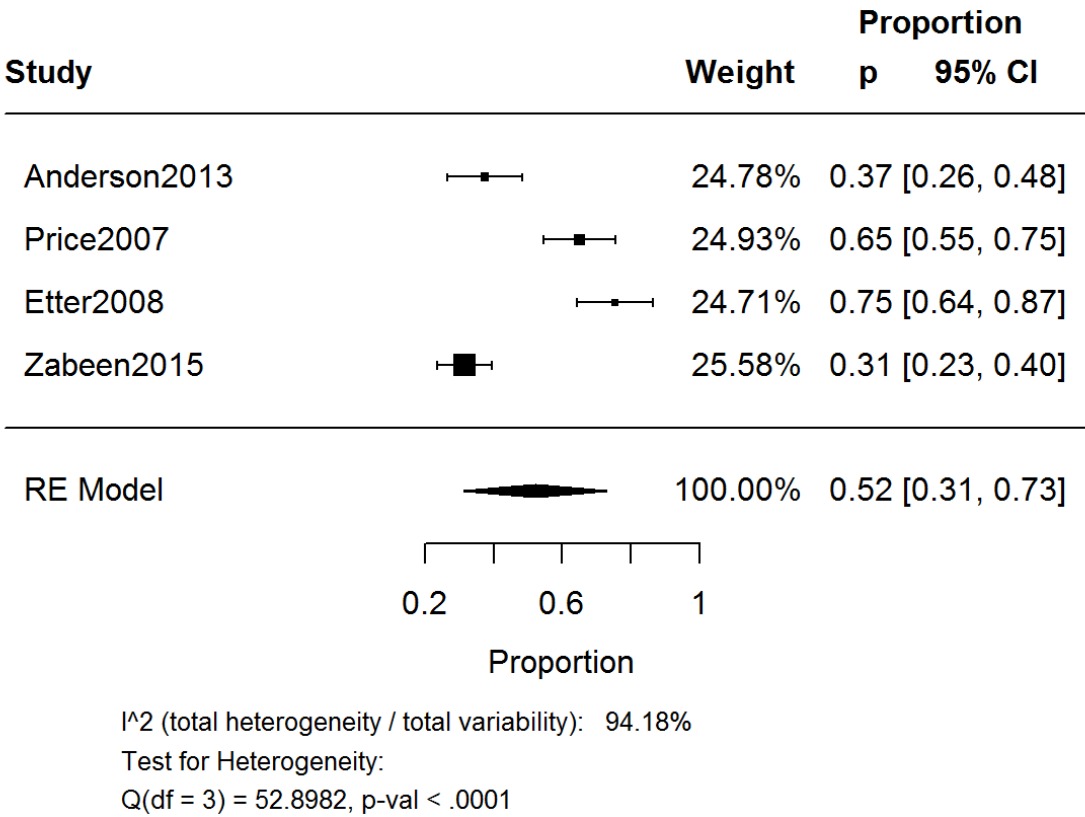


Figure 3.27 Overall clinician reported highest estimates of care provision: Assist for smoking

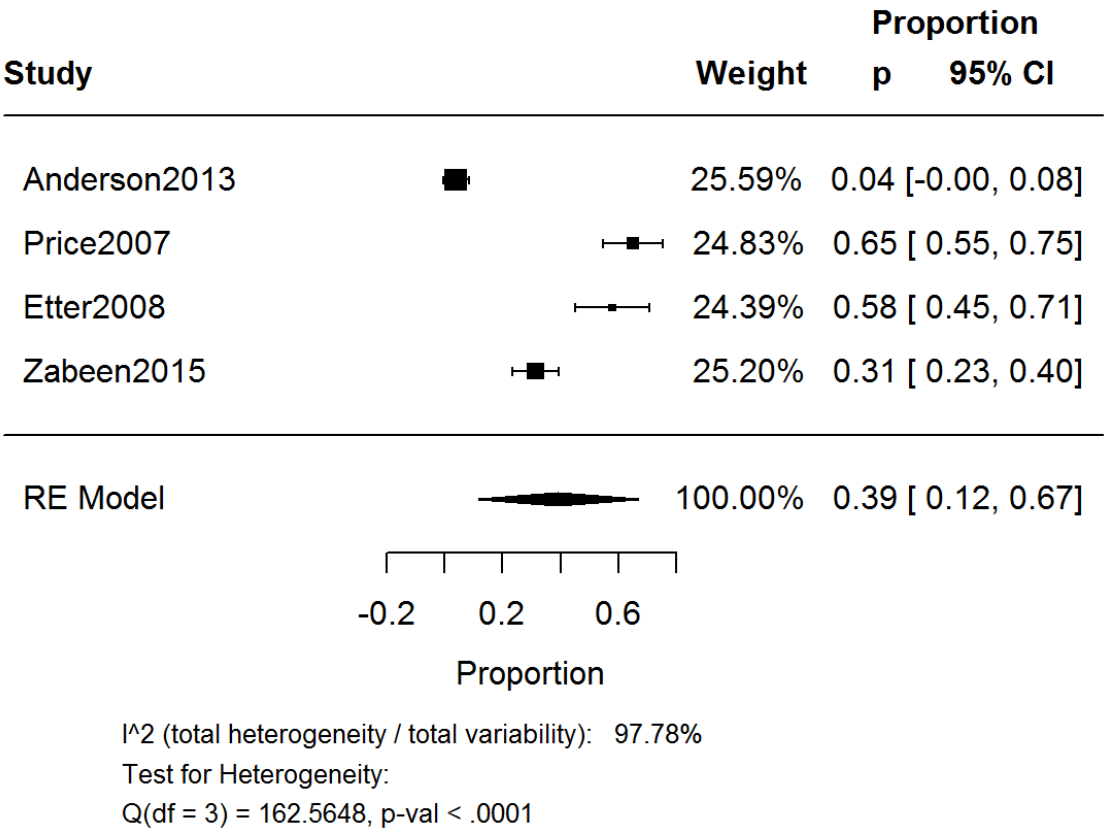


Figure 3.28 Overall clinician reported lowest estimates of care provision: Assist for smoking

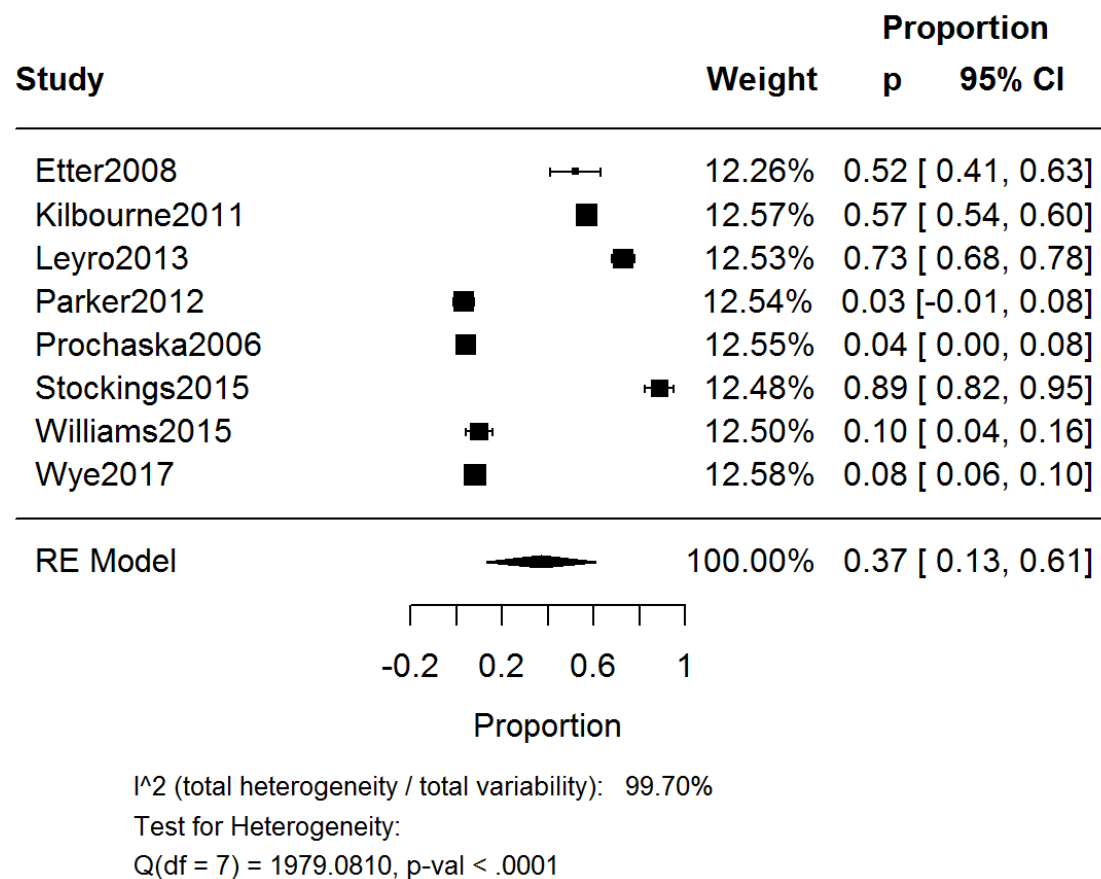


Figure 3.29 Overall client and audit reported highest estimates of care provision: Assist for smoking

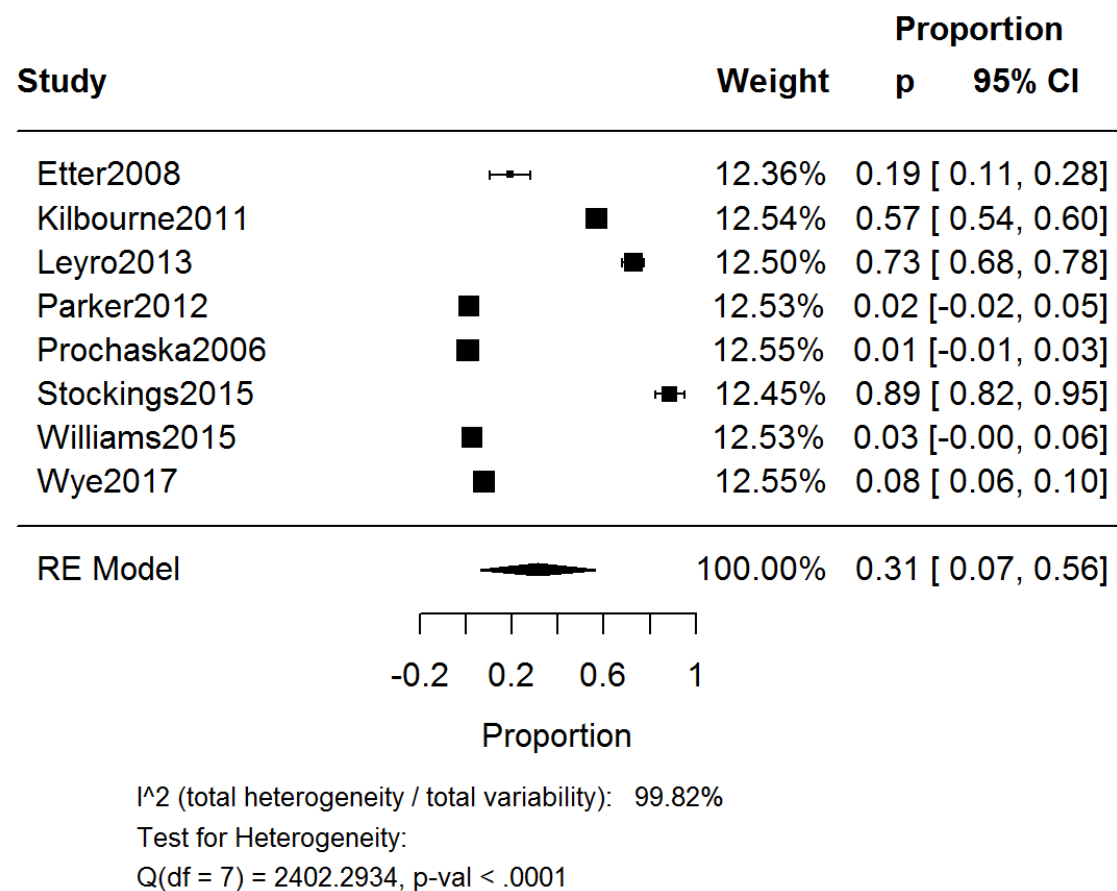


Figure 3.30 Overall client and audit reported lowest estimates of care provision: Assist for smoking

Alcohol

Insufficient data to conduct meta-analyses

Nutrition

Insufficient data to conduct meta-analyses

Physical activity

Insufficient data to conduct meta-analyses

Arrange
Smoking

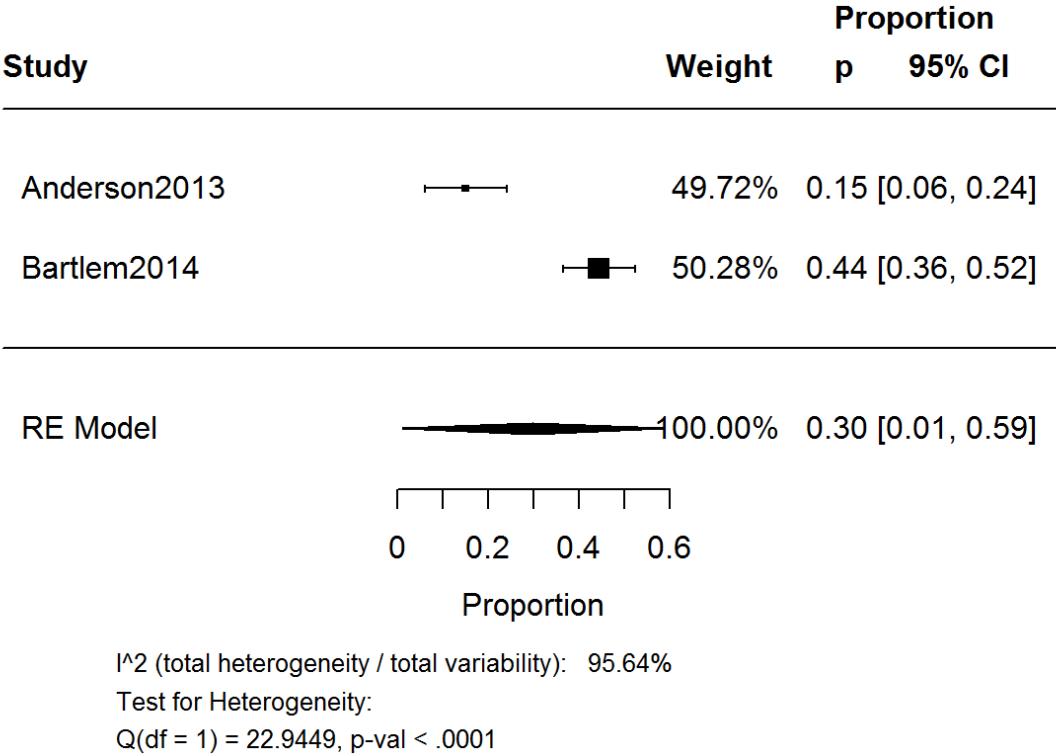


Figure 3.31 Overall clinician reported highest estimates of care provision: Arrange for smoking

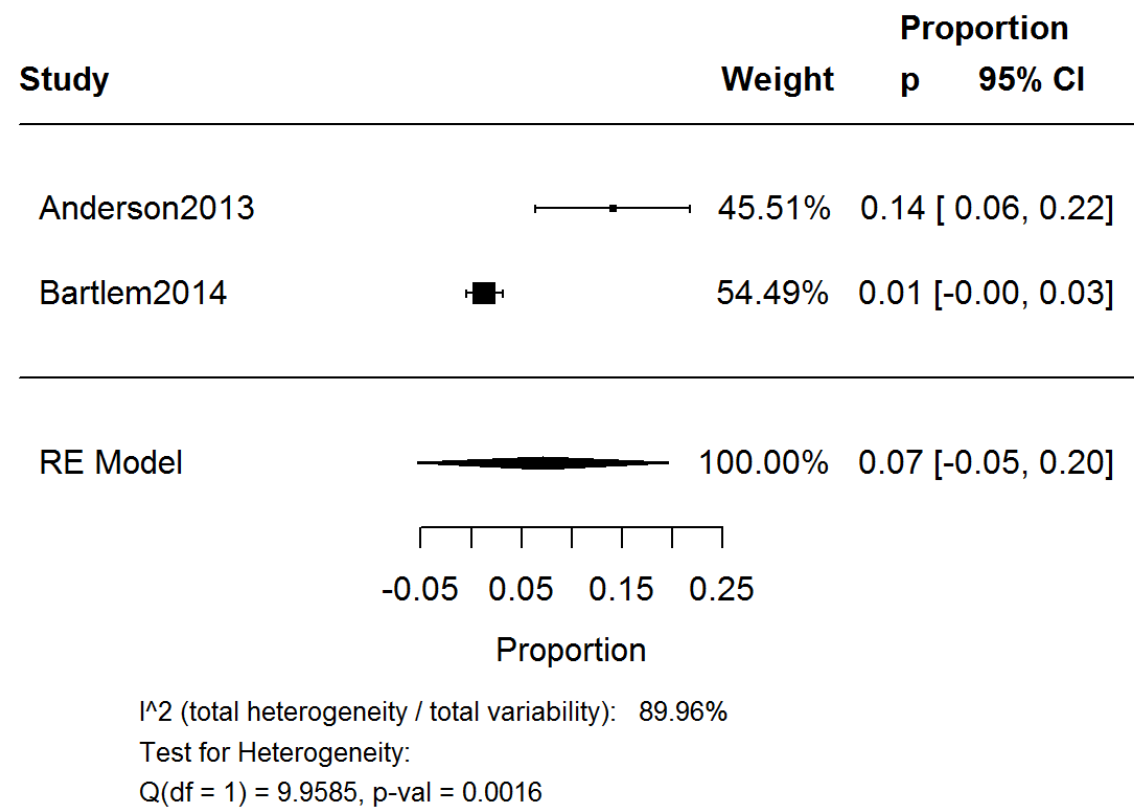


Figure 3.32 Overall clinician reported lowest estimates of care provision: Arrange for smoking

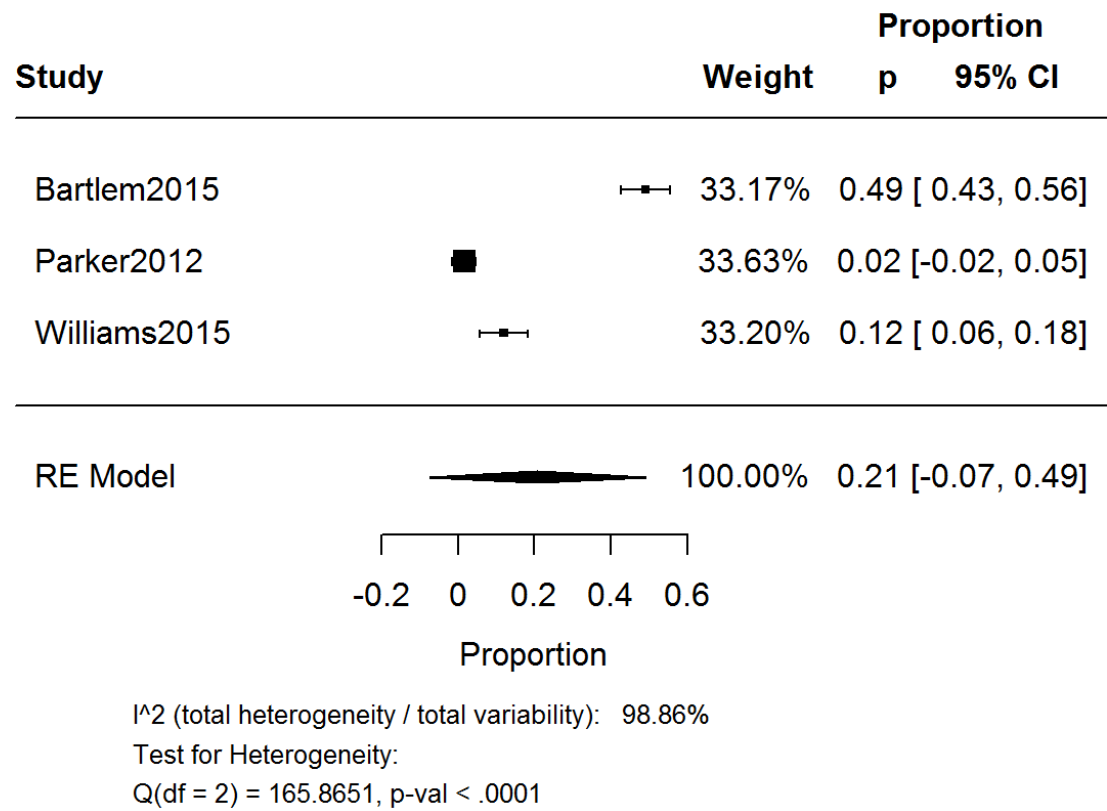


Figure 3.33 Overall client and audit reported highest estimates of care provision: Arrange for smoking

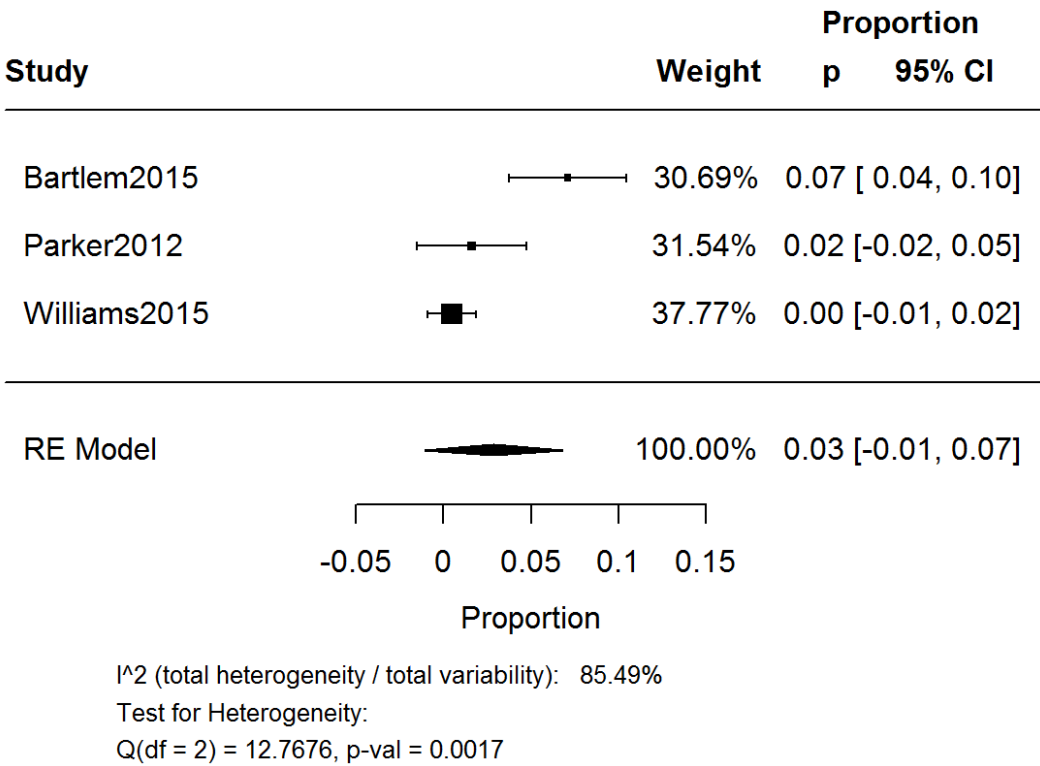


Figure 3.34 Overall client and audit reported lowest estimates of care provision: Arrange for smoking

Alcohol

Insufficient data to conduct meta-analyses

Nutrition

Insufficient data to conduct meta-analyses

Physical activity

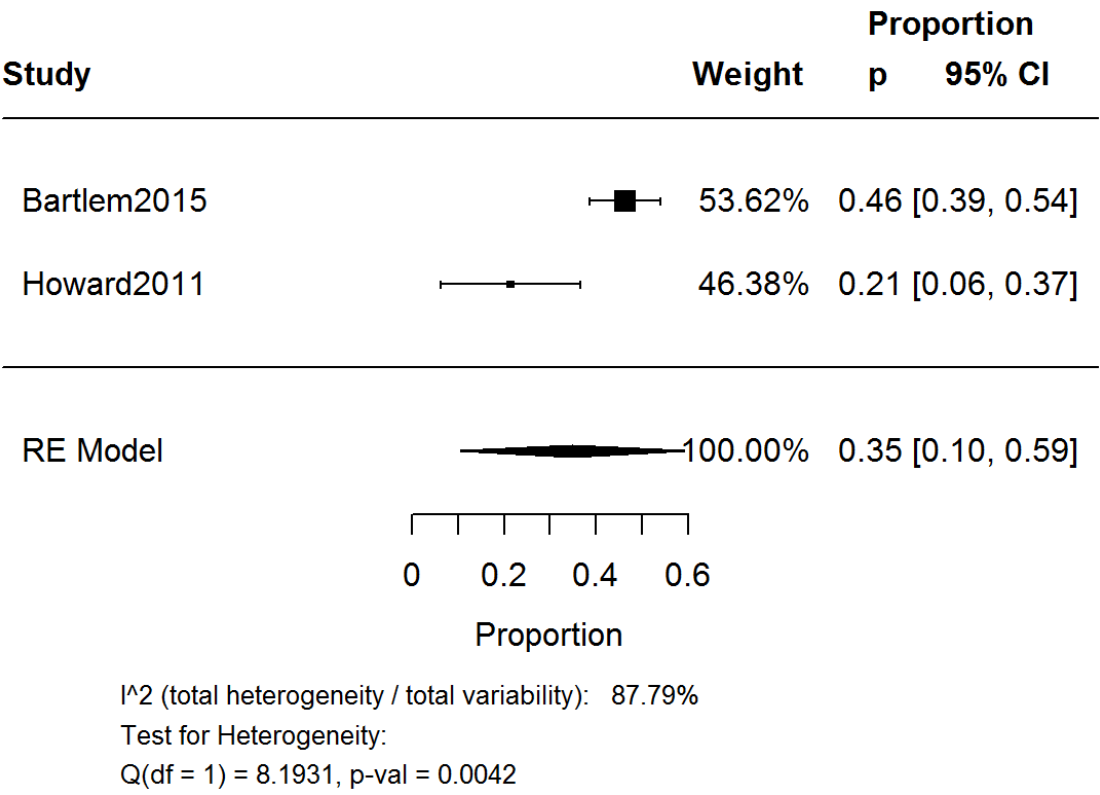


Figure 3.35 Overall client and audit reported highest estimates of care provision: Arrange for physical activity

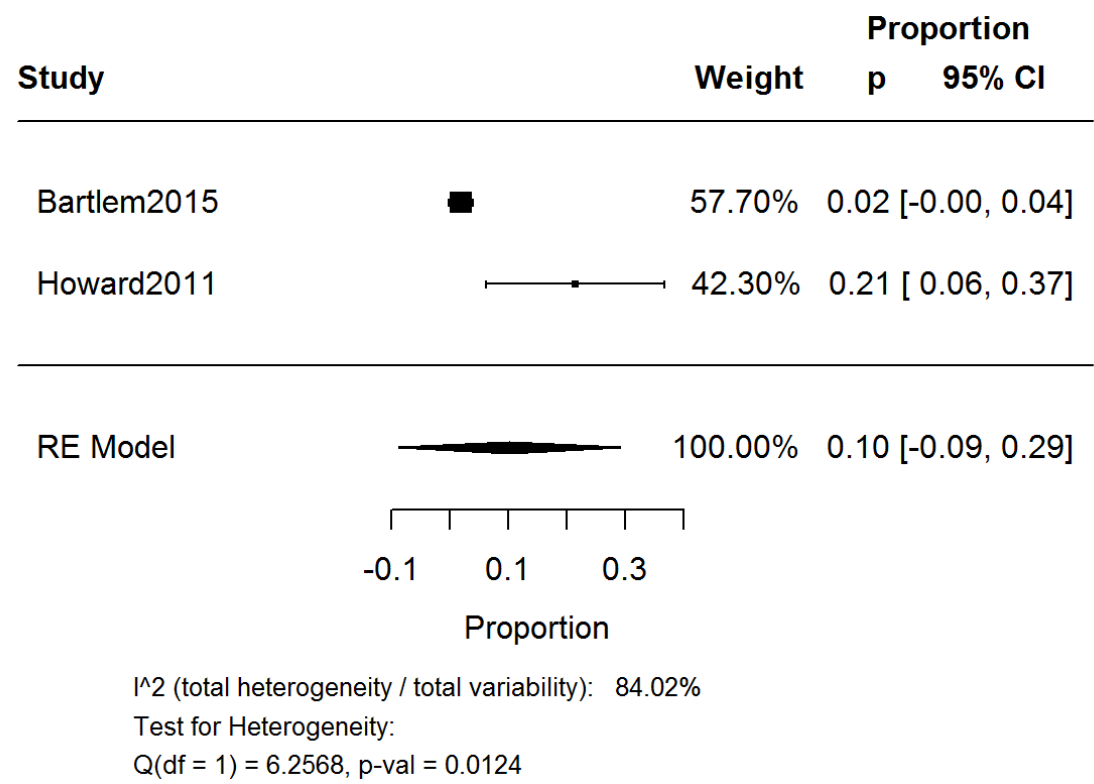


Figure 3.36 Overall client and audit reported lowest estimates of care provision: Arrange for physical activity

Pre-specified subgroup analyses

Ask/assess

Smoking

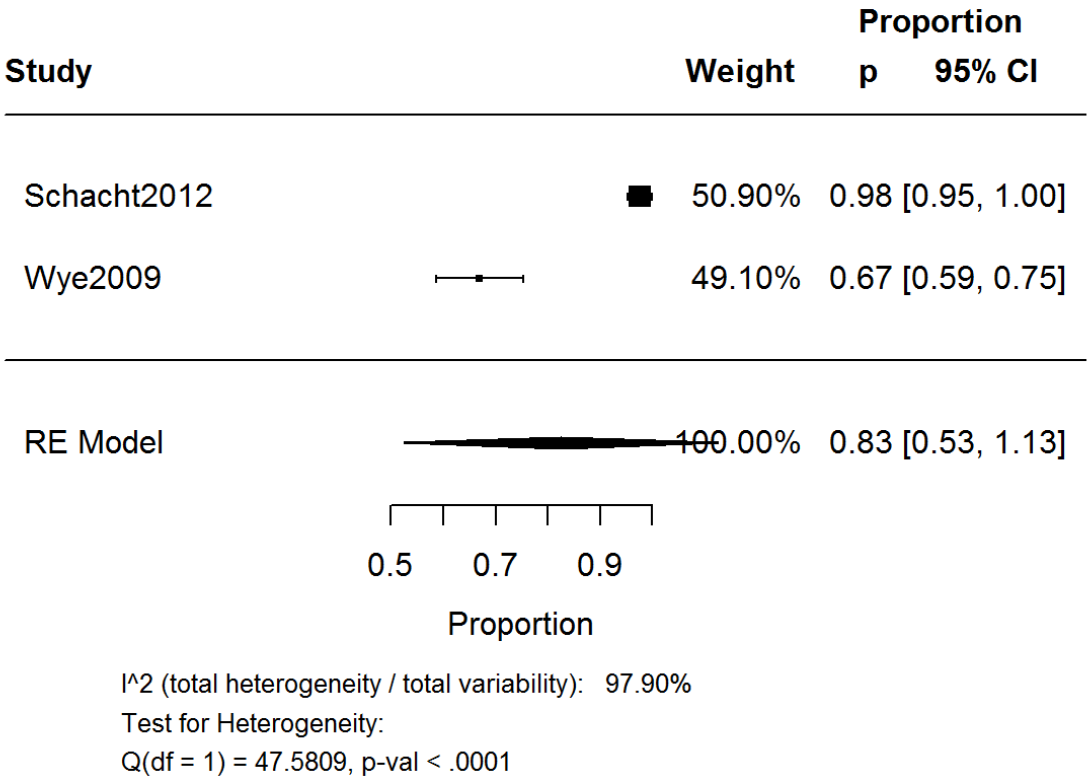


Figure 3.37 Pre-specified subgroup analysis by setting type: Clinician reported data by inpatient settings: Ask/assess for smoking

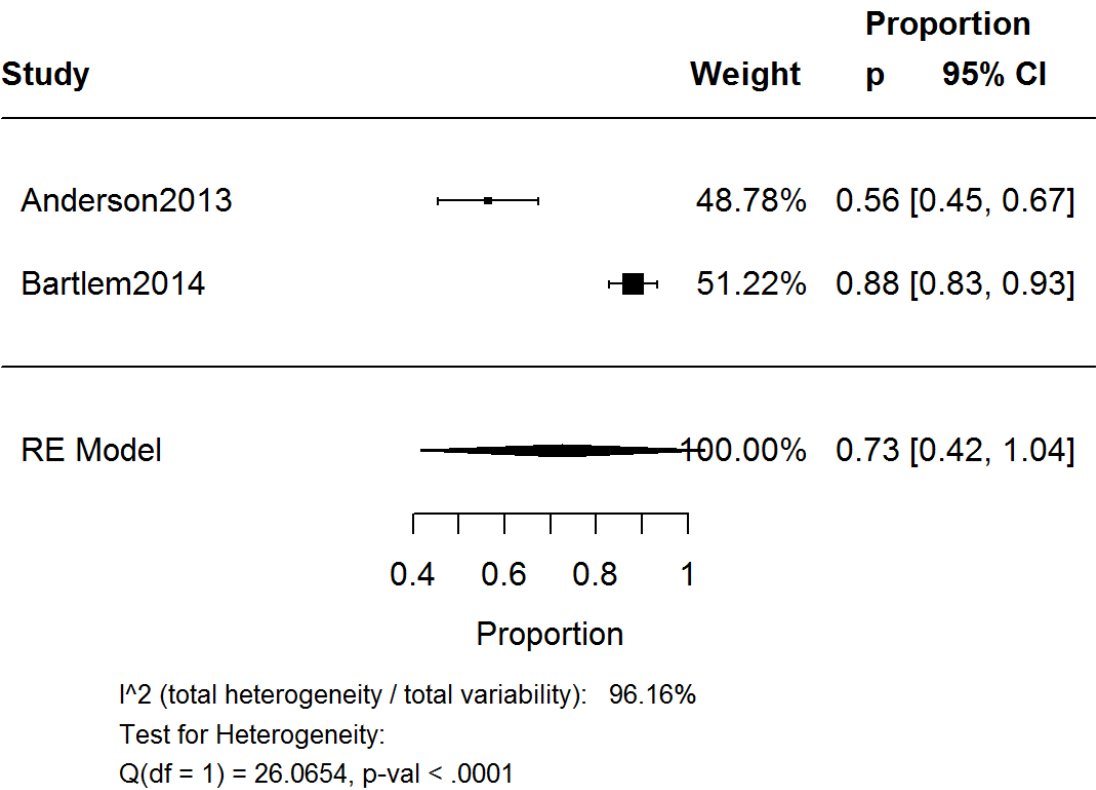


Figure 3.38 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Ask/assess for smoking

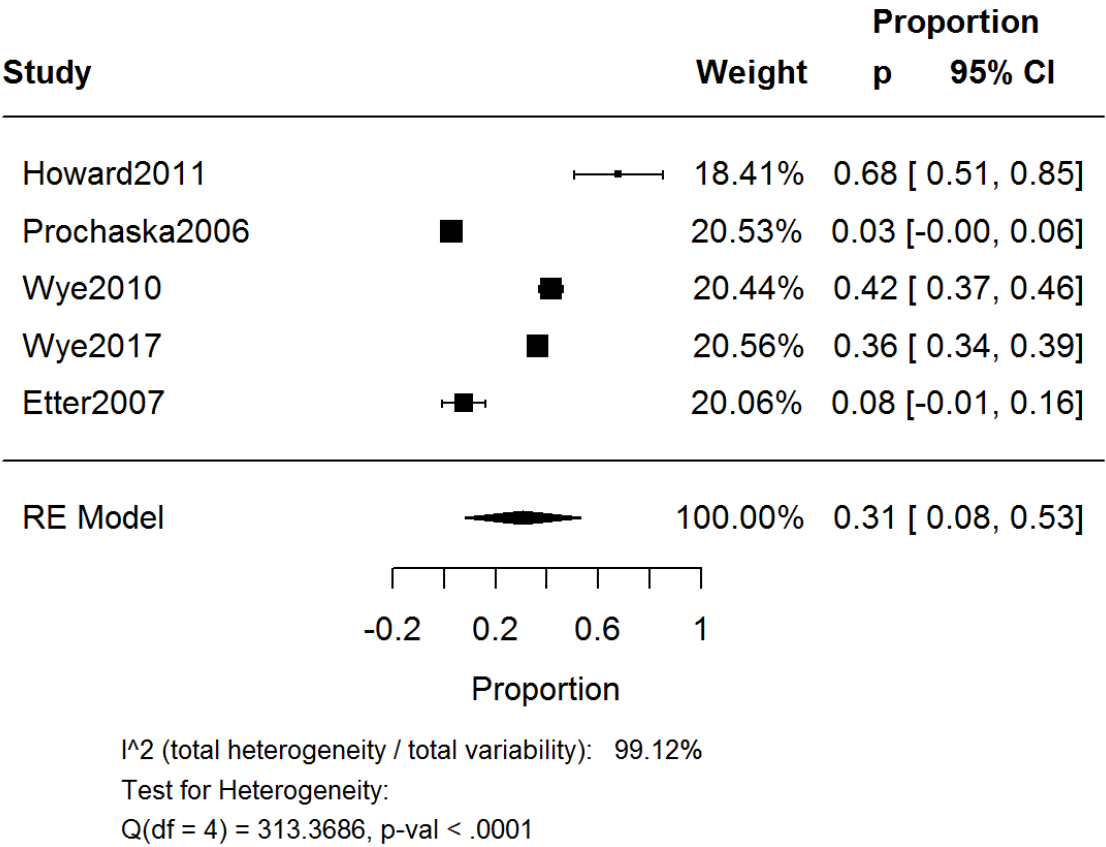


Figure 3.39 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Ask/assess for smoking

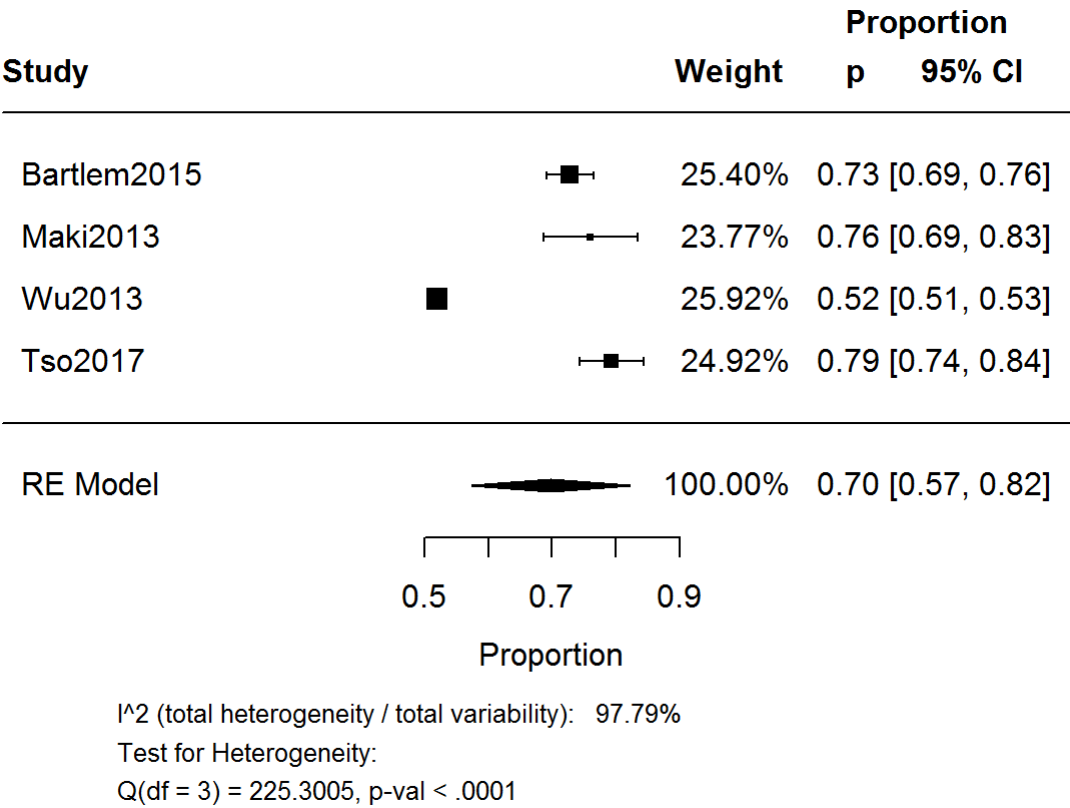


Figure 3.40 Pre-specified subgroup analysis by setting type: Client and audit data by outpatient settings: Ask/assess for smoking

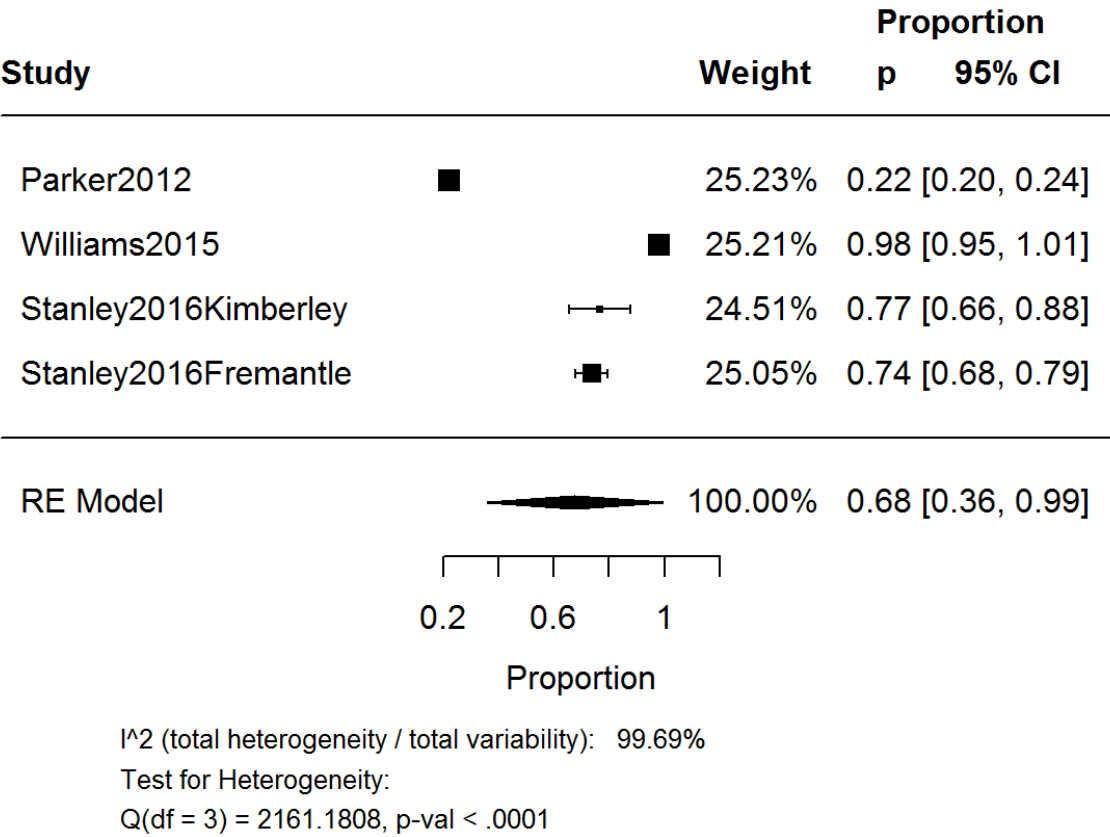


Figure 3.41 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for smoking

Alcohol



Figure 3.42 Pre-specified subgroup analysis by setting type: Client and audit data by outpatient settings: Ask/assess for alcohol

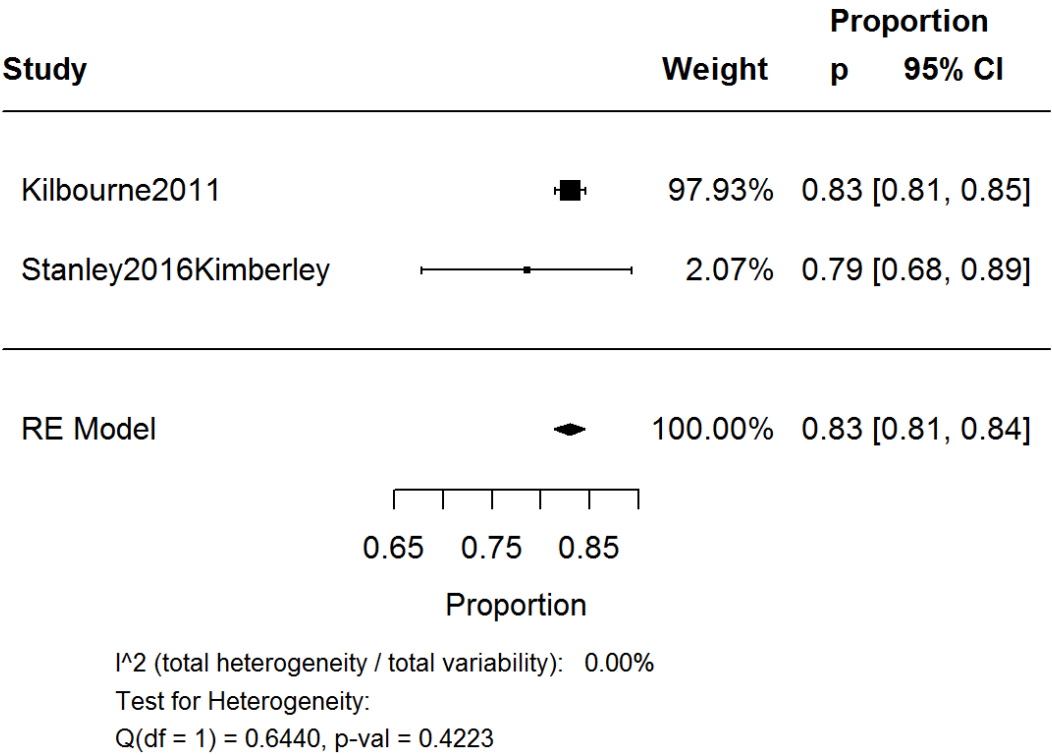


Figure 3.43 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for alcohol

Nutrition

Insufficient data to conduct analysis

Physical activity

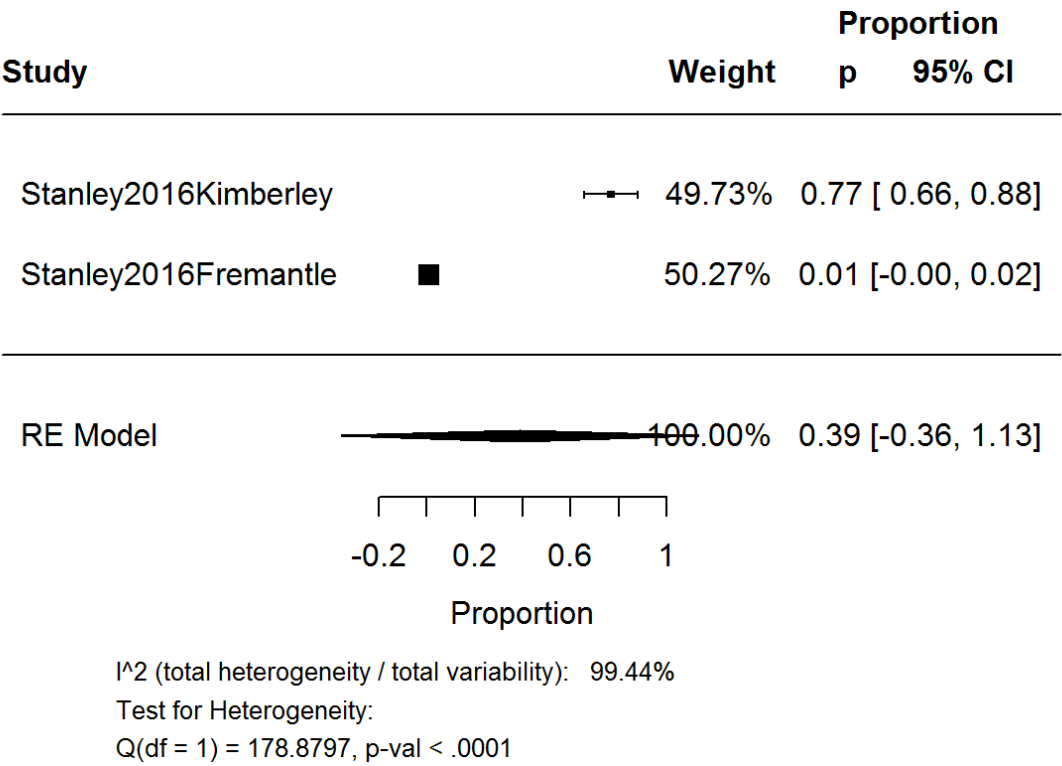


Figure 3.44 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Ask/assess for physical activity

Advise
Smoking

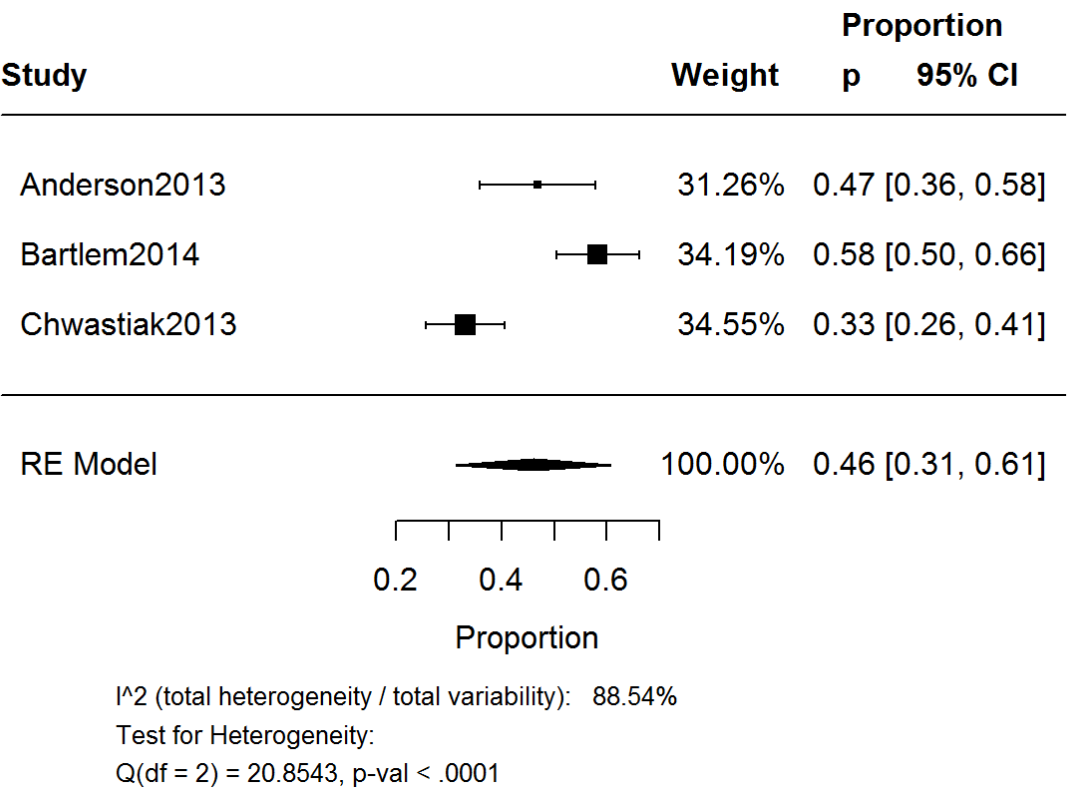


Figure 3.45 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for smoking

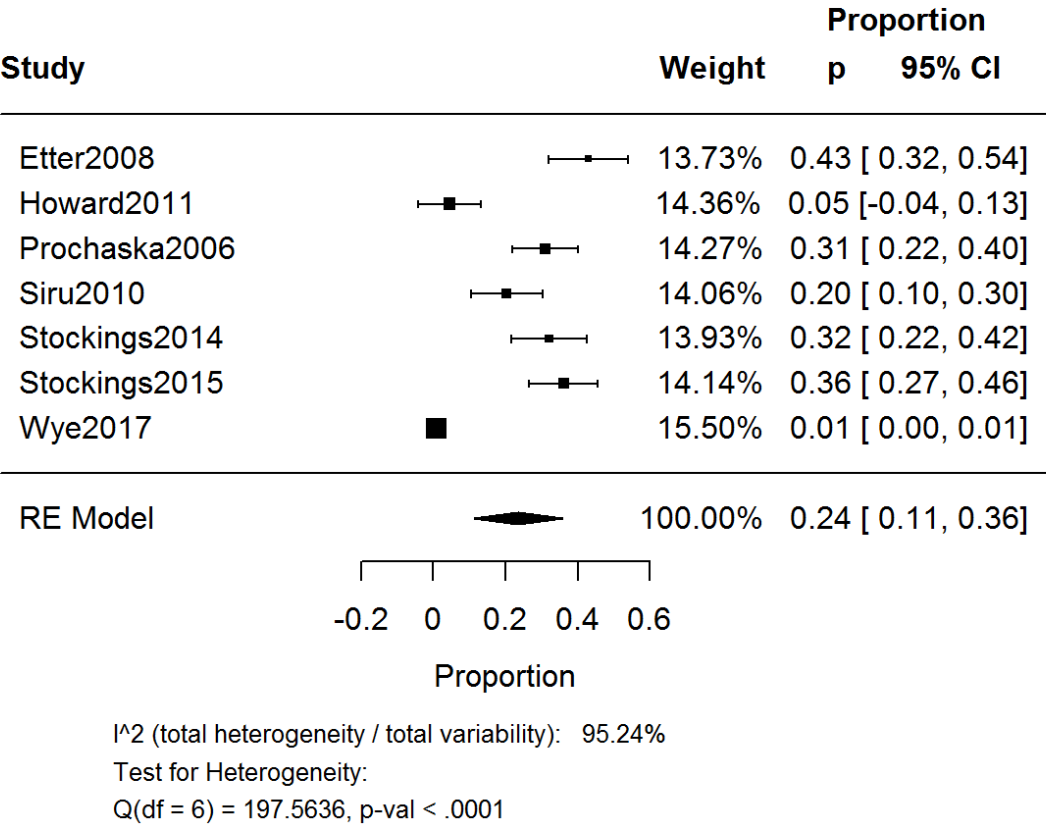


Figure 3.46 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Advise for smoking

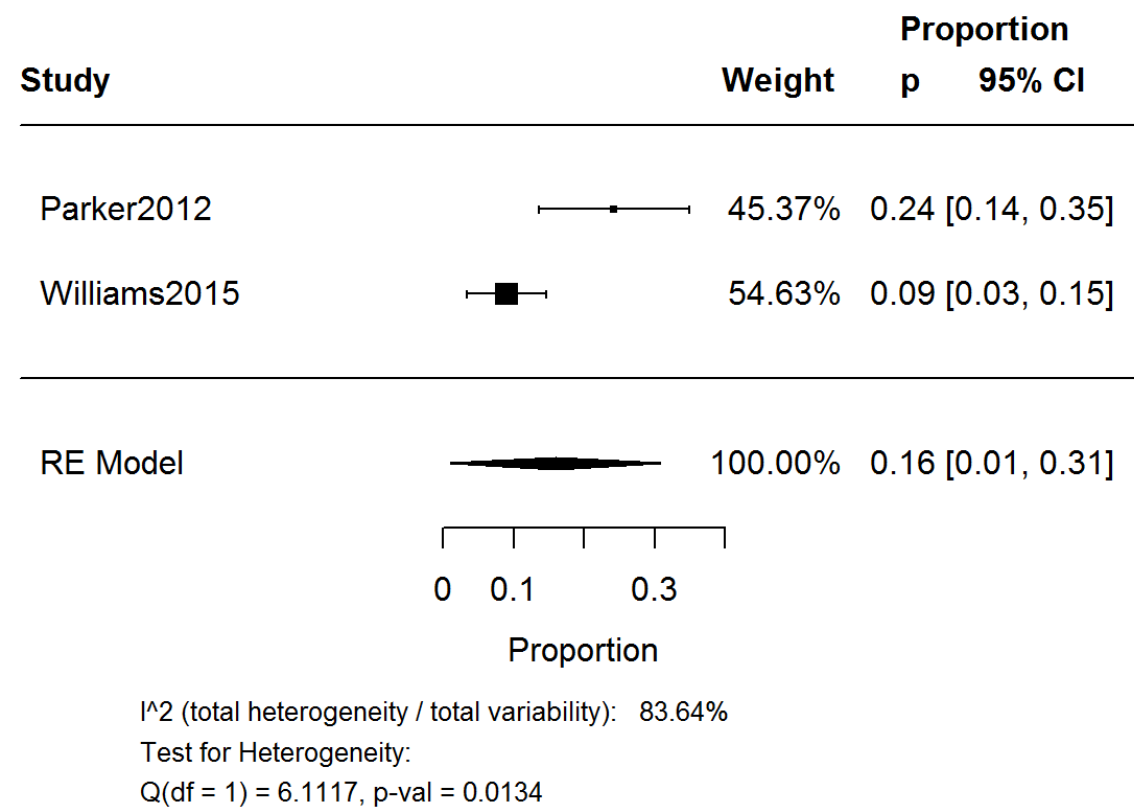


Figure 3.47 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Advise for smoking

Alcohol

Insufficient data to conduct analysis

Nutrition

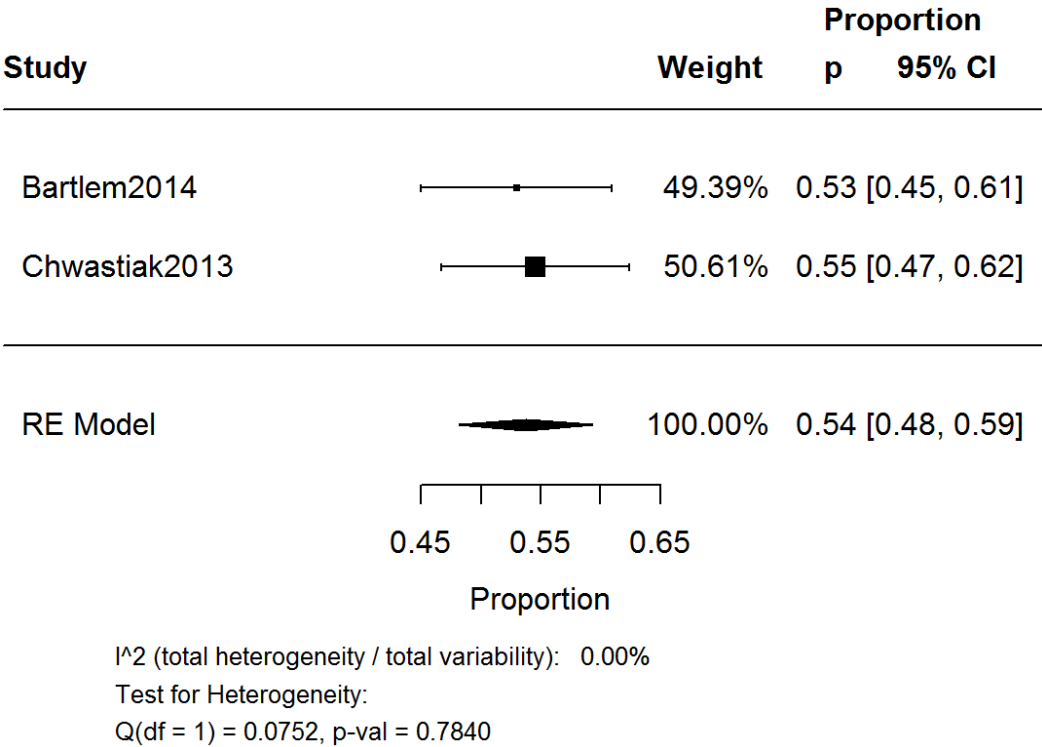


Figure 3.48 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for nutrition

Physical activity

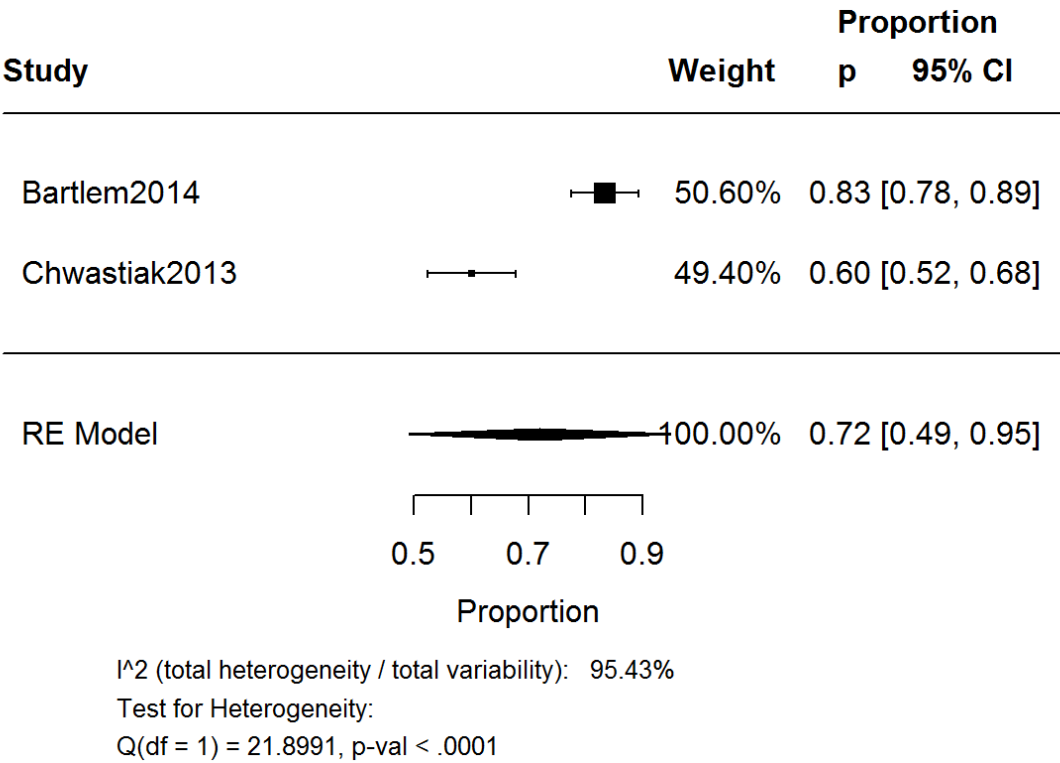


Figure 3.49 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Advise for physical activity

Assist
Smoking

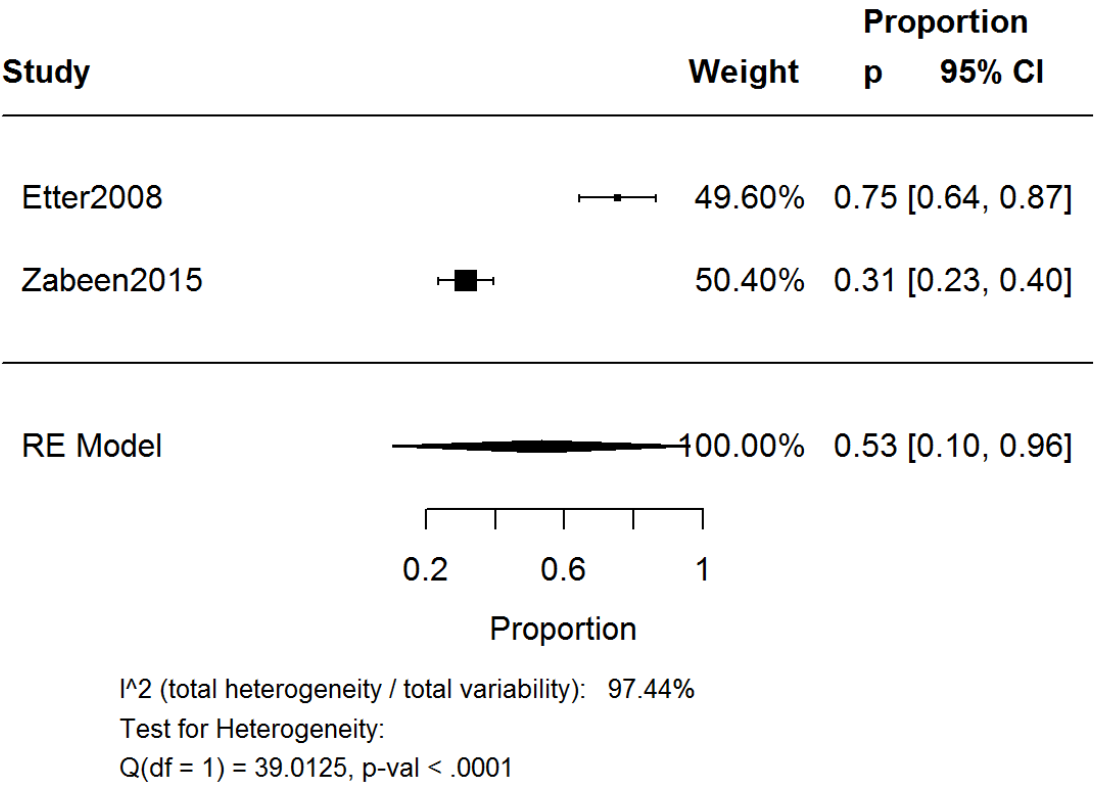


Figure 3.50 Pre-specified subgroup analysis by setting type: Clinician reported data by inpatient settings: Assist for smoking

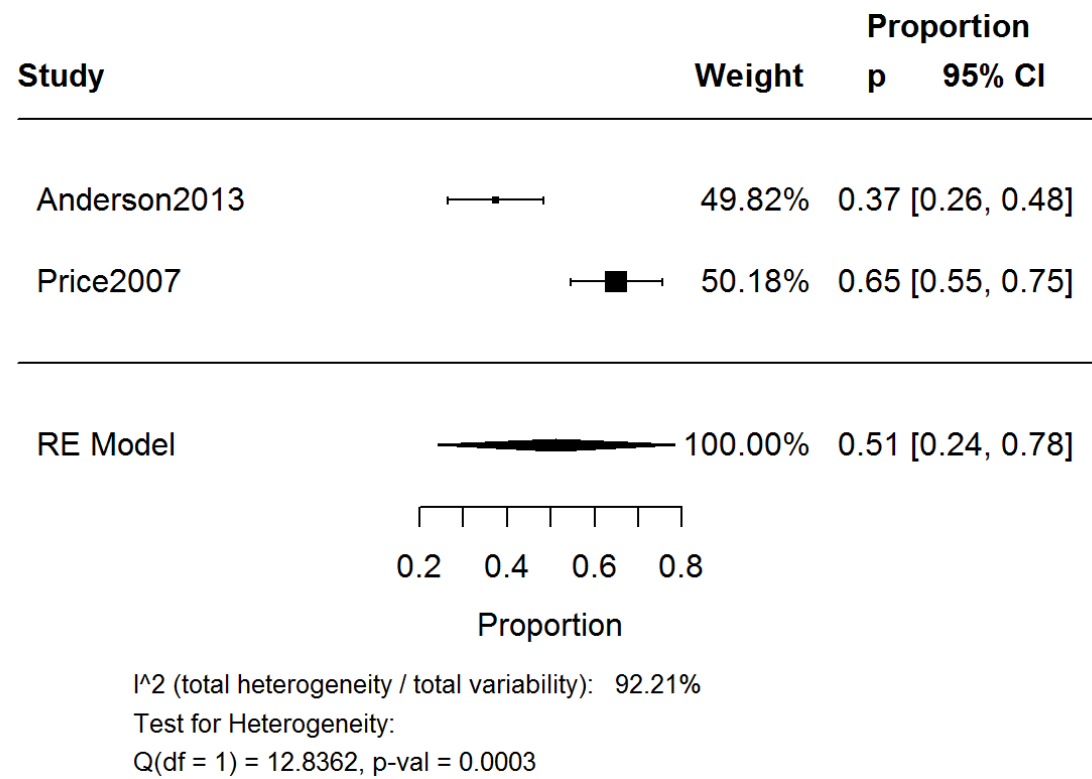


Figure 3.51 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Assist for smoking

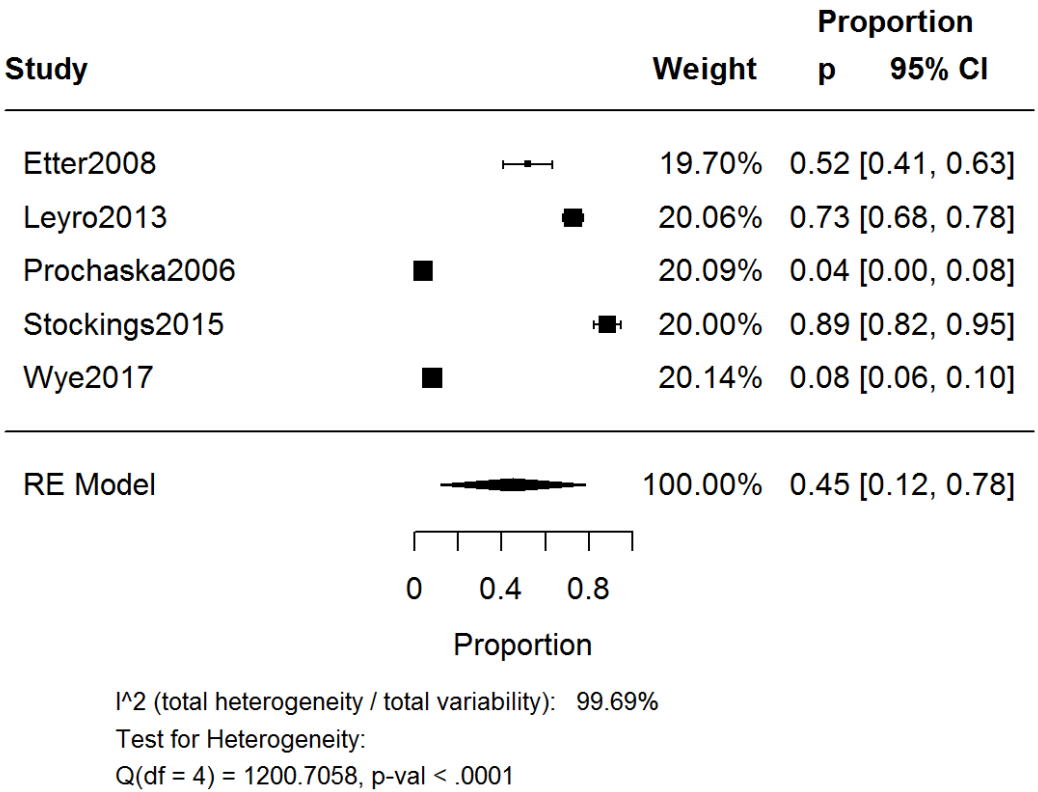


Figure 3.52 Pre-specified subgroup analysis by setting type: Client and audit data by inpatient settings: Assist for smoking

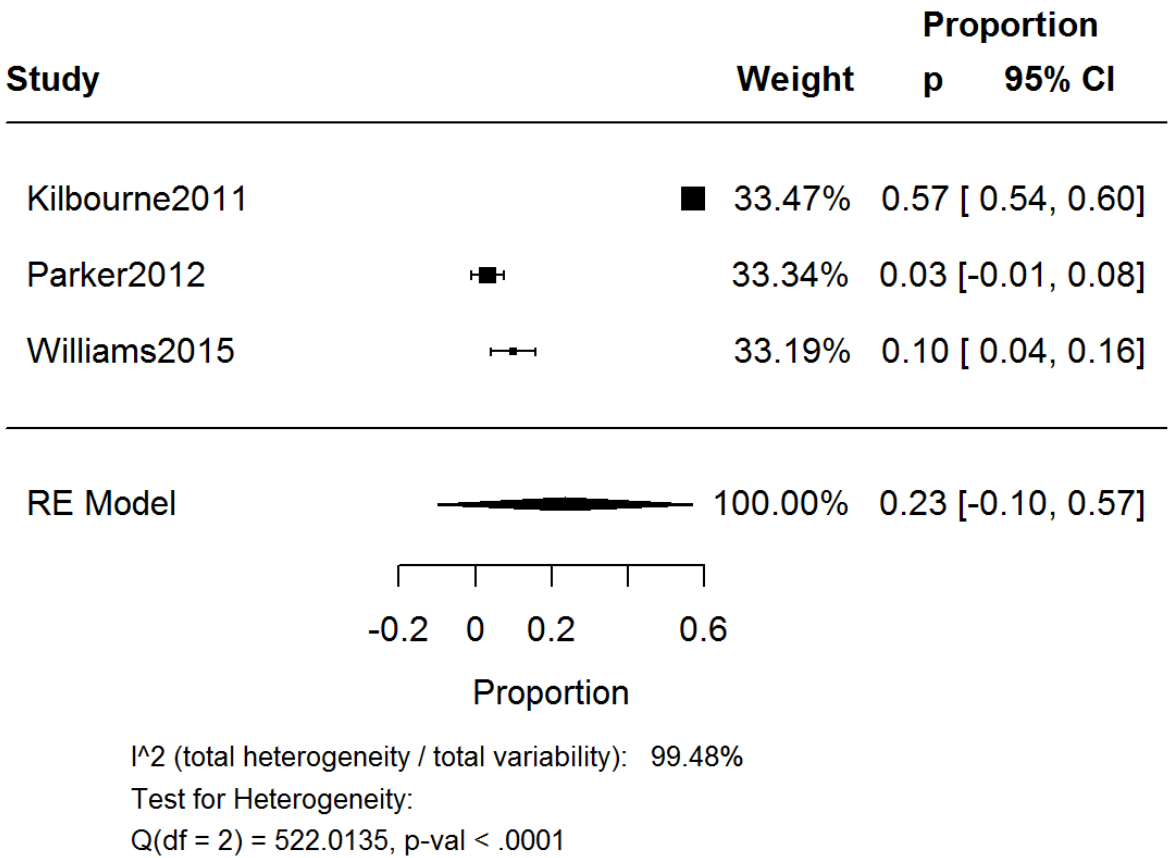


Figure 3.53 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Assist for smoking

Alcohol

Insufficient data to conduct analysis

Nutrition

Insufficient data to conduct analysis

Physical activity

Insufficient data to conduct analysis

Arrange
Smoking

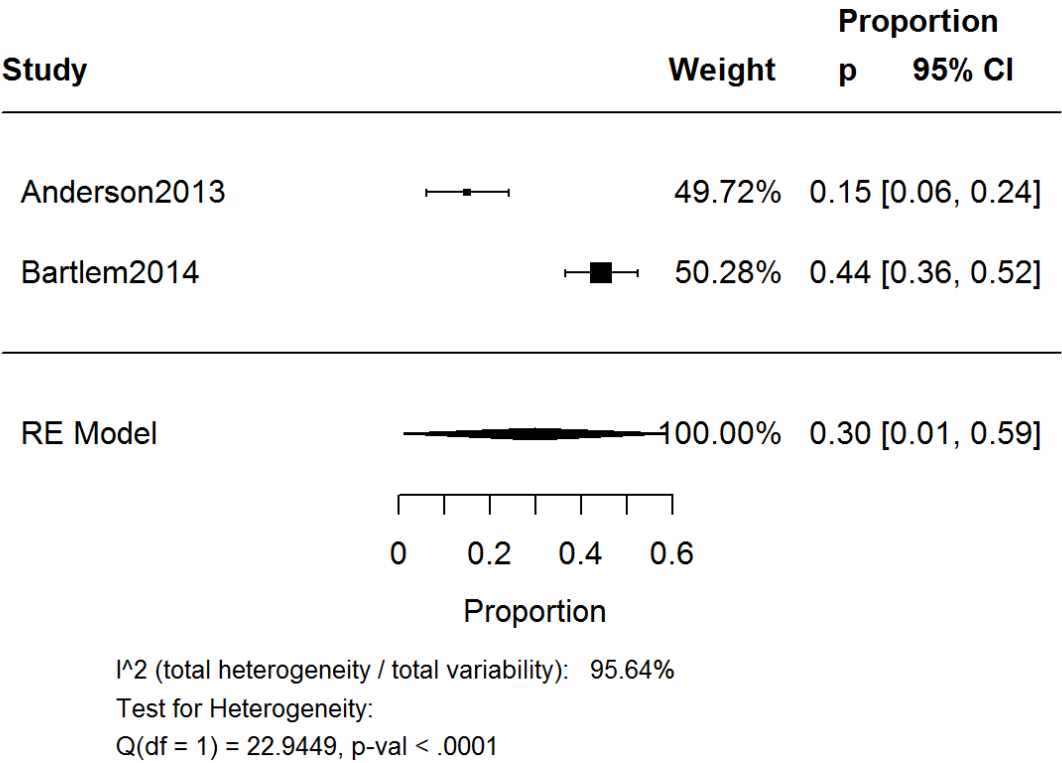


Figure 3.54 Pre-specified subgroup analysis by setting type: Clinician reported data by outpatient settings: Arrange for smoking

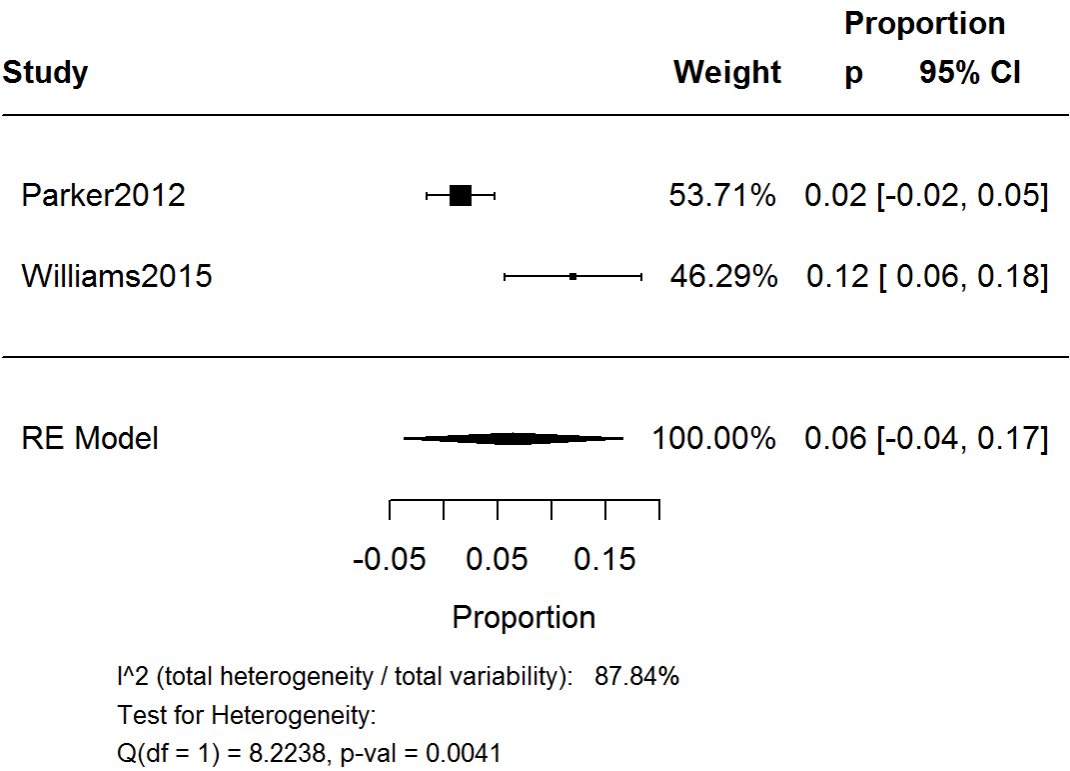


Figure 3.55 Pre-specified subgroup analysis by setting type: Client and audit data by other settings: Arrange for smoking

Alcohol

Insufficient data to conduct analysis

Nutrition

Insufficient data to conduct analysis

Physical activity

Insufficient data to conduct analysis

Supplementary Document 3.6 Table of meta-analysis results with GRADE ratings and reasons for downgrading

Table 3.5 Table of meta-analysis results with GRADE ratings and reasons for downgrading

Outcome ^a	% (95% CI)	<i>I</i> ² (%)	<i>p</i>	n	n of studies	GRADE rating ^c	Reasons for downgrading one level from 'low' to 'very low': Risk of bias ^d ; Inconsistency ^e ; Imprecision ^f
Meta-analysis results:							
Overall clinician reported data- highest estimates of care provision							
Ask/Assess							
Smoking	78 (59-96%)	97.7	<.01	515	4	Very low	Risk of bias, Inconsistency
Advise							
Smoking	46 (31-61%)	88.5	<.01	384	3	Very low	Risk of bias, Inconsistency, Imprecision
Nutrition	54 (48-59%)	0	0.78	305	2	Very low	Risk of bias, Imprecision
Physical activity	72 (49-95%)	95.4	<.01	304	2	Very low	Risk of bias, Inconsistency, Imprecision
Assist							
Smoking	52 (31-73%)	94.2	<.01	339	4	Very low	Risk of bias, Inconsistency, Imprecision
Arrange							
Smoking	30 (1-59%)	95.6	<.01	211	2	Very low	Risk of bias, Inconsistency, Imprecision
Overall clinician reported data- lowest estimates of care provision							
Ask/Assess							
Smoking	78 (59-96%)	97.7	<.01	515	4	Very low	Risk of bias, Inconsistency
Advise							
Smoking	43 (32-54%)	78.5	<.01	384	3	Very low	Risk of bias, Inconsistency, Imprecision
Nutrition	54 (48-59%)	0	0.78	305	2	Very low	Risk of bias, Imprecision
Physical activity	72 (49-95%)	95.4	<.01	304	2	Very low	Risk of bias, Inconsistency, Imprecision
Assist							
Smoking	39 (12-67%)	97.8	<.01	339	4	Very low	Risk of bias, Inconsistency, Imprecision
Arrange							
Smoking ^b	7 (0-20%)	90.0	<.01	229	2	Very low	Risk of bias, Inconsistency, Imprecision
Overall client and audit reported data- highest estimates of care provision							
Ask/Assess							
Smoking	54 (38-71%)	99.7	<.01	10574	12	Very low	Risk of bias, Inconsistency
Alcohol	62 (42-81%)	99.0	<.01	3240	6	Very low	Risk of bias, Inconsistency
Nutrition ^b	17 (0-35%)	98.6	<.01	813	3	Very low	Risk of bias, Inconsistency
Physical activity ^b	35 (0-72%)	99.6	<.01	641	3	Very low	Risk of bias, Inconsistency
Advise							

Smoking	28 (14-42%)	98.4	<.01	1880	10	Very low	Risk of bias, Inconsistency
Alcohol ^b	42 (0-100%)	98.8	<.01	228	2	Very low	Risk of bias, Inconsistency, Imprecision
Nutrition	47 (5-90%)	95.6	<.01	152	2	Very low	Risk of bias, Inconsistency, Imprecision
Physical activity ^b	46 (0-100%)	99.5	<.01	190	2	Very low	Risk of bias, Inconsistency, Imprecision
Assist							
Smoking	37 (13-61%)	99.7	<.01	3141	8	Very low	Risk of bias, Inconsistency
Arrange							
Smoking ^b	21 (0-49%)	98.9	<.01	388	3	Very low	Risk of bias, Inconsistency, Imprecision
Physical activity	35 (10-59%)	87.8	<.01	190	2	Very low	Risk of bias, Inconsistency, Imprecision
Overall client and audit reported data- lowest estimates of care provision							
Ask/Assess							
Smoking	41 (22-61%)	99.6	<.01	10574	12	Very low	Risk of bias, Inconsistency
Alcohol	62 (42-81%)	99.0	<.01	3240	6	Very low	Risk of bias, Inconsistency
Nutrition ^b	17 (0-35%)	98.6	<.01	813	3	Very low	Risk of bias, Inconsistency
Physical activity ^b	35 (0-72%)	99.6	<.01	641	3	Very low	Risk of bias, Inconsistency
Advise							
Smoking	25 (10-40%)	99.2	<.01	1880	10	Very low	Risk of bias, Inconsistency
Alcohol ^b	42 (0-100%)	98.8	<.01	228	2	Very low	Risk of bias, Inconsistency, Imprecision
Nutrition	47 (5-90%)	95.6	<.01	152	2	Very low	Risk of bias, Inconsistency, Imprecision
Physical activity ^b	46 (0-100%)	99.5	<.01	190	2	Very low	Risk of bias, Inconsistency, Imprecision
Assist							
Smoking	31 (7-56%)	99.8	<.01	3141	8	Very low	Risk of bias, Inconsistency
Arrange							
Smoking ^b	3 (0-7%)	85.5	<.01	388	3	Very low	Risk of bias, Inconsistency, Imprecision
Physical activity ^b	10 (0-29%)	84.0	0.01	190	2	Very low	Risk of bias, Inconsistency, Imprecision

^a Meta-analyses were not possible for all health behaviours by all care elements due to insufficient numbers of studies ($n < 2$) contributing data.

^b In some cases approximate confidence intervals for the proportion gave limits outside 0 and 1. These have been truncated to 0 or 1 as appropriate.

^c Ratings for all outcome measures started at 'low' as data was utilised from observational studies.

^d Analysis includes at least 1 study with high or unclear risk of bias for 'valid measurement of condition' and 'condition measured reliably' for the relevant outcome measure.

^e $I^2 > 50\%$ or little to no overlap of CIs.

^f $n < 400$.

Supplementary Document 3.7 Table of subgroup analysis results

Table 3.6 Table of subgroup analysis results

Outcome ^a	% (95% CI)	<i>I</i> ² (%)	<i>p</i>	n	n of studies ^c
Pre-specified subgroup analyses by setting type					
Clinician reported data by inpatient settings					
Ask/Assess					
Smoking ^b	83 (53-100%)	97.9	<.01	286	2
Assist					
Smoking	53 (10-96%)	97.4	<.01	184	2
Clinician reported data by outpatient settings					
Ask/Assess					
Smoking ^b	73 (42-100%)	96.2	<.01	229	2
Advise					
Smoking	46 (31-61%)	88.5	<.01	384	3
Nutrition	54 (48-59%)	0	0.78	305	2
Physical activity	72 (49-95%)	95.4	<.01	304	2
Assist					
Smoking	51 (24-78%)	92.2	<.01	155	2
Arrange					
Smoking	30 (1-59%)	95.6	<.01	211	2
Client and audit data by inpatient settings					
Ask/Assess					
Smoking	31 (8-53%)	99.1	<.01	1636	5
Advise					
Smoking	24 (11-36%)	95.2	<.01	1492	7
Assist					
Smoking	45 (12-78%)	99.7	<.01	1652	5
Client and audit data by outpatient settings					
Ask/Assess					
Smoking	70 (57-82%)	97.8	<.01	6526	4
Alcohol	49 (16-82%)	99.1	<.01	936	3
Client and audit data by other settings					
Ask/Assess					
Smoking	68 (36-99%)	99.7	<.01	2412	3
Alcohol	83 (81-84%)	0	0.42	2276	2
Physical activity ^b	39 (0-100%)	99.4	<.01	284	1
Advise					
Smoking	16 (1-31%)	83.6	0.01	162	2
Assist					
Smoking ^b	23 (0-57%)	99.5	<.01	1489	3
Arrange					
Smoking ^b	6 (0-17%)	87.84	<.01	162	2
Additional subgroup analyses of client and audit data separately by setting type					
Client data by inpatient settings					
Advise					
Smoking	32 (25-39%)	59.9	0.04	416	5
Assist					
Smoking	72 (51-92%)	96.2	<.01	498	3
Audit data by inpatient settings					
Ask/Assess					

Smoking	36 (11-62%)	99.3	<.01	1597	4
Advise					
Smoking	1 (0-1%)	0	0.41	1076	2
Assist					
Smoking	6 (3-10%)	72.5	0.06	1154	2
Audit data by outpatient settings					
Ask/Assess					
Smoking	69 (52-86%)	97.9	<.01	5968	3
Alcohol	36 (1-70%)	98.3	<.01	378	2
Audit data by other settings					
Ask/ Assess					
Smoking	68 (36-99%)	99.7	<.01	2412	3
Alcohol	83 (81-84%)	0	.042	2276	2
Physical activity ^b	39 (0-100%)	99.4	<.01	284	1
Advise					
Smoking	16 (1-31%)	83.6	0.01	162	2
Assist					
Smoking ^b	23 (0-57%)	99.5	<.01	1489	3
Arrange					
Smoking ^b	6 (0-17%)	87.8	<.01	162	2
Additional subgroup analyses by country					
Clinician reported data by country: Australia					
Ask/Assess					
Smoking	71 (53-89%)	93.8	<.01	350	3
Advise					
Smoking	53 (42-64%)	63.6	0.097	230	2
Arrange					
Smoking	30 (1-59%)	95.6	<.01	211	2
Client and audit data by country: Australia					
Ask/Assess					
Smoking	63 (48-79%)	98.5	<.01	2562	5
Alcohol	69 (53-85%)	94.7	<.01	865	3
Nutrition ^b	13 (0-38%)	99.4	<.01	785	2
Physical activity	45 (0-89%)	99.7	<.01	841	2
Advise					
Smoking	34 (8-59%)	99.0	<.01	1519	5
Assist					
Smoking ^b	48 (0-100%)	99.8	<.01	1151	2
Client and audit data by country: UK					
Ask/Assess					
Smoking	46 (20-72%)	99.8	<.01	7644	3
Advise					
Smoking ^b	14 (0-33%)	87.2	<.01	84	2
Client and audit data by country: USA					
Ask/Assess					
Smoking ^b	59 (3-100%)	99.8	<.01	329	3
Advise					
Smoking ^b	20 (0-41%)	93.9	<.01	200	2
Assist					
Smoking	36 (3-69%)	99.6	<.01	1851	4

^a Meta-analyses were not possible for all health behaviours by all care elements due to insufficient numbers of studies ($n < 2$) contributing data.

^b In some cases approximate confidence intervals for the proportion gave limits outside 0 and 1. These have been truncated to 0 or 1 as appropriate.

^c Number of studies included in meta-analysis. Where n=1, one study contributed multiple data points to analysis e.g. audit data from two separate services.

Supplementary Document 3.8 Table of sensitivity analysis results

Table 3.7 Table of sensitivity analysis results

Outcome ^a	% (95% CI)	<i>I</i> ² (%)	<i>p</i>	n	n of studies
Pre-specified sensitivity analyses:					
Client and audit data excluding studies at high risk of bias					
Ask/Assess					
Smoking	55 (35-74%)	99.5	<.01	4435	6
Alcohol	65 (43-87%)	97.4	<.01	809	2
Advise					
Smoking	32 (11-53%)	98.7	<.01	1581	6
Assist					
Smoking	43 (0-86%)	99.8	<.01	1537	4
Arrange					
Smoking ^b	25 (0-72%)	99.4	<.01	288	2
Additional sensitivity analyses:					
Clinician reported data with calculated data excluded					
Ask/Assess					
Smoking ^b	85 (67-100%)	97.4	<.01	437	3
Client and audit reported data with calculated data excluded					
Ask/Assess					
Smoking	57 (40-73%)	99.7	<.01	10406	10
Alcohol	62 (42-81%)	99.0	<.01	3240	6
Nutrition ^b	17 (0-35%)	98.55	<.01	813	3
Physical activity ^b	35 (0-72%)	99.6	<.01	869	4
Advise					
Smoking	26 (11-42%)	98.5	<.01	1803	9
Alcohol ^b	42 (0-100%)	98.8	<.01	228	2
Nutrition	47 (5-90%)	95.6	<.01	152	2
Physical activity ^b	46 (0-100%)	99.5	<.01	190	2
Assist					
Smoking	35 (8-62%)	99.8	<.01	3064	7
Arrange					
Smoking ^b	21 (0-49%)	98.9	<.01	388	3
Physical activity	35 (10-59%)	87.8	<.01	190	2
Clinician reported data with exact proportions only					
Assist					
Smoking	57 (31-83%)	95.3	<.01	264	3

^a Meta-analyses were not possible for all health behaviours by all care elements due to insufficient numbers of studies ($n < 2$) contributing data.

^b In some cases approximate confidence intervals for the proportion gave limits outside 0 and 1. These have been truncated to 0 or 1 as appropriate.

Supplementary Document 3.9 PRISMA Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	4
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5-6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	6
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	7-8
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	7
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix A
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	8
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	8-9

Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	8-9
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	10
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	10
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	9-10
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	11
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	11
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	12, Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	12, Appendix C
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	13, Appendix D
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	13
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	13-15
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	15
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	16-18
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	18-20

Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	19-20
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	20
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	2

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Supplementary Document 3.10 References of included studies

1. Anderson AE, Bowman JA, Knight J, et al. Smoking cessation care provision and support procedures in Australian community mental health centers. *Psychiatr Serv.* 2013;64(7):707-710.
2. Bartlem K, Bowman J, Freund M, et al. Acceptability and Receipt of Preventive Care for Chronic-Disease Health Risk Behaviors Reported by Clients of Community Mental Health Services. *Psychiatr Serv.* 2015;66(8):857-864.
3. Bartlem KM, Bowman JA, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *Am J Prev Med.* 2014;47(6):762-770.
4. Chwastiak L, Cruza-Guet MC, Carroll-Scott A, Sernyak M, Ickovics J. Preventive counseling for chronic disease: missed opportunities in a community mental health center. *Psychosomatics.* 2013;54(4):328-335.
5. Himelhoch S, Riddle J, Goldman HH. Barriers to Implementing Evidence-Based Smoking Cessation Practices in Nine Community Mental Health Sites. *Psychiatr Serv.* 2014;65(1):75-80.
6. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient Educ Couns.* 2009;77(2):289-295.
7. Sarna L, Bialous SA, Wells M, Kotlerman J, Wewers ME, Froelicher ES. Frequency of nurses' smoking cessation interventions: report from a national survey. *J Clin Nurs.* 2009;18(14):2066-2077.

8. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community Mental Health Journal*. 2007;43(3):251-266.
9. Corradi-Webster CM, Laprega MR, Furtado EF. Do psychiatry residents document outpatients' alcohol problems? *Trends Psychiatry Psychother*. 2009;31(3):187-191.
10. Maki M, Bjorklund P. Improving cardiovascular disease screening in community mental health centers. *Perspect Psychiatr Care*. 2013;49(3):179-186.
11. Tso G, Kumar P, Jayasooriya T, Kisely S, Siskind D. Metabolic monitoring and management among clozapine users. *Australas Psychiatry*. 2017;25(1):48-52.
12. Wu CY, Chang CK, Robson D, et al. Evaluation of smoking status identification using electronic health records and open-text information in a large mental health case register. *PLoS ONE [Electronic Resource]*. 2013;8(9):e74262.
13. Etter M, Khan AN, Etter JF. Acceptability and impact of a partial smoking ban followed by a total smoking ban in a psychiatric hospital. *Prev Med*. 2008;46(6):572-578.
14. Etter M, Etter JF. Acceptability and impact of a partial smoking ban in a psychiatric hospital. *Prev Med*. 2007;44(1):64-69.
15. Leyro TM, Hall SM, Hickman N, Kim R, Hall SE, Prochaska JJ. Clinical management of tobacco dependence in inpatient psychiatry: provider practices and patient utilization. *Psychiatr Serv*. 2013;64(11):1161-1165.
16. Prochaska JJ, Fletcher L, Hall SE, Hall SM. Return to smoking following a smoke-free psychiatric hospitalization. *Am J Addict*. 2006;15(1):15-22.

17. Siru R, Hulse GK, Khan RJK, Tait RJ. Motivation to quit smoking among hospitalised individuals with and without mental health disorders. *Aust N Z J Psychiatry*. 2010;44(7):640-647.
18. Stockings EAL, Bowman JA, Baker AL, et al. Impact of a postdischarge smoking cessation intervention for smokers admitted to an inpatient psychiatric facility: A randomized controlled trial. *Nicotine Tob Res*. 2014;16(11):1417-1428.
19. Stockings EA, Bowman JA, Bartlem KM, et al. Implementation of a smoke-free policy in an inpatient psychiatric facility: Patient-reported adherence, support, and receipt of nicotine-dependence treatment. *Int J Ment Health Nurs*. 2015;24(4):342-349.
20. Haddad M, Llewellyn-Jones S, Yarnold S, Simpson A. Improving the physical health of people with severe mental illness in a low secure forensic unit: An uncontrolled evaluation study of staff training and physical health care plans. *Int J Ment Health Nurs*. 2016;25(6):554-565.
21. Robson D, Haddad M. Mental health nurses' attitudes towards the physical health care of people with severe and enduring mental illness: the development of a measurement tool. *Int J Nurs Stud*. 2012;49(1):72-83.
22. Keizer I, Gex-Fabry M, Bruegger A, Croquette P, Khan AN. Staff representations and tobacco-related practices in a psychiatric hospital with an indoor smoking ban. *Int J Ment Health Nurs*. 2014;23(2):171-182.
23. Sarna L, Bialous SA, Wells MJ, Kotlerman J. Smoking among psychiatric nurses: does it hinder tobacco dependence treatment? *J Am Psychiatr Nurses Assoc*. 2009;15(1):59-67.

24. Schacht L, Ortiz G, Lane MB, Jr. Smoking policies and practices in state psychiatric facilities: Survey results from 2011. In. Alexandria, VA.: National Association of State Mental Health Program Directors Research Institute.; 2012.
25. Stanton R, Happell B, Reaburn P. Investigating the exercise-prescription practices of nurses working in inpatient mental health settings. *Int J Ment Health Nurs*. 2015;24(2):112-120.
26. Wye PM, Bowman JA, Wiggers JH, et al. Smoking restrictions and treatment for smoking: policies and procedures in psychiatric inpatient units in Australia. *Psychiatr Serv*. 2009;60(1):100-107.
27. Zabeen S, Tsourtos G, Campion J, Lawn S. Type of unit and population served matters when implementing a smoke-free policy in mental health settings: Perceptions of unit managers across England. *Int J Soc Psychiatry*. 2015;61(7):700-710.
28. Howard L, Gamble C. Supporting mental health nurses to address the physical health needs of people with serious mental illness in acute inpatient care settings. *J Psychiatr Men Health Nurs*. 2011;18(2):105-112.
29. Wye P, Bowman J, Wiggers J, et al. An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital. *Aust N Z J Public Health*. 2010;34(3):298-303.
30. Wye PM, Stockings EA, Bowman JA, Oldmeadow C, Wiggers JH. Effectiveness of a clinical practice change intervention in increasing the provision of nicotine dependence treatment in inpatient psychiatric facilities: An implementation trial. *BMC Psychiatry Vol 17 2017, ArtID 56*. 2017;17.
31. Ashton M, Lawn S, Hosking JR. Mental health workers' views on addressing tobacco use. *Aust N Z J Psychiatry*. 2010;44(9):846-851.

32. Ballbe M, Nieva G, Mondon S, et al. Smoke-free policies in psychiatric services: identification of unmet needs. *Tob Control*. 2012;21(6):549-554.
33. Bolton PS, Knight M, Kopeski LM. Metabolic Syndrome. *J Psychosoc Nurs Ment Health Serv*. 2016;54(11):44-53.
34. Guo S-E, Wang A-L, Shu B-C. Self-efficacy in providing smoking-cessation services among psychiatric nurses in central and southern Taiwan: An exploratory study. *Int J Ment Health Nurs*. 2015;24(2):158-168.
35. Happell B, Platania-Phung C, Scott D. Are nurses in mental health services providing physical health care for people with serious mental illness? An Australian perspective. *Issues Ment Health Nurs*. 2013;34(3):198-207.
36. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived training needs for the physical health care of people with severe mental illness. *Int J Ment Health Nurs*. 2013;22(5):409-417.
37. Williams JM, Miskimen T, Minsky S, et al. Increasing tobacco dependence treatment through continuing education training for behavioral health professionals. *Psychiatr Serv*. 2015;66(1):21-26.
38. Kilbourne AM, Pirraglia PA, Lai Z, et al. Quality of general medical care among patients with serious mental illness: does colocation of services matter? *Psychiatr Serv*. 2011;62(8):922-928.
39. Parker C, McNeill A, Ratschen E. Tailored tobacco dependence support for mental health patients: A model for inpatient and community services. *Addiction*. 2012;107(Suppl 2):18-25.

40. Stanley SH, Laugharne J. Clinical guidelines for the physical care of mental health consumers: Multi-site service evaluation project 2013. In: Neurosciences SoPaC, ed. Crawley: University of Western Australia; 2013.

**SMOKING CESSATION CARE FOR PEOPLE
WITH A MENTAL ILLNESS: FAMILY CARER
EXPECTATIONS OF HEALTH AND COMMUNITY
SERVICES**

CHAPTER 4

SMOKING CESSATION CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES

Chapter 4 is a published paper with published supplementary material:

Bailey, J., Wye, P., Stockings, E., Bartlem, K., Metse, A., Wiggers, J., & Bowman, J. (2017). Smoking cessation care for people with a mental illness: Family carer expectations of health and community services. *Journal of Smoking Cessation*, 12(4): 221-230. doi: 10.1017/jsc.2016.23

Abstract

Smoking prevalence remains high among people with a mental illness, contributing to higher levels of morbidity and mortality. Health and community services are an opportune setting for the provision of smoking cessation care. Although family carers are acknowledged to play a critical role in supporting the care and assistance provided by such services to people with a mental illness, their expectations regarding the delivery of smoking cessation care have not been examined. To explore family carer expectations of smoking cessation care provision by four types of health services, to clients with a mental illness, and factors associated with expectations. A cross-sectional survey was conducted with carers of a person with a mental illness residing in New South Wales, Australia. Carers were surveyed regarding their expectations of smoking cessation care provision from four types of health services. Possible associations between carer expectation of smoking cessation care provision and socio-demographic and attitudinal variables were explored. Of 144 carers, the majority of carers considered that smoking cessation care should be provided by: mental health hospitals (71.4%), community mental health services (78.0%), general practice (82.7%), and non-government organisations (56.6%). The factor most consistently related to expectation of care was a belief that smoking cessation could positively impact mental health. The majority of carers expected smoking cessation treatment to be provided by all services catering for people with a mental illness, reinforcing the appropriateness for such services to provide smoking cessation care for clients in an effective and systematic manner.

Introduction

People with a mental illness are significantly more likely to smoke tobacco and experience high levels of nicotine dependence than people without such an illness.¹⁻³ Consequently, people with a mental illness have higher rates of smoking-related morbidity and mortality^{4,5} and have been identified as a priority group for the reduction of smoking prevalence.⁶⁻⁸ Targeted, tailored smoking cessation strategies in response to the special needs of this population are recommended.^{6,8,9}

Smoke-free policies in health and community services highlight the need and opportunity for such services to support clients with a mental illness to stop smoking.^{10,11} In Australia and elsewhere, guidelines recommend, and policies often require, specialist mental health services including public psychiatric inpatient facilities and community mental health services, to support smoking cessation for all patients who smoke and to provide smoke-free environments to address the needs of smokers, staff and non-smoking patients.^{7,12,13} Similarly, clinical practice guidelines for general practice (GP) services, the most frequently utilised health service for mental health problems in Australia,¹⁴ recommend the provision of smoking cessation care to all patients who are smokers.^{15,16} Non-government organisations (NGOs) also provide health and/or welfare support to people with a mental illness in the Australian context,¹⁷ and have been suggested to be appropriate settings for the provision of smoking cessation care.^{7,18,19}

Despite commonly held misconceptions among mental health professionals that clients are not motivated, or willing to quit smoking, or that tobacco smoking may manage or reduce the symptoms of mental illness,^{6,20-22} recent research has indicated otherwise^{6,23} and further suggested that smokers with a mental illness would find it acceptable to be provided with smoking cessation care by the health and community services they currently utilise for mental health care.²³⁻²⁵ For example, a survey of 558 clients of

community mental health services in Australia found that between 86% and 96% reported that it was acceptable to be provided smoking cessation care from such services.²⁴

A holistic care delivery approach that engages a variety of stakeholders, including family and friend networks in the care of clients has been suggested to be central to the provision of quality mental health care generally,^{26,27} and smoking cessation care specifically.²⁸ This approach is in keeping with the central role that family carers (individuals who provide care and assistance without payment)²⁹ are considered to play in the lives of people with a mental illness.³⁰ A large proportion of people in developed countries have such a role,³¹⁻³⁴ with approximately 9 million people in the United States caring for a person with a mental illness.³² In Australia, 15% of the adult population (2.4 million people) are estimated to care for a person with a mental illness.³⁵

Given family carers' acknowledged role in the provision of care and support to people with a mental illness,^{26,27} including substantial interaction with health and community services, alignment between the care delivered by services and family carer expectations of care is likely to positively impact outcomes for people with a mental illness.³⁶ The delivery of smoking cessation care to people with a mental illness is consistently reported to be suboptimal in inpatient facilities,^{37,38} community mental health services,^{39,40} and by GPs.^{41,42} For example, a survey of 97 smokers in an Australian inpatient psychiatric facility with a smoke-free policy identified that only 36.1% received brief advice to quit smoking and just 19.8% received brief advice and optimal nicotine replacement therapy.⁴³

To date, only two studies have explored family carer perspectives of smoking cessation care in mental health services. A small qualitative study of six family member perspectives' in New Zealand identified several key limitations in the delivery of smoking

cessation care, including: a lack of consistency of implementation; limited family inclusion; and a lack of information regarding the harms of tobacco and benefits of available cessation treatments, and impact of cessation on client mental distress.⁴⁴ In addition, an Australian qualitative study of 12 family carers described that family carers reported suboptimal smoking cessation care from mental health services for smokers with a mental illness for whom they provided care.⁴⁵ Given this limited evidence base, a study was conducted to:

1. Explore family carer understanding of the relationships between smoking and mental health
2. Explore family carer views of smoking bans in specialist mental health treatment settings;
3. Explore family carer expectations of smoking cessation care provision across four types of health and community service settings,
4. Investigate the association between i) socio-demographic characteristics of the carer and person with a mental illness, ii) clinical and smoking characteristics of the person with a mental illness, and iii) family carer perceptions of the relationship between smoking and mental health, and of smoking bans, and family carer expectations of smoking cessation care provision by four types of service settings.

Methods

Design and Setting

A cross sectional study was undertaken in one non-metropolitan region in New South Wales (NSW), Australia, July to November 2013.

The study was approved by the Hunter New England Human Research Ethics Committee (No. 13/06/19/5.11) and registered with the University of Newcastle's Human Research Ethics Committee (No. H-2013-0343).

Participants and Recruitment

Potential participants were sourced through members of a state-level non-government carer support organisation that provides support services, advocacy, training and education to carers of people with a mental illness. The organisation operates across the study region which provides individual and group support, operating in partnership with local mental health services since 2004.⁴⁶ Eligibility included being 18 years or older and identifying themselves as a family carer for someone with any mental illness who was also over 18 years.

Potential participants throughout the Hunter New England Local Health District were identified by the carer organisation based on previous expressed interest to participate in research. The carer organisation posted an invitation to participate in the study, information statement, survey instrument and reply-paid envelope to all such listed members (n=327). Additional participants (n=56) were approached by members of the research team through attendance at carer support group meetings.

Data Collection Procedures

Participants could complete the questionnaire online or as a paper copy. On average the survey took 28 minutes to complete.

Measures

Socio-demographic, clinical and smoking characteristics

Six items addressed the age, gender, employment, marital status, highest level of education achieved, and Aboriginal and/or Torres Strait Islander status of both the family carer and the person with a mental illness. Participants were also asked their postcode of residence.

Participants reported: the primary psychiatric diagnosis for the person that they cared for (schizophrenia, depression, anxiety disorder, panic disorder, bipolar disorder, post-traumatic stress disorder, eating disorder, personality disorder, dementia, unsure, other); for how many years they had been in a caring role with this person (years: less than one, 1 to 2, 3 to 10, 11 to 20, more than 20); if they lived in the same residence as the person they cared for (yes, no, sometimes); and what their relationship was to that person (parent, partner, child, sibling, neighbour, friend, other).

Participants were asked whether they smoked any tobacco products, and whether the person they cared for smoked any such products (yes- daily, yes- at least once a week, yes- less than once a week, no- quit within the last four months, no- quit longer than four months ago, no- never smoked).

Perceived health effects of smoking

All participants were asked to respond to two items: 'To what extent do you think quitting smoking can have a positive impact on mental health?' and 'To what extent do you think smoking can have a negative impact on mental health?' (not at all, a little, moderately, very, unsure).

Attitudes to smoking bans in specialist mental health services

For both mental health hospitals and community mental health services, participants were asked to indicate their agreement or otherwise with the statement: ‘total smoking bans in such services are a good thing’ (five point Likert type scale, strongly agree to strongly disagree).

Expectations of smoking cessation care provision

Participants were asked if they thought mental health hospitals, community mental health services, GPs, and NGOs should provide smoking cessation care for people with a mental illness (yes, no, unsure).

Data Analysis

SPSS version 19⁴⁷ was used to analyse the data. Participant postcode was used to determine the geographic remoteness and socio-economic index of disadvantage of the area in which they resided.^{48,49} Response categories for socio-demographic, clinical and smoking characteristics were collapsed to two or three categories as shown in Table 1. Items regarding expectations of smoking cessation care provision by the four health and community service settings were condensed to two categories (yes, no or unsure).

Descriptive statistics were used to summarise socio-demographic characteristics, smoking status and perceived effect of smoking on health, attitudes to smoking bans and participants’ expectations of smoking cessation care provision.

Chi-square analyses were used to examine possible bivariate associations between each socio-demographic and participant attitudinal variable with participant expectations of smoking cessation care provision in each of the four service settings. Variables associated at $p < .25$ were subsequently entered into backward stepwise logistic regression models to examine the independent association ($p < .05$) of socio-demographic

and attitudinal variables with expectation of smoking cessation care provision in each of the four service settings, and in all four settings combined (five models total).

Results

Sample characteristics

Of 383 people invited to participate, 144 accepted (37.6%). For most of the invitations (227), the invitee failed to respond to the invitation, and 12 were found to be ineligible after making contact with the research team (with two carers caring for a person under the age of 18, and 10 carers no longer in a caring role for a person with a mental illness). A total of 46 participants completed the survey in a carer support group, 97 participants completed the posted survey, and 1 participant completed the survey online. Participants who completed the survey in a support group were more likely to be 75 years or older (21.7% vs 7.1%, $p = .005$) and to live in a highly accessible area (57.8% vs 18.6%, $p < .001$) than participants who completed the survey by post. Characteristics of the participant and the person they cared for are presented in Table 4.1.

Table 4.1 Socio-demographic characteristics

Characteristic	Carer [†]		Person with mental illness [†]	
	%	n	%	n
Carer age (Years)				
18-54	24.3	35		
55-74	63.9	92		
75 and over	11.8	17		
Person with mental illness age (Years)				
18-34			40.3	58
35-54			46.5	67
55 and over			13.2	19
Gender				
Male	19.0	27	66.7	96
Employment status				
In the workforce	31.9	45	20.3	28
Ethnicity				
Aboriginal and/or Torres Strait Islander origin	3.6	5	4.4	6
Marital Status				
Married/ living together in a relationship	73.4	105	25.9	36
Highest Education Level				
Less than 4 years high school completed	19.6	28	22.6	31
4 years high school completed	21.0	30	21.2	29
More than 4 years high school completed	59.4	85	56.2	77
Socio-economic index of disadvantage				
Disadvantaged	54.9	78		
Average range/ advantaged	45.1	64		
Geographic remoteness				
Highly accessible	31.0	44		
Accessible	54.2	77		
Moderately accessible	14.8	21		

Years spent caring for the person with mental illness				
20 years or less	70.4	100		
More than 20 years	29.6	42		
Carer and person with mental illness living in the same residence				
Yes	52.4	75		
Carer relationship to person with mental illness				
Parent	61.5	88		
Other relation	38.5	55		
Psychiatric diagnosis				
Schizophrenia			39.1	56
Bipolar disorder			21.8	31
Other diagnosis			39.1	56
Smoking status				
Smoker	11.8	17	68.8	99

† Number of missing responses to items ranged between 1 and 8

Smoking status and perceived health effects of smoking

The majority (68.8%) of people being cared for were reported by participants to be smokers; and 11.8% of participants identified themselves as smokers. Irrespective of smoking status, 59.0% of participants thought smoking had a very negative impact on mental health, and 61.9% thought quitting smoking would have a very positive impact on mental health (Table 4.2).

Table 4.2 Perceived health effects of smoking and attitudes towards smoking bans

Item	Response									
	%	n	%	n	%	n	%	n	%	n
	Very		Moderately		A little		Not at all		Unsure	
Quitting smoking- positive influence on mental health	61.9	86	14.3	20	7.2	10	5.8	8	10.8	15
Smoking- negative influence on mental health	59.0	82	14.3	20	10.1	14	6.5	9	10.1	14
	Strongly agree		Agree		Unsure		Disagree		Strongly disagree	
Smoking bans in mental health hospitals are a good thing	37.9	53	12.9	18	22.8	32	15.7	22	10.7	15
Smoking bans in community mental health services are a good thing	45.3	62	19.7	27	15.3	21	13.1	18	6.6	9

Attitudes to smoking bans

Half of participants agreed or strongly agreed that total smoking bans within mental health hospitals were ‘a good thing’ (50.8%), whilst almost two-thirds agreed/strongly agreed with this statement for community mental health services (65.0%) (Table 4.2).

Expectations of smoking cessation care provision

A majority of participants considered that mental health hospitals, community mental health services, GPs, and NGOs should provide smoking cessation care to people with a mental illness (71.4%, 78.0%, 82.7%, and 56.6%, respectively). One half of participants expected all four service settings to provide smoking cessation care to persons with a mental illness (50.4%), with only 3.9% responding that none of the four service settings should provide such care.

Associations between socio-demographic and attitudinal variables, with expectations of smoking cessation care provision

Factors associated at $p < .25$ that were entered into the logistic regressions are presented in Table 4 in the appendix. Participants holding the view that ‘quitting smoking would have a very positive impact on mental health’ had three-fold greater odds of expecting smoking cessation care to be provided in mental health hospitals [Odds Ratio (OR): 3.43] and community mental health services (OR: 3.50) (Table 4.3). Similarly, participants holding this view were more than twice as likely to expect smoking cessation care to be provided by NGOs (OR: 2.34), and in each of the four service settings (OR: 2.14). The disadvantaged category in the socio-economic index of disadvantage was associated with an increased expectation of care provision in community mental health services (OR: 3.61) compared to those advantaged/average.

Table 4.3 Variables associated with carer expectations of smoking cessation care provision across health care settings

Predictor	B	SE	OR	95% CI		df	p
				Lower	Upper		
Mental health hospitals[†]							
Carer age (18-54)	-2.052	.909	.129	.022	.763	1	.024
Carer age (75 and over)							reference
Residing in the same residence	-.940	.441	.391	.165	.928	1	.033
Not or sometimes living in same residence							reference
Quitting smoking 'very' positive impact on mental health	1.233	.445	3.431	1.433	8.211	1	.006*
Quitting smoking 'moderate' 'a little' 'not at all' 'unsure' of positive impact on mental health							reference
Community mental health services[§]							
Carer education- 4 years completed high school	-1.459	.627	.233	.068	.795	1	.020
Carer education- Higher School Certificate or higher							reference
Socioeconomic disadvantage	1.284	.539	3.611	1.255	10.386	1	.017
Socioeconomic advantage/average							reference
Residing in the same residence	-1.246	.545	.288	.099	.837	1	.022
Not or sometimes living in same residence							reference
Quitting smoking 'very' positive impact on mental health	1.254	.528	3.503	1.245	9.857	1	.018
Quitting smoking 'moderate' 'a little' 'not at							reference

all' 'unsure' of positive
impact on mental health

GPs[¶]

Carer education- less than 4 years completed high school	-1.883	.569	.152	.050	.464	1	.001*
Carer education- Higher School Certificate or higher							reference

NGOs^{††}

Female gender of person being cared for	-.881	.419	.414	.182	.942	1	.036
Male gender of person being cared for							reference
Residing in the same residence	-.896	.415	.408	.181	.921	1	.031
Not or sometimes living in same residence							reference
Quitting smoking 'very' positive impact on mental health	.849	.411	2.338	1.045	5.231	1	.039
Quitting smoking 'moderate' 'a little' 'not at all' 'unsure' of positive impact on mental health							reference

All settings^{‡‡}

Quitting smoking 'very' positive impact on mental health	.760	.377	2.139	1.022	4.478	1	.044
Quitting smoking 'moderate' 'a little' 'not at all' 'unsure' of positive impact on mental health							reference

*Significant at $p < .01$

‡ Variables entered into regression: carer age, living in the same residence, relationship, carer smoking status, impact of quitting smoking on mental health.

§ Variables entered into regression: carer age, carer education, social disadvantage, years spent caring, living in the same residence, person with mental illness smoking status, impact of quitting smoking on mental health.

¶ Variables entered into regression: person with mental illness employment status, person with mental illness ethnicity, carer education, years spent caring.

†† Variables entered into regression: person with mental illness age, person with mental illness gender, living in the same residence, impact of quitting smoking on mental health.

‡‡ Variable entered into regression: person with mental illness gender, impact of quitting smoking on mental health.

Conversely, participants who resided with the person with a mental illness were less likely to expect smoking cessation care provision in: mental health hospitals (OR: 0.39), community mental health services (OR: 0.29), and NGOs (OR: 0.41). Younger participant age (18-54) was associated with a decreased expectation of care in mental health hospitals (OR: 0.13). Lower participant education (where participants had completed four years of high school compared to participants who had completed the High School Certificate or higher education) was associated with a decreased expectation of care in community mental health services (OR: 0.23), and with a decreased expectation of care from GPs (OR: 0.15). Where the person with a mental illness being cared for was female there was a decreased expectation of smoking cessation care from NGOs (OR: 0.41).

Discussion

This is the first study to explore the views of family carers regarding the provision of smoking cessation care by health and community service settings to people with a mental illness and factors associated. The study identified that a large majority of family carers believed that quitting smoking would have a positive impact on mental health, and the majority of carers expected health and community services to provide smoking cessation care.

Most family carers were caring for someone who was a smoker, and the majority of carers perceived a negative impact of smoking on mental health, and a positive impact of smoking cessation on mental health; perceptions which may enhance receptivity to strategies to encourage smoking cessation by those they care for.

Half of the participants supported total smoking bans within specialist mental health settings, with approximately one fifth 'unsure' about their benefits. Family carer

support for total smoking bans is comparable to the level of support reported by mental health inpatient staff (54%) and inpatients (46%) in previous Australian research.^{43,50} The sizeable proportion of participants that were ‘unsure’ of the benefits of smoking bans may have been influenced by a lack of knowledge or awareness of smoking bans and their implementation, as has been found in research conducted among mental health professionals.^{21,50,51} Such findings emphasise the need to better inform and educate family carers regarding the rationale for, and implementation of smoking bans. In addition, these findings may be influenced by the inconsistent implementation of smoke-free policies within mental health settings,^{6,37,44,52} reducing the likelihood of intended benefits being achieved.

The high prevalence of participant expectation that smoking cessation care should be provided across all of the settings investigated aligns with previous studies of support by clinical staff for the provision of smoking cessation care in inpatient and community mental health services,^{22,53} GPs,⁵⁴ and NGOs.¹⁹ A lesser proportion of participants expected smoking cessation care to be provided by NGOs, a finding that may reflect such services not having a direct focus on the provision of health-related care.⁵⁵ When compared to previously mentioned reports of the current suboptimal receipt of smoking cessation care for people with a mental illness in service settings,³⁷⁻⁴⁰ it would appear that the expectations of family carers- identified as key stakeholders in the design and provision of mental health services-^{26,36} are not being met by such services.

When compared to the findings of studies of actual smoking cessation care provision, the current findings suggest a lack of alignment between the expectations of family carers and the delivery of smoking cessation care. Despite the existence of guidelines, the literature indicates that smoking cessation care is not routinely provided to smokers with a mental illness in inpatient^{37,38} or community^{24,39,56} mental health

services and smoking cessation supports such as Quitline referral and nicotine replacement therapy are not routinely provided.^{24,39,56} In general practice, suboptimal smoking cessation care has been reported to be provided to both general and mental health patients.^{41,42,54}

A perception that smoking cessation could positively impact on mental health was the factor most consistently and strongly associated with the expectation of care being provided. Given that evidence of the benefits for mental health of quitting smoking is continuing to accrue,^{6,57,58} research is required to determine if dissemination of such information by health and community services to family carers may enhance their understanding of the need for smoking cessation care provision and related smoking bans.

Residing with the person they cared for was associated with lower family carer expectation of smoking cessation care being provided in three of the service settings studied. It may be that cohabiting family carers perceive less of a need for health and community services to provide such care, given their significant role in providing care generally. Previous research has suggested that cohabitating carers may decline the offer of various forms of care due to a perception that this may negatively impact on their being the primary caregiver.^{59,60} Further research is required to gain a better understanding of this association. In addition, it is unclear why there were differences in associations across the service settings, further research with a larger, more generalizable, sample size is required.

Limitations

Given that this study is the first of its kind, a number of study limitations need to be considered when interpreting these findings. Firstly, the study sample involved family carers who were members of a carer support organisation within one local health district

in NSW, Australia. The extent to which the participants' expectations and experiences are representative of all family carers is unknown. Secondly, the low study response rate suggests caution in interpreting the findings as necessarily representative of the family carer population from which they were recruited; however, the demographic characteristics of the participants are largely consistent with the characteristics of carers in Australia.²⁹ Thirdly, the study used carer reported smoking status of the person they care for as a measure of smoking status. The accuracy of such a measure is unknown, however proxy measures of smoking behaviour generally have been found to be accurate.^{61,62}

Conclusion

Further research is required to confirm present findings and to explore how family carers may play a role in enhancing the effectiveness of smoking cessation care provided by health and community services. If confirmed by further research, this study highlights the potential benefits to be obtained by stronger engagement with and education of carers and people with a mental illness regarding the benefits of quitting smoking for mental health. Participating carers' expectations of smoking assessment and treatment from health and community service settings reinforce the need for such settings to provide smoking cessation care for clients in an effective and systematic manner.

References

1. Australian Institute of Health and Welfare. *2010 National Drug Strategy Household Survey Report*. Canberra: AIHW; 2011.
2. de Leon J, Diaz FJ. A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. *Schizophrenia research*. 2005;76(2-3):135-157.
3. Diaz FJR, D. M. Velasquez D. M. Susce M. T. de Leon J. Smoking and smoking cessation among persons with severe mental illnesses. *Psychiatric Services*. 2006;57(4):462.
4. Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *General hospital psychiatry*. 2009;31(6):555-563.
5. Lawrence D, Hancock K, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *Bmj*. 2013;346:f2539.
6. Royal College of Physicians, Royal College of Psychiatrists. Smoking and mental health. Royal College of Psychiatrists Council Report CR178. In: London: Royal College of Physicians; 2013.
7. NSW Ministry of Health. NSW tobacco strategy 2012-2017. In: Health NMo, ed. North Sydney: NSW Health; 2012.
8. American Psychiatric Association. Practice guideline for the treatment of patients with nicotine dependence. *The American Journal of Psychiatry*. 1996;153(10):1-31.
9. Department of Health and Ageing. National tobacco strategy 2012-2018. In: Drugs ICo, ed. Canberra: Commonwealth of Australia; 2012.

10. Prochaska JJ. Integrating tobacco treatment into mental health settings. *JAMA*. 2010;304(22):2534-2535.
11. Stockings EA, Bowman JA, Prochaska JJ, et al. The impact of a smoke-free psychiatric hospitalization on patient smoking outcomes: a systematic review. *The Australian and New Zealand journal of psychiatry*. 2014;48(7):617-633.
12. Government of South Australia. South Australia health: Smoke-free policy. In: Ageing DfHa, ed. Adelaide: Government of South Australia; 2013.
13. National Institute for Health and Care Excellence. Smoking cessation in secondary care: Acute, maternity and mental health services. In. Vol public health guidance 48. London: NICE; 2013.
14. Australian Institute of Health and Welfare. Mental health services- in brief 2014. In. Vol Cat. no. HSE 154. Canberra: AIHW; 2014.
15. Royal Australian College of General Practitioners. Smoking cessation guidelines for Australian general practice. Practice handbook. In: Ageing DoHa, ed. Canberra: Australian Government; 2014.
16. Raw M, McNeill A, West R. Smoking cessation guidelines for health professionals: A guide to effective smoking cessation interventions for the health care system. *Thorax*. 1998;53(5):s1-s18.
17. National Health Workforce Planning and Research Collaboration. Mental health non-government organisation workforce project final report. In: Information AaP, ed. Adelaide: Health Workforce Australia; 2011.
18. Bonevski B, Paul C, D'Este C, et al. RCT of a client-centred, caseworker-delivered smoking cessation intervention for a socially disadvantaged population. *BMC public health*. 2011;11(1):70.

19. Bryant J, Bonevski B, Paul C, Hull P, O'Brien J. Implementing a smoking cessation program in social and community service organisations: a feasibility and acceptability trial. *Drug and alcohol review*. 2012;31(5):678-684.
20. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community mental health journal*. 2007;43(3):251-266.
21. Lawn SJ. Systemic Barriers to Quitting Smoking among Institutionalised Public Mental Health Service Populations: A Comparison of Two Australian Sites. *International Journal of Social Psychiatry*. 2004;50(3):204-215.
22. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of psychiatric and mental health nursing*. 2010;17(4):319-327.
23. Stockings E, Bowman J, McElwaine K, et al. Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2013;15(5):942-949.
24. Bartlem K, Bowman J, Freund M, et al. Acceptability and receipt of preventive care for chronic-disease health risk behaviours reported by clients of community mental health services. *Psychiatric Services*. 2015;66(8):857-864.
25. Ferron JC, Brunette M, He X, McHugo G, Drake R. Course of smoking and quit attempts among clients with co-occurring severe mental illness and substance use disorders. *Psychiatric Services*. 2011;62(4):353-359.
26. Office of the Chief Psychiatrist. Communicating with carers and families: Information sharing for better outcomes. Delivering a healthy WA. In: Health Do, ed. Perth: Government of Western Australia; 2007.

27. Bickerton A, Hossack K, Nair J. Working with families program. In: Sutherland Division of Mental Health SESIAHS, ed. North Sydney: NSW Department of Health; 2007.
28. Steering Committee for the Review of Government Service Provision. *Report on government services 2013*. Canberra: Productivity Commission; 2013.
29. NSW Department of Health. NSW carers action plan 2007-2012 summary. In: Health NDo, ed. North Sydney: NSW Department of Health; 2007.
30. Wood VJ, Curtis SE, Gesler W, et al. Creating 'therapeutic landscapes' for mental health carers in inpatient settings: a dynamic perspective on permeability and inclusivity. *Social science & medicine*. 2013;91:122-129.
31. Sinha M. Spotlight on Canadians: Results from the General Social Survey. Portrait of caregivers, 2012. In. Vol Cat no. 89-652- No.001. Ottawa: Statistics Canada; 2013.
32. AARP Public Policy Institute NAFc. Executive summary: Caregiving in the U.S. In. Chicago: AARP, NAC; 2015.
33. Collings S. Who cares for people with schizophrenia: Family carers' health, circumstances and adjustment. In. Vol Blue Skies report no. 28/09. Wellington: University of Otago; 2009.
34. National Co-ordinating Centre for NHS Service Delivery and Organisation R&D. Briefing paper: Services to support carers of people with mental health problems. In. London: NCCSDO; 2002.
35. Pirkis J, Burgess P, Hardy J, Harris M, Slade T, Johnston A. Who cares? A profile of people who care for relatives with a mental disorder. *Australian and New Zealand Journal of Psychiatry*. 2010;44:929-937.

36. New South Wales Government. NSW carers strategy 2014-2019. In. Sydney: New South Wales Government; 2014.
37. Wye P, Bowman J, Wiggers J, et al. An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital. *Australian and New Zealand journal of public health*. 2010;34(3):298-303.
38. Prochaska JJ, Gill P, Hall SM. Treatment of tobacco use in an inpatient psychiatric setting. *Psychiatric Services*. 2004;55(11):1265-1270.
39. Bartlem K, Bowman J, Freund M, et al. Care provision to prevent chronic disease by community mental health clinicians. *American journal of preventive medicine*. 2014;47(6):762-770.
40. Greening J. Physical health of patients in rehabilitation and recovery: a survey of case note records. *Psychiatric Bulletin*. 2005;29(6):210-212.
41. Lord O, Malone D, Mitchell AJ. Receipt of preventive medical care and medical screening for patients with mental illness: a comparative analysis. *General hospital psychiatry*. 2010;32(5):519-543.
42. McKay-Brown L, Bishop N, Balmford J, Borland R, Kirby C, Piterman L. The impact of a GP clinical audit on the provision of smoking cessation advice. *Asia Pacific family medicine*. 2008;7(1):4.
43. Stockings EA, Bowman JA, Bartlem KM, et al. Implementation of a smoke-free policy in an inpatient psychiatric facility: Patient-reported adherence, support, and receipt of nicotine-dependence treatment. *International journal of mental health nursing*. 2015;24(4):342-349.
44. Missen RL, Brannelly T, Newton-Howes G. Qualitative exploration of family perspectives of smoke-free mental health and addiction services. *International journal of mental health nursing*. 2013;22(4):294-303.

45. Lawn S, McNaughton D, Fuller L. What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: a qualitative study. *International Journal of Mental Health Promotion*. 2015;17(5):261-277.
46. Schizophrenia Fellowship of NSW Inc. Carer assist: Support for mental health carers. 2008; http://www.sfnsw.org.au/carers-assist/home/Home#.VEg_kxCukTU. Accessed 23.10., 2014.
47. IBM Corp. SPSS Statistics (Version 24). In. Armonk, NY: IBM Corp.; 2016.
48. Australian Bureau of Statistics. Technical paper. Socio-economic indexes for areas (SEIFA). In. Canberra: Australian Bureau of Statistics; 2011.
49. Department of Health and Aged Care. Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA). Occasional Papers: New Series Number 14. In. Canberra: Commonwealth of Australia; 2001.
50. Wye P, Bowman J, Wiggers J, et al. Total smoking bans in psychiatric inpatient services: a survey of perceived benefits, barriers and support among staff. *BMC public health*. 2010;10:372.
51. Lawn S, Campion J. Achieving smoke-free mental health services: lessons from the past decade of implementation research. *International journal of environmental research and public health*. 2013;10(9):4224-4244.
52. Wye P, Gow L, Constable J, Bowman J, Lawn S, Wiggers J. Observation of the extent of smoking in a mental health inpatient facility with a smoke-free policy. *BMC psychiatry*. 2014;14(94):1-8.
53. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived

- training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.
54. Holmberg C, Sarganas G, Mittring N, et al. Primary prevention in general practice - views of German general practitioners: a mixed-methods study. *BMC family practice*. 2014;15:103.
55. Housego A, O'Brien T. Delivery of public services by non-government organisations. *Australian Journal of Public Administration*. 2012;71(2):211-220.
56. Anderson A, Bowman J, Knight J, et al. Smoking cessation care provision and support procedures in Australian community mental health services. *Psychiatric Services*. 2013;64(7):707-710.
57. Taylor G, McNeill A, Girling A, Farley A, Lindson-Hawley N, Aveyard P. Change in mental health after smoking cessation: systematic review and meta-analysis. *Bmj*. 2014;348:g1151.
58. Lancet Editorial. Smoke alarm: mental illness and tobacco. *The Lancet*. 2013;381(9872):1071.
59. Malcolm K, Rowlands P, Inch H. Assessment of respite needs for carers of persons with severe mental illness. *Psychiatric Bulletin*. 1998;22(6):354-355.
60. Harris M, Diminic S, Marshall C, Stockings E, Degenhardt L. Estimating service demand for respite care among informal carers of people with psychological disabilities in Australia. *Australian and New Zealand journal of public health*. 2015;39(3):284-292.
61. Florescu A, Ferrence R, Einarson T, Selby P, Soldin O, Koren G. Methods for quantification of exposure to cigarette smoking and environmental tobacco smoke: focus on developmental toxicology. *Therapeutic drug monitoring*. 2009;31(1):14-30.

62. Amos A, Hastings G, Angus K, Bostock Y, Fidler J. *A review of young people and smoking in England*. Edinburgh: University of Edinburgh; 2009.

SUPPLEMENTARY APPENDIX TO: SMOKING CESSATION CARE FOR PEOPLE WITH A MENTAL ILLNESS: FAMILY CARER EXPECTATIONS OF HEALTH AND COMMUNITY SERVICES

Table 4.4 Chi-square results for variables associated with carer expectations of smoking cessation care provision across service settings

Predictor	N*	χ^2	df	p
Mental health hospitals				
Carer age	133	9.929	2	.007
Carer smoking status	133	4.092	1	.073
Residing in the same residence	132	4.353	1	.054
Carer relationship to person with mental illness	132	1.716	1	.237
Smoking 'very' negative impact on mental health	130	3.129	1	.082
Community mental health services				
Carer age	132	5.397	2	.070
Carer highest education level	132	4.298	2	.111
Socioeconomic index of disadvantage	131	2.776	1	.138
Person with mental illness smoking status	132	3.290	1	.110
Residing in the same residence	132	5.606	1	.021
Years caring for person with mental illness	131	3.422	1	.073
Quitting smoking 'very' positive impact on mental health	129	2.325	1	.137
GPs				
Carer highest education level	132	12.546	1	.002
Person with mental illness employment status	129	2.189	1	.152
Person with mental illness ethnicity	127	1.682	1	.222
Years caring for person with mental illness	131	2.115	1	.208
NGOs				
Person with mental illness age	129	3.716	2	.151

Person with mental illness gender	129	4.039	1	.059
Residing in the same residence	128	1.692	1	.215
Quitting smoking 'very' positive impact on mental health	126	3.795	1	.068
Smoking 'very' negative impact on mental health	126	3.170	1	.101
All settings				
Person with mental illness gender	125	1.762	1	.192
Quitting smoking 'very' positive impact on mental health	122	4.127	1	.064
Smoking 'very' negative impact on mental health	122	3.389	1	.097

* Sample size varies due to missing responses

**FAMILY CARERS: A ROLE IN ADDRESSING
CHRONIC DISEASE RISK BEHAVIOURS FOR
PEOPLE WITH A MENTAL ILLNESS?**

CHAPTER 5

FAMILY CARERS: A ROLE IN ADDRESSING CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS?

Chapter 5 is a published paper:

Bailey, J., Wye, P., Wiggers, J., Bartlem, K., Bowman, J. (2017). Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? *Preventive Medicine Reports*, 7: 140-146. doi: 10.1016/j.pmedr.2017.05.014

Abstract

People with a mental illness experience greater chronic disease morbidity and mortality compared to those without mental illness. Family carers have the potential to promote the health behaviours of those they care for however factors which may influence the extent to which they do so have not been reported. An exploratory study was conducted to investigate carers': 1) promotion of fruit and vegetable consumption, physical activity, quitting smoking, and reducing alcohol consumption; 2) perceptions of their role and ability to promote such behaviours; 3) and the association between carer perceptions and the promotion of such behaviours. A cross-sectional survey was conducted with mental health carers (N=144, 37.6% response rate) in New South Wales, Australia in 2013. Associations between current promotion of health behaviours and carer perceptions were explored through multivariate regression analysis in 2016. A majority of respondents promoted fruit and vegetable consumption (63.8%), physical activity (60.3%), quitting smoking (56.3%), and reducing alcohol consumption (56.2%) to the person they cared for. A perception that it was 'very important' to have a positive influence on these behaviours was positively related with promotion of each of the four behaviours, with those holding such a view being more likely to promote such behaviours, than those who did not (odds ratio: 9.47-24.13, $p < .001$). The majority (56.2% – 63.8%) of carers reported promoting the health behaviours of those they cared for, demonstrating a need and opportunity to build the capacity of carers to contribute to reducing the health risk behaviours among people with a mental illness.

Introduction

In high income countries, people with a mental illness experience higher rates of preventable morbidity, mortality, and a life expectancy of 10 to 20 years less than those without such an illness;¹⁻⁵ disparities largely attributable to a higher prevalence of chronic disease.⁴⁻⁶ Tobacco smoking, inadequate nutrition, harmful alcohol consumption and inadequate physical activity are the leading behavioural causes of the preventable chronic disease burden generally;⁷⁻¹⁰ with the prevalence of such behaviours being consistently higher among people with a mental illness.¹¹⁻¹⁸

Family carers play a critical role in the lives of the people they care for¹⁹⁻²¹ and are increasingly acknowledged as key partners in mental health service provision in clinical and practice guidelines.^{20,22-28} A large proportion of people in high income countries have a caring role for a relative with a mental illness:^{29,30} approximately 9 million people in the United States,³¹ and 2.4 million people in Australia (15% of the population).³² A potential exists for carers to promote health behaviours for those they care for, and hence reinforce public health and mental health programs promoting such behaviours.²⁸

A review of the literature identified two qualitative studies of the role of family carers of adults with a mental illness in promoting health behaviours of those they care for. Carers (N=13) in the United States of older adults with serious mental illness reported actively assisting in weight loss through meal preparation, grocery shopping, and encouraging exercise.²¹ Similarly, an Australian study found that carers (N=12) monitored and managed the smoking behaviours of the person with a mental illness. The study found some dissonance between carers' concerns for the negative impacts of smoking on physical health and their 'complicity' in the purchase of cigarettes.³³ One factor that may influence the care provided by carers with respect to such risk behaviours

may be their own risk status: whilst not yet explored among carers, the health behaviour status of clinicians has been shown to be inversely associated with their provision of preventive care.³⁴

The limited body of research suggests that family carers may require information and support from health services to better support the person they care for in changing their health behaviours.^{21,35,36} The United States qualitative study mentioned above found participants desired guidance from primary care clinicians in the form of strategies to support weight loss.²¹ A qualitative study in New Zealand (N=6) found that family members reported receiving inadequate information from mental health services regarding the harms of tobacco, the benefits of available cessation treatments, and the impact of cessation on client mental distress.³⁶ In a quantitative study of 152 Japanese family carers, 77% desired additional support from community services to help them promote the physical health of the person they cared for.³⁵

Given the limited research exploring the role of family carers in promoting health behaviours for adults with a mental illness, an exploratory study was undertaken to investigate:

1. The extent of carers' involvement in promoting: fruit and vegetable consumption; physical activity; quitting smoking; and decreasing alcohol consumption of the person they cared for
2. Carer health behaviours, attitudes and perceptions of their role and ability in addressing the health risk behaviours of the person they care for, and
3. Whether such carer health behaviours, attitudes and perceptions were associated with the promotion of such behaviours.

Methods

Design and Setting

A cross sectional survey of 144 family carers of adults with a mental illness was undertaken in one non metropolitan region of New South Wales, Australia from July to November 2013. The study was approved by the Hunter New England Human Research Ethics Committee (No. 13/06/19/5.11) and the University of Newcastle's Human Research Ethics Committee (No. H-2013-0343).

Participants and recruitment

Participants were sourced through their membership of a non-government carer support organisation that provided free support services to carers and families of people with a mental illness.³⁷ Participants were eligible if they were 18 years or older and identified themselves as a carer for someone with any mental illness who was over 18 years of age.

Participants were identified by the organisation based on previous consent to participate in research; and mailed an information statement, survey instrument and reply-paid envelope, and a web link for online completion if preferred. After one month, participants who had not responded were mailed a one page reminder letter. The request did not specify a date for survey completion and no questionnaires were excluded from analysis. Most surveys were returned within one month; the remainder were received over a four month period. Additional participants were approached by members of the research team through attendance at carer support group meetings organised by or affiliated with the carer support organisation.

Data Collection Procedures

Socio-demographic, clinical and risk behaviour items were adapted from previous research.³⁸ Other items detailing the carer's current practice and perceptions regarding promotion of health behaviours were developed with input from mental health staff and carers. Participants could complete the questionnaire online or in paper form.

Measures

Socio-demographic and clinical characteristics

Six items addressed age, gender, employment status, marital status, highest level of education achieved, and Aboriginal or Torres Strait Islander status for both the carer and the person they cared for. Participants were asked their postcode of residence to determine geographic remoteness (major cities, regional, rural)³⁹ of the area they resided in and the socio economic index (disadvantaged, average/advantaged).⁴⁰

Participants were asked: the primary psychiatric diagnosis of the person they cared for (schizophrenia, depression, anxiety disorder, panic disorder, bipolar disorder, post-traumatic stress disorder, eating disorder, personality disorder, dementia, unsure, other); how many years they had been in a caring role (years: less than one year, 1 to 2, 3 to 10, 11 to 20, more than 20); if they lived in the same residence (yes, no, sometimes); and what their relationship was to that person (parent, partner, child, sibling, neighbour, friend, other).

Chronic disease risk behaviour status

Carers were asked 5-7 items adopted from previous research³⁸ assessing their: fruit and vegetable consumption; physical activity; tobacco smoking; and alcohol consumption.⁴

Current promotion of health behaviours

Participants were asked to what extent they currently sought to influence each behaviour (I don't try, I try sometimes, I try most of the time, I try all of the time, unsure, not applicable).

Carer perceptions of their role and ability in promoting health behaviours of the person they care for

Carers were asked for each behaviour: how important it was for them to have a positive influence for that behaviour for the person they cared for (not at all, a little, somewhat, very, unsure); if the person they cared for found it acceptable for them to talk about the health behaviour (strongly agree, agree, unsure, disagree, and strongly disagree); if they felt encouraging the behaviour could harm their relationship (strongly

⁴Items assessing behaviours were: the number of serves of fruit (0, 1, 2 or more, unsure) and vegetables (0, 1, 2, 3, 4, 5 or more, unsure) usually eaten each day; how many days a week they usually do at least 30 minutes of physical activity (0, 1, 2, 3, 4, 5, 6, 7, unsure); if they are a smoker of any tobacco products (yes-daily, yes- at least once a week, no-trying to quit, no-quit longer than 4 months ago, no-never smoked); how often they have an alcoholic drink (never-not drinking alcohol, monthly or less, 2-4 times a month, 2-3 times a week, 4 or more times a week, unsure); how many standard drinks they have on a typical drinking day (1-2, 3-4, 5-6, 7-9, 10 or more, unsure); and how often they have 4 or more standard drinks on one occasion (never, less than monthly, monthly, weekly, daily or almost daily, unsure). Risk status was subsequently determined based on Australian National clinical guidelines with risk defined as: consuming less than five serves of vegetables or two serves of fruit each day;⁴¹ engaging in less than 30 minutes of physical activity on at least 5 days per week;⁴² consuming more than two standard alcoholic drinks on a regular day (chronic consumption) or more than four standard drinks on any one occasion (binge consumption);⁴³ and any tobacco consumption.⁴⁴

agree, agree, unsure, disagree, strongly disagree); to what extent it was possible to positively influence that behaviour (not at all, sometimes, often, always, unsure); if they had the knowledge and skills to encourage behaviour change (strongly agree, agree, unsure, disagree, strongly disagree); and if they felt confident to discuss the behaviour with the person they cared for (strongly agree, agree, unsure, disagree, strongly disagree, not applicable).

Carer perceptions of the interest in changing health behaviours held by the person with a mental illness: Participants were asked whether, at any time in the last year, the person they cared for had expressed an interest in: improving fruit and vegetable consumption; improving physical activity; quitting smoking; and reducing alcohol consumption (yes, no, unsure, not applicable- does not smoke or drink alcohol).

Statistical Analysis

SPSS version 22⁴⁵ was used to analyse the data in 2016. Responses to socio-demographic, risk behaviour status, carer role and attitudinal items were collapsed into two or three categories (Tables 5.1 & 5.2). Not applicable responses were excluded from analysis.

Descriptive statistics were used to summarise the socio-demographic characteristics of carers and those they cared for, the current carer role across the four behaviours and attitudinal items. Chi-square analyses using Fisher's Exact test statistic were used to examine possible associations between all carer attitudinal and risk behaviour status variables (independent variables) with carers' current promotion for each of the four behaviours (dependent variable). Independent variables associated at $p < .25$ were subsequently entered into backward stepwise logistic regression models to examine independent associations ($p < .05$) with carers 'trying all or most of the time' to influence

each of the four risk behaviours (four models total). Collinearity statistics were calculated for the final models to test for collinearity between attitudinal variables.

Results

Sample characteristics

Of 383 members invited (327 postal, 56 support group attendees), no response was received from 59.3% (227), 12 were ineligible (3.1%) (under 18 years, no longer a carer), and 144 completed the survey (37.6%; 97 postal, 46 support group attendees, 1 online). Participants who completed the survey during support groups were more likely to be 75 years or older (21.7% vs 7.1%, $p=.005$) and live in a major city (57.8% vs 18.6%, $p<.001$) than those who completed the survey by post. The majority of participants were female (81.0%), over the age of 54 (75.7%), the parent of the person they cared for (61.5%), and residing with that person (52.4%) (Table 5.1).

Table 5.1 Socio-demographic characteristics and chronic disease risk behaviour status

Characteristic	Carer ^a		Person with Mental Illness ^a	
	% (n)		% (n)	
Carer age (Years)				
18-54	24.3	(35)		
55-74	63.9	(92)		
75 and over	11.8	(17)		
Person with mental illness age (Years)				
18-34			40.3	(58)
35-54			46.5	(67)
55 and over			13.2	(19)
Gender				
Male	19.0	(27)	66.7	(96)
Employment Status				
In the workforce	31.9	(45)	20.3	(28)
Ethnicity				
Aboriginal and/or Torres Strait Islander origin	3.6	(5)	4.4	(6)
Marital Status				
Married/ Living together in a relationship	73.4	(105)	25.9	(36)
Highest Education Level				
Less than 4 years high school completed	19.6	(28)	22.6	(31)
4 years high school completed	21.0	(30)	21.2	(29)
More than 4 years high school completed	59.4	(85)	56.2	(77)
Socio-economic index				
Disadvantaged	54.9	(78)		
Average range/ Advantaged	45.1	(64)		
Geographic remoteness				
Major city	31.0	(44)		
Regional	54.2	(77)		

Rural	14.8	(21)	
Years spent caring for the person with mental illness			
20 years or less	70.4	(100)	
More than 20 years	29.6	(42)	
Carer and person with mental illness living in the same residence			
Yes	52.4	(75)	
Carer relationship to person with mental illness			
Parent	61.5	(88)	
Other relation	38.5	(55)	
Psychiatric diagnosis			
Schizophrenia		39.1	(56)
Bipolar disorder		21.8	(31)
Other diagnosis		39.1	(56)
Health risk behaviour status			
Fruit and vegetable consumption 'at risk'	74.8	(107)	
Physical activity 'at risk'	57.6	(76)	
Alcohol consumption 'at risk'	36.3	(49)	
Smoking 'at risk'	11.8	(17)	

^a Number of missing responses to items ranged between 1 and 8.
Data collected in 2013 in New South Wales, Australia.

Current promotion of health behaviours

A majority of participants indicated they were trying 'most' or 'all of the time' to positively influence fruit and vegetable consumption (63.8%), physical activity (60.3%), alcohol consumption (56.2%) and smoking (56.3%) (Table 5.2). Between 8.5% and 13.5% indicated they were not trying to influence each risk behaviour at all.

Carer perceptions of their role and ability in promoting the health behaviours of the person they care for

The majority of participants reported it was very important to promote each of the health behaviours (75.5% to 79.3%). Similarly, the majority agreed the person they cared for found it acceptable to discuss fruit and vegetable consumption (67.9%) and physical activity (62.5%); but less so for alcohol consumption (46.1%) and smoking (44.0%). The majority agreed their relationship could be harmed by encouraging decreasing alcohol consumption (62.0%) and quitting smoking (67.0%); with fewer anticipating such a consequence for encouraging healthy fruit and vegetable consumption (44.3%) or physical activity (47.1%), (Table 5.2).

Approximately half the sample thought it was always or often possible to have a positive influence on fruit and vegetable consumption (51.1%), while fewer perceived it possible to do so for physical activity (41.5%); and one third or less thought it possible for alcohol consumption (33.0%) and smoking (29.5%). The majority of participants agreed they had the knowledge and skills to encourage health behaviours; most so for fruit and vegetable consumption (83.3%) and physical activity (76.8%), and less so for alcohol (62.8%) and smoking (62.5%). Approximately three quarters of participants reported being confident to talk to the person they cared for about their fruit and vegetable consumption (76.9%) and physical activity (73.9%), whilst 56.3% and 51.7% reported being confident for alcohol and smoking respectively (Table 5.2).

Table 5.2 Carer promotion and perceptions of their role and ability in addressing the health behaviours

Item	Behaviour	Responses ^{ab} %(n)
<i>Current promotion</i>		
To what extent do you currently try to have a positive influence on the health behaviours of the person you care for?		I try all/most of the time
	Fruit and vegetable consumption	63.8 (90)
	Physical activity	60.3 (85)
	Alcohol	56.2 (50)
	Smoking	56.3 (49)
<i>Carer perceptions of role and ability to address the health behaviours</i>		
How important do you feel it is for you to try and have a positive influence on the health behaviours of the person you care for?		Very important
	Fruit and vegetable consumption	78.9 (112)
	Physical activity	77.3 (109)
	Alcohol	79.3 (73)
	Smoking	75.5 (71)
The person I care for finds it acceptable for me to talk with them about their health behaviours.		Strongly agree/ agree
	Fruit and vegetable consumption	67.9 (93)
	Physical activity	62.5 (85)
	Alcohol	46.1 (41)
	Smoking	44.0 (37)
My encouraging healthy behaviours for the person I care for may harm our relationship.		Strongly agree/ agree/ unsure
	Fruit and vegetable consumption	44.3 (62)
	Physical activity	47.1 (66)

	Alcohol	62.0 (57)
	Smoking	67.0 (59)
To what extent do you think it's possible for you to have a positive influence on the health behaviours of the person you care for?		Often/ always possible
	Fruit and vegetable consumption	51.1 (71)
	Physical activity	41.5 (59)
	Alcohol	33.0 (30)
	Smoking	29.5 (26)
I have the knowledge and skills to encourage healthy behaviours for the person I care for.		Strongly agree/ agree
	Fruit and vegetable consumption	83.3 (115)
	Physical activity	76.8 (106)
	Alcohol	62.8 (59)
	Smoking	62.5 (55)
I feel confident to talk to the person I care for about their health behaviours.		Strongly agree/ agree
	Fruit and vegetable consumption	76.6 (105)
	Physical activity	73.9 (102)
	Alcohol	56.3 (49)
	Smoking	51.7 (45)

^a Missing responses ranged from 0-9

^b Not applicable responses excluded and ranged from 0-5
Data collected in 2013 in New South Wales, Australia.

Carer perceptions of the interest in changing health behaviours held by the person with a mental illness

The majority of participants reported, over the last 12 months, that the person they cared for expressed an interest in improving their physical activity (58.7%); with fewer reporting such an expressed interest in improving fruit and vegetable consumption (45.7%), reducing alcohol consumption (18.4%), and quitting smoking (30.4%).

Factors associated with carer promotion of health behaviours

Factors associated at $p < .25$ with the carer's promotion of health behaviours 'all or most of the time' that were entered into the logistic regressions are presented in Table 5.3. For each of the behaviours, the regression analyses identified that participants who thought it was 'very important' to influence the behaviours of the person they cared for had significantly greater odds of trying to do so all or most of the time, compared to those who did not: fruit and vegetable consumption [Odds Ratio (OR: 9.47) 95% confidence interval (CI: 3.52-25.46)], physical activity (OR: 13.84, CI: 4.68-40.94), alcohol consumption (OR: 17.14, CI: 3.61-81.46), and smoking (OR: 24.13, CI: 4.86-119.87) (Table 5.4). Additionally, for fruit and vegetable consumption, carers who agreed that the person they cared for found it acceptable to talk with them were approximately three times as likely to try all or most of the time to influence that behaviour (OR: 2.95, CI: 1.27-6.86), compared to carers who did not agree. Finally, for physical activity, carers who perceived it was always or often possible to have an influence were approximately three times more likely to be trying all or most of the time to do so, compared to carers who did not (OR: 2.88, CI: 1.19-6.91).

Table 5.3 Chi-square results for variables associated with carer promotion of health behaviours

Variable	N ^a	χ^2	df	p
Fruit and vegetable consumption				
Importance of positively influencing health behaviour	141	27.069	1	<.001 ^b
Acceptable to talk about health behaviour	136	9.675	1	.002 ^b
Encouraging health behaviour may harm relationship	138	.496	1	.574
Extent to which it is possible to influence health behaviour	138	7.492	1	.008 ^b
Knowledge and skills to encourage health behaviour	137	3.239	1	.095 ^b
Carer confidence to talk about health behaviour	136	4.682	1	.035 ^b
Person with a mental illness interest in changing behaviour	133	.773	1	.443
Carer 'at risk' for behaviour	140	.007	1	1.000
Physical activity				
Importance of positively influencing health behaviour	139	34.902	1	<.001 ^b
Acceptable to talk about health behaviour	135	8.411	1	.006 ^b
Encouraging health behaviour may harm relationship	138	1.140	1	.348
Extent to which it is possible to influence health behaviour	139	7.820	1	.008 ^b
Knowledge and skills to encourage health behaviour	137	8.028	1	.006 ^b
Carer confidence to talk about health behaviour	136	7.718	1	.009 ^b
Person with a mental illness interest in changing behaviour	137	2.420	1	.130 ^b
Carer 'at risk' for behaviour	130	1.999	1	.177 ^b
Alcohol				
Importance of positively influencing health behaviour	86	18.446	1	<.001 ^b
Acceptable to talk about health behaviour	85	1.433	1	.282
Encouraging health behaviour may harm relationship	86	.006	1	1.000
Extent to which it is possible to influence health behaviour	86	3.381	1	.101 ^b
Knowledge and skills to encourage health behaviour	85	.476	1	.578
Carer confidence to talk about health behaviour	82	.015	1	1.000
Person with a mental illness interest in changing behaviour	79	1.359	1	.366
Carer 'at risk' for behaviour	83	.057	1	1.000

Smoking

Importance of positively influencing health behaviour	87	26.702	1	<.001 ^b
Acceptable to talk about health behaviour	83	1.121	1	.422
Encouraging health behaviour may harm relationship	86	1.012	1	.406
Extent to which it is possible to influence health behaviour	87	6.397	1	.017 ^b
Knowledge and skills to encourage health behaviour	84	4.927	1	.041 ^b
Carer confidence to talk about health behaviour	84	2.196	1	.186 ^b
Person with a mental illness interest in changing behaviour	83	2.566	1	.129 ^b
Carer 'at risk' for behaviour	87	.523	1	.485

Boldface indicates statistical significance ($p < 0.05$)

^a Sample size varies due to missing responses

^b Variables entered into logistic regression models

Data collected in 2013 in New South Wales, Australia.

Table 5.4 Final logistic regression models for variables associated with carer current promotion of health behaviours

Variable	OR	95% CI		<i>p</i>
		Lower	Upper	
Fruit and vegetable consumption ^a				
Important to influence health behaviour				
Very important	9.470	3.523	25.456	<.001**
Somewhat, a little, not at all, unsure				reference
Acceptable to talk about health behaviour				
Strongly agree, agree	2.949	1.267	6.861	.012*
Disagree, strongly disagree, unsure				reference
Physical activity ^a				
Important to influence health behaviour				
Very important	13.838	4.678	40.939	<.001**
Somewhat, a little, not at all, unsure				reference
Possible to influence health behaviour				
Often, always possible	2.878	1.199	6.908	.018*
Not at all, sometimes, unsure				reference
Alcohol Consumption				
Important to influence health behaviour				
Very important	17.143	3.608	81.462	<.001**
Somewhat, a little, not at all, unsure				reference
Smoking				
Important to influence health behaviour				
Very important	24.134	4.859	119.870	<.001**
Somewhat, a little, not at all, unsure				reference

Boldface indicates statistical significance (* $p < 0.05$, ** $p < 0.01$)

^a Variance of inflation ranged from 1.02 to 1.04 for the fruit and vegetable consumption and physical activity regression models, respectively; indicating that collinearity was not present within the models.

Data collected in 2013 in New South Wales, Australia.

Discussion

This is the first study to quantitatively explore both the extent to which family carers promote health behaviours for people with a mental illness that they care for, their perceptions towards this caring role and the association between carer characteristics and perceptions and their provision of such care. A majority of carers reported trying to promote all four health behaviours, perceived that trying to do so was very important, and reported having the knowledge and skills to do so. Carers were more likely to promote each behaviour if they perceived that doing so was very important, the person they cared for found it acceptable for them to do so, and that it was possible to influence the behaviour of the person they cared for.

The finding that most (56.2%-63.8%) carers were active in trying to positively influence the health behaviours of those they cared for reflects the findings of previous qualitative research; where a majority of family carers reported trying to support weight loss for the people they cared for.²¹ The consistent positive association identified between the perceived level of importance ascribed to trying to positively influence the health behaviours and the likelihood of currently trying all or most of the time to do so, suggests that perceived 'role congruency' may be an important influence on care provision. There is support from theory, such as the theory of planned behaviour, which identifies 'importance' as a significant determinant of undertaking a behaviour.⁴⁶ Further support comes from previous research findings that mental health staff in both inpatient⁴⁷ and community mental health services^{34,48} were more likely to provide care for physical health risks when they perceived it as part of their role. This research included items relating to 'self-efficacy', a concept integral to a range of health behaviour theories⁴⁶; assessing carer confidence, perception of their knowledge and skills, and possibility to influence behaviours, finding that only the latter was (minimally) associated with care provision.

The findings suggest that a number of carer attributes influence their promotion of positive health behaviours. These findings are supported by the literature regarding the role of ‘influential others’⁴⁶. Future research assessing the utility of particular theoretical frameworks may be of value.

Despite a majority of carers expressing that they had the knowledge and skills to influence health behaviours, the study also found that no more than half of carers reported it was often or always possible to do so. Within the context of the general burden associated with the caregiver role, it may be speculated that this could reflect prioritisation of the mental health of the person being cared for over their physical health.³³ It is also possible the high proportion of carers reporting they had the knowledge, skills and confidence, to influence health behaviours- especially fruit and vegetable consumption and physical activity- could be an artefact of all participating carers having greater access to information and support through their support organisation membership than carers generally. This remains speculative and other possibilities could have led to this result.

With regards to smoking and alcohol consumption, family carers were approximately 20% less likely to report that: they had the knowledge and skills to encourage healthy behaviours; the person they cared for would find it acceptable to talk about their behaviours; and they felt confident to talk to the person they cared for about their health behaviours. Additionally, approximately 20% more carers reported that encouraging healthy smoking and alcohol consumption behaviours could harm their relationship, as compared to encouraging nutrition and physical activity. This suggests that future research is required to investigate how such concerns may vary across behaviours and to identify strategies for supporting carers to be effective in their promotion without harm to their relationships. Some carers may be concerned that family relationship tensions could result from their attempting to influence health behaviours, as

suggested in one previous study exploring carers' management of tobacco use by people with a mental illness.³³ Alternatively, such results may also be explained by the findings that carers were between 15% and 40% less likely to report the person they cared for was interested in improving their smoking or alcohol consumption compared to nutrition and physical activity. The perceived lack of interest in improving risk behaviours on the part of the person being cared for could influence the carers perceived capacity to influence and support change as explained by the theory of planned behaviour;⁴⁶ resulting in concerns that influencing such behaviours could harm their relationship.

The findings that carers were more likely to try to influence fruit and vegetable consumption if they perceived the person they cared for found it acceptable, and more likely to try to positively influence physical activity if they perceived that it was 'possible' to do so may be explained by a greater likelihood of carers addressing some behaviours if they perceived the individual is receptive to carer input. Such an explanation accords with previous research on factors influencing mental health clinician care provision to address such behaviours.^{47,49,50} While in the current study, few carers reported that the person they cared for had expressed interest in changing their behaviours (18.4% - 58.7%), it may be of value to inform carers of research suggesting high proportions of people with a mental illness do have interest in changing their health behaviours,^{16,18,51-54} and that offering their support for such change may act as a cue to action- as has been found when clinicians offer such assistance.^{55,56} The finding that carer risk behaviour status was not associated with promotion of health behaviours suggests the potential for all carers to positively influence behaviour change regardless of their own risk status.

Study limitations and strengths

The present findings need to be interpreted in light of a number of study limitations. Firstly, as the sample involved carer members of a single support

organisation, the extent to which responses are representative of all family carers of adults with a mental illness is not known; although the socio-economic and geographic characteristics of participants are largely consistent with the characteristics of carers in Australia.²⁷ Secondly, the low response rate and recruitment strategy may have resulted in selection bias suggesting caution in interpreting the findings as representative of the carer population from which they were recruited. It is unknown if the low response rate combined with participants' support organisation membership may have influenced the results. Thirdly, carers provided a proxy non-expert report of the psychiatric diagnosis of the person they cared for; and the accuracy of this report is unknown. Fourthly, self-reported survey data could be susceptible to recall and social desirability biases,⁵⁷ however, older adults' recall of their health behaviours has been found to be reliable.⁵⁸ Finally, the multivariate analysis results should be interpreted with caution due to the small sample size and limited statistical power to detect differences. A larger sample size is required to confirm the results of this study.

Conclusion

Nevertheless, as the first to explore the extent to which family carers are trying to influence a range of chronic disease risk behaviours of people with a mental illness and attitudinal factors associated, the findings of this study are important. They suggest that carers try to have a role in influencing the health behaviours of those they care for yet their capacity to do so may be limited by several factors, and perhaps differentially so for different behaviours. As carers represent a potential means of extending and reinforcing public and clinical programs promoting health behaviours, further research is required to examine this potential and strategies for supporting carers to increase the effectiveness of such programs for those they care for.

References

1. Chang CK, Hayes RD, Perera G, et al. Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. *PloS one*. 2011;6(5):e19590. <http://dx.doi.org/10.1371/journal.pone.0019590>
2. Laursen TM, Wahlbeck K, Hallgren J, et al. Life expectancy and death by diseases of the circulatory system in patients with bipolar disorder or schizophrenia in the Nordic countries. *PloS one*. 2013;8(6):e67133. <http://dx.doi.org/10.1371/journal.pone.0067133>
3. Wahlbeck K, Westman J, Nordentoft M, Gissler M, Laursen TM. Outcomes of Nordic mental health systems: life expectancy of patients with mental disorders. *Br J Psychiatry*. 2011;199(6):453-458. <http://dx.doi.org/10.1192/bjp.bp.110.085100>
4. Lawrence D, Hancock K, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *Bmj*. 2013;346:f2539. <http://dx.doi.org/10.1136/bmj.f2539>
5. Brown S, Kim M, Mitchell C, Inskip H. Twenty-five year mortality of a community cohort with schizophrenia. *Br J Psychiatry*. 2010;196(2):116-121. <http://dx.doi.org/10.1192/bjp.bp.109.067512>.
6. Callaghan RC, Veldhuizen S, Jeysingh T, et al. Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *J Psychiatr Res*. 2014;48(1):102-110. <http://dx.doi.org/10.1016/j.jpsychires.2013.09.014>

7. AIHW: O'Brien K. Living dangerously: Australians with multiple risk factors for cardiovascular disease. *Bulletin No. 24. AIHW Cat. No. AUS 57*. Canberra: AIHW; 2005.
8. Australian Bureau of Statistics. Australian health survey: First results, 2011-2012. Canberra: Commonwealth of Australia; 2012.
9. Australian Institute of Health and Welfare. Risk factors contributing to chronic disease. Cat no. PHE157. Canberra: AIHW; 2012.
10. Australian Institute of Health and Welfare. Australia's Health 2014. Australia's health series no. 14. Cat. no. AUS 178. Canberra: AIHW; 2014.
11. Cook JA, Razzano LA, Swarbrick MA, et al. Health risks and changes in self-efficacy following community health screening of adults with serious mental illnesses. *PloS one*. 2015;10(4):1-15.
<http://dx.doi.org/10.1371/journal.pone.0123552>
12. Hahn LA, Galletly CA, Foley DL, et al. Inadequate fruit and vegetable intake in people with psychosis. *Aust N Z J Psychiatry*. 2014;48(11):1025-1035.
<http://dx.doi.org/10.1177/0004867414553950>
13. Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *Gen Hosp Psychiatry*. 2009;31(6):555-563.
<http://dx.doi.org/10.1016/j.genhosppsych.2009.07.008>
14. Kilian R, Becker T, Kruger K, Schmid S, Frasch K. Health behavior in psychiatric in-patients compared with a German general population sample. *Acta Psychiatr Scand*. 2006;114(4):242-248. <http://dx.doi.org/10.1111/j.1600-0447.2006.00850.x>

15. Morgan VA, McGrath JJ, Jablensky A, et al. Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychol Med.* 2014;44:2163-2176. <http://dx.doi.org/10.1017/s0033291713002973>
16. Prochaska JJ, Fromont SC, Delucchi K, et al. Multiple risk-behavior profiles of smokers with serious mental illness and motivation for change. *Health Psychol.* 2014;33(12):1518-1529. <http://dx.doi.org/10.1037/a0035164>
17. Ussher M, Doshi R, Sampuran A, West R. Cardiovascular risk factors in patients with schizophrenia receiving continuous medical care. *Community Ment Health J.* 2011;47:688-693. <http://dx.doi.org/10.1007/s10597-011-9376-y>
18. Bartlem K, Bowman J, Bailey J, et al. Chronic disease health risk behaviours amongst people with a mental illness. *Aust N Z J Psychiatry.* 2015;49(8):731-741. <http://dx.doi.org/10.1177/0004867415569798>
19. Wood VJ, Curtis SE, Gesler W, et al. Creating 'therapeutic landscapes' for mental health carers in inpatient settings: a dynamic perspective on permeability and inclusivity. *Soc Sci Med.* 2013;91:122-129. <http://dx.doi.org/10.1016/j.socscimed.2012.09.045>
20. Office of the Chief Psychiatrist. Communicating with carers and families: Information sharing for better outcomes. Delivering a healthy WA. In: Health Do, ed. Perth: Government of Western Australia; 2007.
21. Aschbrenner KA, Pepin R, Mueser KT, et al. A mixed methods exploration of family involvement in medical care for older adults with serious mental illness. *Int J Psychiatry Med.* 2014;48(2):121-133. <http://dx.doi.org/10.2190/PM.48.2.e>
22. NICE. Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care (Updated edition) Clinical guideline

82. The British Psychological Society & The Royal College of Psychiatrists; 2010.
23. Rooney P, Worthington A. The triangle of care. Carers included: A guide to best practice in acute mental health care. London: National Mental Health Development Unit; 2015.
24. Wilson G, Montgomery L, Houston S, Davidson G, Harper C, Faulkner L. Regress? React? Resolve? An evaluation of mental health service provision in Northern Ireland. In: Health AM, ed. Belfast: Queen's University; 2015.
25. Bland R, Foster M. Families and Mental Illness: Contested Perspectives and Implications for Practice and Policy. *Australian Social Work*. 2012;65(4):517-534. <http://dx.doi.org/10.1080/0312407x.2011.646281>
26. New South Wales Government. NSW carers strategy 2014-2019. Sydney: New South Wales Government; 2014.
27. NSW Department of Health. NSW carers action plan 2007-2012 summary. In: Health NDo, ed. North Sydney: NSW Department of Health; 2007.
28. National Mental Health Commission. The national review of mental health programmes and services. Sydney: NMHC; 2014.
29. Collings S. Who cares for people with schizophrenia: Family carers' health, circumstances and adjustment. Vol Blue Skies report no. 28/09. Wellington: University of Otago; 2009.
30. Sinha M. Spotlight on Canadians: Results from the General Social Survey. Portrait of caregivers, 2012. Vol Cat no. 89-652- No.001. Ottawa: Statistics Canada; 2013.
31. AARP Public Policy Institute NAFc. Executive summary: Caregiving in the U.S. Chicago: AARP, NAC; 2015.

32. Pirkis J, Burgess P, Hardy J, Harris M, Slade T, Johnston A. Who cares? A profile of people who care for relatives with a mental disorder. *Aust N Z J Psychiatry*. 2010;44:929-937. <http://dx.doi.org/10.3109/00048674.2010.493858>
33. Lawn S, McNaughton D, Fuller L. What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: a qualitative study. *Int J Ment Health Promot*. 2015;17(5):261-277. <http://dx.doi.org/10.1080/14623730.2015.1080462>
34. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient Educ Couns*. 2009;77(2):289-295. <http://dx.doi.org/10.1016/j.pec.2009.02.013>
35. Sono T, Oshima I, Ito J. Family needs and related factors in caring for a family member with mental illness: adopting assertive community treatment in Japan where family caregivers play a large role in community care. *Psychiatry Clin Neurosci*. 2008;62(5):584-590. <http://dx.doi.org/10.1111/j.1440-1819.2008.01852.x>
36. Missen RL, Brannelly T, Newton-Howes G. Qualitative exploration of family perspectives of smoke-free mental health and addiction services. *Int J Ment Health Nurs*. 2013;22(4):294-303. <http://dx.doi.org/10.1111/j.1447-0349.2012.00882.x>
37. Schizophrenia Fellowship of NSW Inc. Carer assist: Support for mental health carers. 2008; http://www.sfnsw.org.au/carers-assist/home/Home#.VEg_kxCukTU. Accessed 23.10., 2014.
38. Bartlem K, Bowman J, Freund M, et al. Evaluating the effectiveness of a clinical practice change intervention in increasing clinician provision of preventive care

- in a network of community-based mental health services: A study protocol of a non-randomised, multiple baseline trial. *Implementation Sci.* 2013;8(85):1-9. <http://dx.doi.org/10.1186/1748-5908-8-85>
39. Department of Health and Aged Care. Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA). Occasional Papers: New Series Number 14. Canberra: Commonwealth of Australia; 2001.
 40. Australian Bureau of Statistics. Technical paper. Socio-economic indexes for areas (SEIFA). Canberra: Australian Bureau of Statistics; 2011.
 41. National Health and Medical Research Council. Eat for health: Australian dietary guidelines summary. Canberra: Australian Government; 2013.
 42. Department of Health and Aged Care. An active way to better health. Canberra: Australian Government; 1999.
 43. National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Canberra: Commonwealth of Australia; 2009.
 44. Ministerial Council on Drug Strategy. National drug strategy 2010-2015. Perth: Commonwealth of Australia; 2011.
 45. IBM. SPSS Statistics (Version 23). Chicago, IL: SPSS Inc; 2015.
 46. Rimer BK, Glanz K. Theory at a glance: A guide for health promotion practice. Washington DC: National Cancer Institute; 2005.
 47. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *J Psychiatr Ment Health Nurs.* 2010;17(4):319-327. <http://dx.doi.org/10.1111/j.1365-2850.2009.01524.x>
 48. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: A cross-sectional study of nurses' attitudes, practice, and perceived

- training needs for the physical health care of people with severe mental illness. *Int J Ment Health Nurs*. 2013;22:409-417. <http://dx.doi.org/10.0000/j.1447-0349.2012.00883.x>
49. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community Ment Health J*. 2007;43(3):251-266. <http://dx.doi.org/10.1007/s10597-006-9074-3>
50. Happell B, Scott D, Platania-Phung C, Nankivell J. Should we or shouldn't we? Mental health nurses' views on physical health care of mental health consumers. *Int J Ment Health Nurs*. 2012;21(3):202-210. <http://dx.doi.org/10.1111/j.1447-0349.2011.00799.x>
51. Buhagiar K, Parsonage L, Osborn DP. Physical health behaviours and health locus of control in people with schizophrenia-spectrum disorder and bipolar disorder: a cross-sectional comparative study with people with non-psychotic mental illness. *BMC Psychiatry*. 2011;11:104. <http://dx.doi.org/10.1186/1471-244X-11-104>
52. Siru R, Hulse GK, Tait RJ. Assessing motivation to quit smoking in people with mental illness: a review. *Addiction*. 2009;104(5):719-733. <http://dx.doi.org/10.1111/j.1360-0443.2009.02545.x>
53. Stockings E, Bowman J, McElwaine K, et al. Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine Tob Res*. 2013;15(5):942-949. <http://dx.doi.org/10.1093/ntr/nts206>
54. Ussher M, Stanbury L, Cheeseman V, Faulkner G. Physical activity preferences and perceived barriers to activity among persons with severe mental illness in the United Kingdom. *Psychiatr Serv*. 2007;58(3):405-408. <http://dx.doi.org/10.1176/appi.ps.58.3.405>

55. Dixon L, Medoff D, Goldberg R, et al. Is implementation of the 5 A's of smoking cessation at community mental health centers effective for reduction of smoking by patients with serious mental health illness? *Am J Addict.* 2009;18(5):386-392. <http://dx.doi.org/10.3109/10550490903077747>
56. Hulse GK, Tait RJ. Six-month outcomes associated with a brief alcohol intervention for adult in-patients with psychiatric disorders. *Drug Alcohol Rev.* 2002;21:105-112. <http://dx.doi.org/10.1080/09595230220138993>
57. Van de Mortel TF. Faking it: Social desirability bias in self-report research. *Aust J Adv Nurs.* 2008;25(4):40-48.
58. Dal Grande E, Fullerton S, Taylor AW. Reliability of self-reported health risk factors and chronic conditions questions collected using the telephone in South Australia, Australia. *BMC Med Res Methodol.* 2012;12(1):108. <http://dx.doi.org/10.1186/1471-2288-12-108>

**SUPPORTING CHANGE IN CHRONIC DISEASE
RISK BEHAVIOURS FOR PEOPLE WITH A
MENTAL ILLNESS: A QUALITATIVE STUDY OF
THE EXPERIENCES OF FAMILY CARERS**

CHAPTER 6

SUPPORTING CHANGE IN CHRONIC DISEASE RISK BEHAVIOURS FOR PEOPLE WITH A MENTAL ILLNESS: A QUALITATIVE STUDY OF THE EXPERIENCES OF FAMILY CARERS

Chapter 6 is a published paper:

Bailey, J., Hansen, V., Wye, P., Wiggers, J., Bartlem, K., Bowman, J. (2018). Supporting change in chronic disease risk behaviours for people with a mental illness: A qualitative study of the experiences of family carers. *BMC Public Health*, 18: 416. doi: 10.1186/s12889-018-5314-z

Abstract

People with a mental illness experience greater chronic disease morbidity and mortality, and associated reduced life expectancy, compared to those without such an illness. A higher prevalence of chronic disease risk behaviours (inadequate nutrition, inadequate physical activity, tobacco smoking, and harmful alcohol consumption) is experienced by this population. Family carers have the potential to support change in such behaviours among those they care for with a mental illness. This study aimed to explore family carers': 1) experiences in addressing the chronic disease risk behaviours of their family members; 2) existing barriers to addressing such behaviours; and 3) perceptions of potential strategies to assist them to provide risk behaviour change support. A qualitative study of four focus groups (n=31), using a semi-structured interview schedule, was conducted with carers of people with a mental illness in New South Wales, Australia from January 2015 to February 2016. An inductive thematic analysis was employed to explore the experience of carers in addressing the chronic disease risk behaviours. Two main themes were identified in family carers' report of their experiences: firstly, that health behaviours were salient concerns for carers and that they were engaged in providing support, and secondly that they perceived a bidirectional relationship between health behaviours and mental well-being. Key barriers to addressing behaviours were: a need to attend to carers' own well-being; defensiveness on behalf of the family member; and not residing with their family member; with other behaviour-specific barriers also identified. Discussion around strategies which would assist carers in providing support for health risk behaviours identified a need for improved communication and collaboration between carers and health services accessed by their family members. Additional support from general and mental health services accessed by family members is desired to assist carers to address the barriers to providing behaviour change support. Carers have the potential

to support and extend health service interventions aimed at improving the chronic disease risk behaviours of people with a mental illness but may require additional information, and collaboration from services. Further research is needed to explore these constructs in a large representative sample.

Introduction

People with a mental illness experience increased rates of preventable morbidity, mortality and reduced life expectancy,¹⁻⁵ primarily due to higher rates of chronic disease.^{1,6} This preventable burden of illness is associated with a greater prevalence of the primary behavioural risks for chronic disease: inadequate nutrition, inadequate physical activity, tobacco smoking, and harmful alcohol consumption.⁶⁻⁹ Previous research has consistently reported a high engagement in all four chronic disease risk behaviours by people with a mental illness.¹⁰⁻¹⁷ For example, the smoking prevalence of people with a mental illness is at least two to three times that of the general population:^{18,}¹⁹ however the prevalence has been reported as high as 80-90% among people with psychotic and substance abuse disorders.²⁰⁻²³ Despite high levels of engagement in risk behaviours, people with a mental illness have expressed interest in improving their risk behaviours and in receiving assistance from mental health services to improve such behaviours.^{17, 24-28} The need to address these disparities and provide support to change risk behaviours has been acknowledged as a priority by national and international governments and peak mental health entities.²⁹⁻³³

Many people with a mental illness receive regular support from unpaid informal carers.³⁴⁻³⁹ For example, approximately 43.5 million people (18.2% of the population) in the United States and 5 million (12%) people in the UK are informal carers, with 21% (USA) and 13% (UK) of those caring for a person with a mental illness.^{36, 39} Further, in Australia, 2.4 million people (15% of the population) are estimated to provide care to a relative with a mental illness.³⁷ Family carers can provide emotional, social, functional and financial support, including tasks such as: interacting with health care and other services; participating in decisions regarding medical care; and supporting and/or extending health care interventions in the home environment.^{29, 40, 41} Clinical guidelines

and policies recommend that family carers are included in all aspects of care provision for people with a mental illness.^{40, 42, 43} with such recommendations aiming to provide a holistic approach to mental health care provision and to increase the effectiveness of treatments and interventions provided by health care services.^{29, 44, 45}

A review of the literature of studies exploring the role family carers may have in addressing the chronic disease risk behaviours of those they care for identified five studies. Three qualitative studies suggested that carers are actively engaged in this activity.^{41, 46, 47} For example, a study of 13 carers in the United States found that the majority reported actively supporting weight loss through encouraging exercise, healthy food grocery shopping and meal preparation for their family member with a mental illness.⁴¹ Similarly, a South African study of 8 family caregivers of people with a mental illness reported that most caregivers purchased, prepared and served food to their family member every day.⁴⁷ An Australian study of 12 carers of smokers with a mental illness reported that carers were actively trying to regulate and manage the consumption of tobacco by their family member.⁴⁶ Additionally, a descriptive correlational study of 27 family carers supporting an adult with schizophrenia and diabetes mellitus from the United States reported 89% of carers prepared meals for their family member with 78% preventing high-fat, high-sugar food intake; 22% encouraged their family member to stop drinking alcohol; and 59% assisted their family member with exercise.⁴⁸ Finally, a quantitative Australian study of 144 family carers of adults with a mental illness reported the majority of carers tried all or most of the time to positively influence: fruit and vegetable consumption (63.8%), physical activity (60.3%), smoking (56.3%), and alcohol consumption (56.2%).⁴⁹

Three of the identified studies were also the only previous research that reported potential barriers to carers addressing the chronic disease risk behaviours of the person

they care for, and possible strategies for overcoming them.^{41, 46, 49} The qualitative study conducted in Australia found a dissonance between carer concerns for the negative health effects of smoking and the autonomy of their family member, with some carers reporting facilitating access to cigarettes rather than supporting cessation attempts.⁴⁶ Additionally, the study identified a lack of communication between mental health services and carers as a barrier to the provision of care regarding smoking, with carers reporting a need for such services to communicate and collaborate with them on the provision of smoking cessation strategies.⁴⁶ Similarly, in the qualitative study conducted in the United States, carers indicated a need for guidance from health care professionals regarding strategies to promote weight loss by their family member.⁴¹ The quantitative Australian study assessed carers' perceptions of their role and ability in addressing the four health risk behaviours which could indicate potential barriers to addressing risk behaviours.⁴⁹ The majority of carers felt confident to talk to the person they cared for about each of the four health behaviours (51.7%-76.6%) and thought they had the knowledge and skills to encourage healthy behaviours (62.5%-83.3%) however, fewer felt it was possible to have a positive influence on each behaviour (29.5%-51.1%) and a considerable proportion reported encouraging healthy behaviours for the person they cared for could harm their relationship (32.2%-58.2%).⁴⁹ These studies did not identify a broad range of barriers to carer provision of support for modifying such behaviours, nor did they identify supportive strategies to increase carer capacity to support behaviour change.

Given these gaps in evidence, an exploratory qualitative study was conducted to explore family carers':

1. Experiences in addressing multiple chronic disease risk behaviours of their family members (inadequate nutrition, inadequate physical activity, tobacco smoking, and harmful alcohol consumption);

2. Existing barriers to addressing such risk behaviours;
3. Perceptions of potential strategies to assist them to provide risk behaviour change support.

Methods

Design and setting

An exploratory focus group study of family carers of people with a mental illness was undertaken employing purposive and convenience sampling techniques within one non-metropolitan region in New South Wales, Australia. While focus groups can be susceptible to social desirability bias, focus group methodology is widely used to explore participants' experiences of illness and health services.⁵⁰ Further, advantages of the focus group methodology include: encouragement of participation by individuals who are disinclined to participate in an individual interview; and the generation of a rich discussion and exploration of the phenomenon through both shared and divergent experiences among group participants.^{50, 51} The study was approved by the Hunter New England Human Research Ethics Committee (No. 14/10/15/4.04) and was registered with the University of Newcastle's Human Research Ethics Committee (No. H-2015-0387).

Participants and recruitment

Family carers were recruited through established mental health carer support groups provided by either community mental health services or a local carer support organisation.⁵² The facilitators of the support groups were approached by telephone and email and provided a brochure and information statement for support group attendees. The facilitators organised for a focus group to be conducted during a scheduled support group meeting with members who agreed to participate. Support group members were eligible to participate in the focus group if they were: 18 years or older and identified

themselves as a carer for someone with any mental illness over 18 years; and were not employed to support that individual.

Procedure

Four semi-structured focus groups of approximately one hour duration were conducted, with each consisting of between five and eleven participants. Participants were reimbursed for their time, travel and parking expenses incurred through participation in the study to the value of a \$15 grocery voucher. Author JAB facilitated all focus groups and author JMB (both female) observed and acted as a note taker. The facilitator, author JAB, has expertise in both quantitative and qualitative research methodologies. JAB's research team have been exploring the broad area of addressing chronic disease risk behaviours among people with a mental illness for over a decade. The research reported in this paper was exploratory and the research team have no vested interest or bias in establishing anything about carers or the role they might have in this area. Carer support group facilitators were present in three of the four focus groups, but did not engage in the group discussion. The researchers had no prior involvement with the participants. Before the conduct of each focus group, JAB confirmed all participants had received, read and understood the information statement and answered any questions. JMB distributed consent forms to all participants and an information statement was provided to any participant that did not receive one prior to the group. Written informed consent was obtained from all participants prior to commencing the study. Participants were then asked to complete a short questionnaire prior to the focus group, taking on average 10 minutes to complete. A digital voice recorder was used with participants' consent to record the focus group discussions. Authors JAB and JMB agreed that data saturation⁵³ was achieved after the conduct of four focus groups as no new content was produced in the fourth group. This was additionally confirmed during the iterative code book

development phase, where no new codes were generated from the last transcript, but rather led to code refinement.

Measures

Participant characteristics

The questionnaire collected the following information regarding participant socio-demographic characteristics: age; gender; employment status; marital status; highest level of education achieved; postcode; and Aboriginal and/or Torres Strait Islander status. In addition, participants also reported both the number of years, and current hours per week usually engaged in their caring role; as well as the nature of the familial relationship with the person they cared for and whether they currently resided with them.

Focus group

At the start of each focus group, the researchers identified the four risk behaviours that were of particular interest and invited carers to express their views and experiences relating to any or all of them. The four behaviours were not addressed systematically throughout the focus group proceedings but carers were prompted if particular behaviours were not arising in the discussion.

The semi-structured interview schedule contained the following questions to address the study aims:

1. What have been the issues for you in helping the person you care for manage their health behaviours?
2. What have you tried? What has been helpful at all?

3. What would work to support you in helping the person you care for manage their health behaviours?

Analysis

The focus group recordings were transcribed verbatim and NVivo 11⁵⁴ was used to assist with the organisational aspects of the analysis. Analysis was conducted by authors VH and JMB using an inductive thematic analysis approach as described by Braun and Clarke,⁵⁵ with the additional use of a data-driven coding template. Authors VH and JMB independently generated initial codes from the transcript of the first focus group, engaged in one detailed discussion of discrepancies and reached consensus on a draft coding hierarchy with minimal effort. VH and JMB independently coded a second transcript using the draft coding hierarchy. A high level of consensus was reached between the two coders; where one meeting which addressed a small number of differences in coding was adequate to resolve any inconsistencies. Further discussion among all authors took place and formed the basis for the development of the final coding hierarchy. VH coded all transcripts using the coding hierarchy. Once the complete dataset was coded, themes were formed and a thematic structure was identified which was further assessed and modified to fit the complete dataset. VH and JMB developed detailed coding narratives including noting commonalities and grouping by risk behaviours.

Results

A total of 31 of 32 invited carers (26 female and 5 male) consented to participate, with four focus groups being conducted. The participants were aged between 48 and 85 years (mean = 66.1 years). The focus groups consisted of 5, 7, 8, and 11 participants. The majority of carers were the parent of the family member they cared for (87.1%); and had been caring for their family member for more than 10 years (70.9%), with 41.9% in a caring role for more than 20 years. More than one third (38.7%) of the carers were

currently residing with their family member, and a further 12.9% ‘sometimes’ did so (Table 6.1).

Table 6.1 Demographic and caring characteristics of participants

Characteristic	n	%
Age (mean(SD) range)	66.1 (10.1)	48-85
Gender		
Female	26	83.9
Employment status		
Employed full or part time	5	16.6
Performing unpaid work	6	20
Not currently employed- not seeking employment	19	63.4
Highest education level		
Completed Higher School Certificate or less	15	48.3
Certificate/diploma/university degree or higher	16	51.7
Marital status		
Married or living together in a relationship	18	58.1
Divorced/separated	8	25.8
Widowed	5	16.1
Aboriginal and/or Torres Strait Islander origin		
No	30	96.8
Unsure	1	3.2
Relationship to person with a mental illness		
Parent	27	87.1
Partner	2	6.5
Child	1	3.2
Sibling	1	3.2
Years in caring role		
Less than 1 year	1	3.2
1-2 years	0	0
3-10 years	8	25.8
11-20 years	9	29.1
More than 20 years	13	41.9

Hours per week in caring role		
Less than 10 hours	11	35.4
11-37 hours	12	38.8
38 hours or more	8	25.8
Residing with person with a mental illness		
Yes	12	38.7
No	15	48.4
Sometimes	4	12.9

Throughout all focus groups, carers commented on the challenging nature of the caring role in general; noting that it entailed the provision of significant time, financial, practical and emotional support, as well as ensuring adherence to health care appointments and programs. Carers found it difficult to discuss their role in relation to chronic disease risk behaviours separately to their broader caring role: it was one aspect of care among many that they often felt themselves to carry sole responsibility for. Throughout the focus groups, carers often grouped together their discussion of risk behaviours, nutrition and physical activity, and smoking and alcohol, suggesting similarities in their addressing of such behaviours.

Experiences in addressing the chronic disease risk behaviours

During exploration of family carers' experiences, two main themes were identified: the first being that providing support for health risk behaviours was an important (salient) concern for carers and something they were engaged in doing; and the second being that carers perceived a bi-directional relationship between the health risk behaviours and the mental health of the person they cared for (Table 6.2). The perceived salience which carers placed on the risk behaviours was apparent and underpinned their efforts in attempting to address them. The salience of the risk behaviours as a problem to

be addressed was closely tied to their perceived impact on the mental health and well-being of their family member.

Table 6.2 Themes and sub-themes from the data analysis

Theme and sub-themes
Experiences in addressing the chronic disease risk behaviours
<ul style="list-style-type: none"> - Salience of risk behaviours and interaction of risk behaviours with mental illness - Nutrition and physical activity - Smoking and alcohol
Existing barriers to addressing chronic disease risk behaviours
<ul style="list-style-type: none"> - Nutrition and physical activity - Smoking and alcohol
Potential supportive strategies to address carers' needs
<ul style="list-style-type: none"> - Current sources of support - Interface between carers and health services

The salience of the risk behaviours and their interaction with mental illness

Nutrition and physical activity

There was general consensus that both regular physical activity and adequate nutrition were salient components in achieving and maintaining not only physical (i.e., preventing or alleviating diabetes, sleep apnoea etc.), but also mental well-being; with diet the behaviour carers tried to address most often. Many carers reported the importance of regular physical activity as a component in stress management not only for their family members, but also for themselves; and as an element of cohesion or structure in the life

of their family member. Furthermore, one carer stated that the maintenance of physical activity and adequate nutrition could aid mental illness symptom management. However, a few carers voiced a need to place a secondary importance on these risk behaviours at times, relative to managing acute mental health problems.

Nutrition and physical activity were seen to have a close interaction with mental illness, both in terms of the physiological or organic basis for the condition as well as its behavioural manifestations and symptomatology; where mental illness was seen to exert a strong influence on nutrition and physical activity. On one hand, there was a widespread understanding among carers that many psychotropic medications resulted in ‘inevitable’ weight gain (direct side effect); while others expressed an understanding that this was due to an effect via appetite regulation and/or cravings for carbohydrate rich foods (indirect side effect). One carer in particular had found the latter knowledge helpful, both for herself and her family member, as it facilitated a greater internal locus of control;

“And it’s been really good for him to realise that it’s just not inevitable that if he’s on this particular medication that he will put on weight, that he actually has a choice about it.” (Participant 13, female)

Nutrition, physical activity and weight problems/fluctuations were seen as closely tied to the state of the person’s mental health condition and how well it was managed. For physical activity, the adoption of, or motivation to engage in a physical activity routine was perceived to be influenced by the state of the person’s mental illness and/or psychotropic medication effectiveness. Similarly, many carers saw the challenges of adhering to adequate nutrition or maintaining a healthy weight as significantly compounded by illness characteristics such as a lack of insight;

“I’ve got a problem with my son, that he will not eat anything that he thinks is going to put any weight on. That’s a big worry to us. He went down to 37 kilos at one time, which was pretty drastic. That was many years ago. Because of his anxiety and paranoia, he is - he sees himself as being really overweight. You could not get him to eat a cake or a lolly or anything like that.” (Participant 27, female)

Smoking and alcohol

While engaging in healthy nutrition and physical activity behaviours were seen to aid stress and mental illness symptom management, similarly carers noted that smoking had a calming effect for their family member and increased mental clarity, and family members would consume tobacco at higher levels in times of stress. Conversely, carers acknowledged that the consumption of alcohol had negative consequences for mental health. Regardless of whether engagement in each of the behaviours had positive or negative consequences for mental health, carers acknowledged the need at times to prioritise mental illness management above a health behaviour routine.

In terms of alcohol consumption by the person being cared for, the consistent message conveyed was a shared understanding that while alcohol clearly had significant negative consequences for the health and mental stability of their family member, it also played a role in generating feelings of 'normality' for them. The desire to consume alcohol by the family member was described in terms of their being driven by a need to "feel" and to "feel normal". This sense of normality was described both in terms of their family member's feelings of normal social functioning and social inclusion and acceptance;

“...people would buy him drinks or he’d buy them drinks or like you know, I can’t believe that in my community that people would be so silly, but he’d say “I just want to feel normal”.” (Participant 9, female)

Among those caring for a smoker, most described smoking to have been instigated by stress or anxiety and continued as a means of stress management. All carers expressed the view that nicotine had calming effects for their family member, while others mentioned cognitive effects such as a greater ability to think clearly. Others noted that smoking served as a diversion or hobby to occupy their family member's time. The interaction between smoking and mental illness was seen to be bidirectional in nature, with the majority of carers, regardless of whether they cared for a smoker, agreeing that smoking often resulted in a lessening of mental health symptoms. Some discussed a perceived link between the uptake of smoking and the onset of mental illness symptoms or relapse, and noted that craving and consumption of tobacco was greater during onset or acute phases of the illness;

"I noticed with my son that he probably had the odd cigarette-not around the time that guys usually smoke, you know in their teens and stuff, but much later-but I noticed around his time of diagnosis it just seemed to increase and increase and increase. And um, I also noticed that, obviously, like ... in his un-wellness, he tends to go that, you know, shwooo, really drag on the cigarette and stuff." (Participant 9, female)

A few carers were aware of the effect changes in smoking status or nicotine intake levels could have on psychotropic medications.

Existing barriers to addressing chronic disease risk behaviours

Carers mentioned three barriers which hindered their provision of support with risk behaviours in general. Firstly, the need for carers to attend to their own mental and physical health needs in order to have the resources and resilience to assist their family members was frequently cited. Despite this, carers' own needs were often stated to be overlooked out of perceived necessity and priority of caring for their family member.

Carers experienced a lack of attention and inadequate support for their own well-being; both within the context of the caring relationship and from health services accessed by their family member. Secondly, defensiveness on behalf of their family member such as: direct obstinate behaviours and attitudes; and a denial or un-readiness for change, which was mainly perceived as being caused by the mental illness and subsequent lack of insight. This influenced the extent to which carers could facilitate and support behaviour change. In general, almost all carers felt that providing prompting and motivation was required to bring about and maintain changes to health risk behaviours. Thirdly, the effectiveness of such strategies was perceived to be largely dependent on whether they lived with their family member; with those residing with their family member having increased awareness of engagement in risk behaviours and capacity to provide behaviour change support.

Nutrition and physical activity

The key barriers to promoting nutrition and physical activity were medication induced cravings, cost, and motivation. In addition to the challenges of promoting healthy nutrition generally, many carers talked of the difficulties of managing nutrition in the context of managing mental illness, such as attending to and managing medication induced cravings, using strategies such as locking of cupboards and the refrigerator at night.

A few carers voiced concern that it was comparatively more expensive to eat a healthy diet as opposed to take away, instant or processed foods. In addition, carers mentioned the inability of a lot of family members to manage money appropriately and to prioritise food over cigarettes or coffee. Motivation of the family member was one of the main barriers to their family members engaging in physical activity, with some perceiving this to be attributable to psychotropic medications. There was a widespread

acknowledgement that disruption to a regular routine such as changes to medications, hospitals stays etc. often would have a detrimental impact on the motivation to engage in any regular physical activity.

Some carers sought to influence physical activity levels through exercising together, but noted that the responsibility of organising and motivating such activity inherently fell on them. For those whose family members' condition allowed sufficient insight to facilitate an understanding of the importance of good physical health underpinning their mental health, carers appeared to be more engaged in overt behaviour support such as giving reminders. When caring for people who were acutely unwell or chronically lacking insight, more covert behaviour modification strategies were adopted;

“Because he's got no insight whatsoever that he's unwell, so, for him, he thinks McDonald's is healthy food and fruit and vegetables and stuff is bad, it's the junk food. You can't reason with him whatsoever. So except for the few vegies that I might be able to hide in a meal, he doesn't eat any vegetables, doesn't eat any fruit at all.” (Participant 24, female)

The experience of supporting improvements in their family members' nutrition was a multi-faceted challenge and one understood to require a more holistic approach than would be required for someone without a mental illness. There was also widespread acknowledgement that disruption to a regular routine such as changes to medications or hospital stays often would have a detrimental impact on any regular physical activity engagement. Carers were facing a range of physiological, mental, and financial barriers to supporting behaviour change, as well as those relating to the dynamics within their carer role.

Smoking and alcohol

Whilst carers identified medication induced cravings, cost, and motivation as the fundamental barriers to promoting nutrition and physical activity; the barrier most mentioned to hinder smoking cessation support was engaging in contradictory behaviours concerning the supply of tobacco by carers to their family members; and denial by the family member impeded carers' ability to promote reduced alcohol consumption.

A dominant barrier to assisting their family member to quit smoking was carer complicity in enabling the supply of tobacco to their family member despite their concern about the negative health impact of smoking. Some carers reported assisting their family member to smoke by providing money to purchase cigarettes, while others reported supplying their family member with cigarettes during an inpatient stay in a mental health service. The provision of cigarettes was in some instances based on an underlying belief in the calming effects of smoking, and for others an acknowledgement of their lack of reasonable 'authority' as current smokers themselves. Other frequently mentioned barriers to assisting in smoking cessation were the inability of their family member to remain abstinent from smoking during times of stress, and their family members' prioritisation of smoking over psychiatric medications, food and other necessities;

"[My son has] actually been selling his medication off... I've been giving him his [ten] tablets that have to last 10 days. I found out ... three days later they'll disappear. So we had it out last night and found out that he's been selling them, just to have a cigarette."

(Participant 21, female)

Many participants reported that their family member had previously tried various forms of nicotine replacement therapy with varying degrees of cessation success. All carers agreed that nicotine replacement therapy was an inadequate aid in permanent

cessation, and insufficient to maintain abstinence during a mental health relapse, or stressful life event. Strategies that carers reported implementing to support cessation attempts or reduce tobacco consumption included: banning smoking inside the home and introducing competing financial needs (such as being able to afford petrol for the car). One carer, who herself was a smoker, described supporting cessation through a joint quit attempt;

“I was smoking, I’ve actually only gave it up a month ago... again. I wasn’t smoking a lot... about 15 a day probably, which was less than I used to smoke... and [family member] gave it up at the same time. We both gave it up. And he stopped as well, and so did I.” (Participant 1, female)

Few barriers to reducing the consumption of alcohol by the person being cared for were mentioned. Refusal to acknowledge the need to decrease/abstain from alcohol consumption due to interactions with mental illness and/or psychotropic medications on behalf of their family members, as well as social opportunities centred around alcohol were cited;

“He even knows now that he shouldn’t [drink] with the medication but it hasn’t, you know like he, he says “I didn’t hear that”. It doesn’t matter who says it to him, “I didn’t hear that”. So he’s really quite able to deflect what he doesn’t want to hear.” (Participant 11, female)

On the one hand carers expressed feeling compelled to support their family members to attend social opportunities even if alcohol was available, as their family members were known to experience social exclusion and withdrawal; while on the other hand some acknowledged the need to minimise alcohol consumption due to the negative overall impact it was known to have on their physical and mental health.

Despite prompting, there was little discussion about the strategies which were seen to assist the carer to address alcohol related problems. However, some carers briefly talked of strategies they employed such as "metering" out money, thereby preventing their family member from having large sums of money available to spend on alcohol, so in essence, preventing opportunities for consumption.

Potential supportive strategies to address carers' needs

Two main themes were identified within this aim: current sources of support and the interface between carers and health services. When discussing how carers felt they could be better assisted in supporting behaviour change in their family members many carers reported their current sources of support or previous experiences with various health services where they generally received suboptimal support. Carers then discussed the interface between carers and health services, reporting a need for improved communication and collaboration from services to carers.

Current sources of support

Carers expressed the view that little information and services were available to support them in helping their family members change their health risk behaviours. No carers reported accessing existing general community supports for specific risk behaviours including telephone coaching support, such as the Quitline⁵⁶ service for smoking. While general practitioners, dieticians, mental health family workers, and the internet were all reported as sources from which information was sometimes derived, carer groups provided by mental health services were considered the most valued source of information and support;

"Everything is covered here. You just get so much knowledge... Sometimes it doesn't come to you until weeks later that you picked up something that you're coping better with;

that you've learnt from somebody else's experience ... You can leave the group and you feel more positive." (Participant 18, female)

Health, fitness or community services were mentioned as having a positive influence where many carers reported their family member had accessed such a service to support engagement in physical activity. However, the benefits of such activity were only maintained for the length of time that the service was accessed. No services appeared to have had a role in facilitating sustainable behaviour change. One carer also stressed the importance of social inclusion and shared experience as a facilitator to participating in physical activity whereby a family member was motivated to engage in an exercise program conducted with other people with depression;

"She was going through the Uni, they did a research program where it was under 25's with a depression- they were doing an exercise program ... there was a whole heap of other cutters⁵ there that they all had the shorts on and you could see the scars. And so my daughter felt normal, um, and that was really, really good and she was getting very motivated." (Participant 7, female)

While few carers talked of resources which facilitated their provision of nutrition support for their family member, a few talked of some helpful information received from family, support workers and general practitioners. There was however consensus that basic nutrition information targeted at the general population was of little use. Rather, it was seen as important that such information was specific, practical, hands-on and considered the very different set of parameters and contextual difficulties within which they operated.

⁵ People who engage in non-suicidal self-injury- the deliberate injuring of oneself without suicidal intent- by lacerating or piercing the skin with a knife or sharp object.

Interface between carers and health services

There were mixed views of the role of health services in supporting carers and their family members in risk behaviour change. Some carers talked of positive changes in both behaviours and attitudes of their family members as a result of services accessed via their National Disability Insurance Scheme plans,⁵⁷ or while being hospitalised. Periods of hospitalisation were often referred to as a positive time for their family member, where positive routines and improved risk behaviours were established which, for some, extended to a beneficial sustained change post-discharge. Yet others shared their experiences of negative changes as a direct result of contact with health services, such as excessive unhealthy weight loss and taking up smoking;

“She started smoking last year, just socially, but the last, when she was in hospital just before Christmas, um...yeah, and that’s when she started getting heavier and um... oh just before she went to hospital but coming out like on leave, she would look for cigarettes and everything and um, and then since coming out of hospital she does it to help relieve the anxiety, um, and she doesn’t cut now um, because she is sort of coping better with that.” (Participant 7, female)

In almost all instances, these negative impacts of health services were perceived to be due to either a lack of service provider understanding of mental health issues or a lack of communication between carers and service providers. One of the more dominant themes referred to in relation to the role of health services in supporting risk behaviour change was an acknowledgment that the carer was sidelined (perceived to be mainly due to privacy laws) and not regarded as an important member of the "treatment team". This lack of clear communication with the carer was seen to significantly hinder their ability to provide the continuity needed to facilitate sustainable behaviour changes;

“I need to know what it is they’re saying to him so that I can actually support that... They need to communicate to the carer what it is so that we’re all on the one path.” (Participant 13, female)

In addition, carers felt that their expertise, knowledge and instrumental role as carers and ‘health managers’ generally was not acknowledged, particularly by mental health services. Many carers recounted negative past experiences with services where they were not involved in treatment planning or diagnosis and their voice was perceived to not be heard by clinicians. A few also mentioned problems arising from compromised communication and lack of a useful dialogue between different health care providers (e.g., general practitioners and psychiatrists), impacting on their ability to change the risk behaviours of their family member;

“I mean even our GP, he’s really good... but like even when [my son] had given up smoking and... said to him that he had given up smoking... he just said, “Oh I can’t you know, I can’t mess around with your medication.”... I mean I was the one who rang the psychiatrist and made the appointment and told him what had happened and like, he immediately said, “Oh right, yes, I agree with you, we need to get his bloods done straight away.” At the end of the day, all of us, we are the, we’re the Doctors, we’re the clinicians, we’re the dieticians, we really, really, really know what’s going on.” (Participant 1, female)

Additionally, a few carers voiced complaints about allied health professionals either not sufficiently acknowledging the impact of mental health issues in dealing with risk behaviours, or not considering the diversity of mental health issues and the varying impact they can have on the efficacy and viability of potential strategies;

“They seem to put mental illness and this is what you're like. This is what everybody is like. But they're all so different... I think, trying to find people who can really understand that everybody's different in mental health. They just want to fit you into a box.”

(Participant 24, female)

Some also expressed frustration that the health system was perceived to not provide holistic care. That is, health care providers were seen to deal with the presenting problems while neglecting to address or acknowledge other related health issues, which were intricately linked to risk behaviours. Many carers desired health services to play a more active role and a more targeted role in close communication and cooperation with carers, such as provision of dietary support, and drug and alcohol rehabilitation.

Discussion

This is the first exploratory study to investigate the four key chronic disease risk behaviours together and in depth from the perspectives of family carers; the barriers which influence carers capacity to address such risk behaviours; and potential supportive strategies which may assist carers to provide risk behaviour change support to their family member with a mental illness. Carers placed high importance on the chronic disease risk behaviours and were motivated to address them; with diet perceived as the behaviour they tried to address most often. All carers acknowledged an interaction between risk behaviours and mental illness symptoms where adhering to positive behavioural routines was complicated by mental illness characteristics and status. Despite implementing various strategies to encourage improvement of risk behaviours, carers acknowledged multiple barriers to doing so, with some differences in those mentioned for nutrition and physical activity, as compared to those for smoking and alcohol consumption. Medication induced cravings, cost and lack of motivation of the person being cared for were key barriers in promoting nutrition and physical activity, while the supply of tobacco by carers

was a major barrier to promoting smoking cessation, and refusal to decrease/abstain from alcohol by the family member impeded carers ability to promote reduced alcohol consumption. Carers reported insufficient information and support currently available to assist them in supporting risk behaviour change and expressed a need for improved communication and collaboration between carers and health services to help them in doing so. Throughout the conduct of all focus groups it was at times difficult for carers to separate their discussion of experiences of their role in relation to chronic disease risk behaviours from their role in caring for the broader physical and mental health and other needs of their family member.

The understanding that the chronic disease risk behaviours are experienced differently by people with a mental illness, and hence require different intervention approaches has been reported previously in qualitative research of carers. Carers have previously reported the interconnectedness between physical and mental health where psychotropic medications can result in food cravings, weight gain and a loss of motivation to engage in physical activity;⁵⁸ and the perceived calming effects of nicotine on mental illness symptoms or improved cognition.^{46, 59} Quantitative research has also reported differences in the experience of risk behaviours among people with a mental illness. For example, people with a mental illness experience higher nicotine dependence, smoke more cigarettes per day and are less likely to quit smoking compared to people without a mental illness.⁶⁰⁻⁶² Despite this, people with a mental illness have comparable levels to the general population of interest in changing their smoking behaviours and receiving support from mental health professional to do so.^{17, 24-28} A limited and contrasting body of research exists on the effectiveness of population level approaches to address smoking behaviours among this population group with some research suggesting interventions are less effective but can result in some positive behaviour change.⁶⁰ However, two studies

examining the impact of smoking cessation mass media campaigns on people with a mental illness determined such campaigns had no impact on smoking behaviours or intentions to quit.^{63, 64} The literature is lacking in other aspects of experience such as the degree to which people with a mental illness lack access to services to support behaviour change and any barriers associated with access to services. Such findings suggest that mental health specific intervention strategies are required when addressing the chronic disease risk behaviours of clients with a mental illness and in supporting carers to play a role.

The prioritisation of mental health over physical health has previously been reported by carers^{46, 58, 59} and mental health professionals.^{65, 66} Carers have reported the need to stabilise mental health conditions with psychotropic medications, with the intention of addressing any negative consequences on nutrition and physical activity at a future point in time.⁵⁸ Similarly, the perception that nicotine can have a positive impact on mental illness symptoms, or that smoking cessation could result in mental illness relapse has been reported by both carers^{46, 59} and mental health professionals.^{65, 66} Such perceptions may suggest that carers and mental health professionals could benefit from the dissemination of evidence of the benefits of smoking cessation for both mental health and physical health^{60, 67} and from the development of strategies addressing the perceived effects of smoking on mental health. Further, the results reinforce the need for mental health services to facilitate and provide adequate smoking cessation support to all clients who smoke as per policies and guidelines;⁶⁸⁻⁷⁰ support which has previously been found to be suboptimal⁷¹⁻⁷⁵ and which was also noted to be so by some carers in the present study.

A lack of attention to the carer's own physical and mental health needs in health service settings and in the caring relationship itself suggests a need for services to address

the needs of carers in addition to those of the client with a mental illness. Previous studies have reported similar findings despite carer reported need for the maintenance of their own physical and mental well-being in order to continue to support their family member.^{58, 76} While current mental health service policies acknowledge the need to address and support the physical and mental well-being of carers of people with a mental illness,^{29, 77} carers in the present study reported receiving inadequate support for their own well-being.

Carers required additional support from health services in order to support behaviour change interventions; and expressed a need for health services to provide more holistic care for people with a mental illness. Carers in this study, and previous research, have identified a need for services to provide additional support in the form of increased information and collaboration to assist them in supporting family members in risk behaviour change;^{41, 46, 78} as well as additional information and behaviour change support being provided directly to their family members.^{46, 59, 78} The finding that carers' awareness of their family member's risk behaviours and ability to support or encourage behaviour change was often contingent on whether or not they resided together, suggests that when collaborating with carers, mental health services should ensure behaviour change support and advice is appropriate for the carer's particular circumstances and the dynamics of the caring relationship. An increased provision of behaviour change information and support tailored to the needs of mental health clients, and a greater inclusion of carers within health service planning and interventions may result in more effective risk behaviour change interventions for people with a mental illness. New opportunities to better connect carers and mental health care providers should be sought, such as may arise for instance through the National Disability Insurance Scheme (NDIS), an agency aiming to support people with a range of disabilities to have a positive impact on everyday life.⁷⁹⁻⁸¹

Furthermore, in the large regional centre where the focus groups were conducted, a variety of services were available to carers and people with a mental illness, such as: primary care; non-government organisations and specialist mental health services. The current study did not systematically assess participants' prior use of or perceived accessibility to such services. Future research could explore if carers perceive a lack of opportunity to access such services as a barrier to receiving adequate support from services.

Limitations

Findings should be viewed in light of a number of study characteristics, including that focus groups were conducted through established carer support groups where sometimes a regular group facilitator was present. Such a presence may have coloured some reflections on the role and support provided by mental health services. Further, as participants were members of carer support groups, the extent to which responses are representative of the broader carer population is not known; although the demographic characteristics of participants are largely consistent with the characteristics of carers in Australia.⁸² In addition, the large majority of carers were parents of the person they cared for (87.1%), and the dynamics explored through the carer adult-child relationship dynamic may not be representative of other caring relationship dynamics. Finally, the focus groups were conducted in one large non-metropolitan centre well serviced by a range of general and mental health support services, hence, such carers' experiences with services in the current study may not reflect the experience of carers in more rural areas.

Conclusions

Family carers were found to be trying to address the chronic disease risk behaviours of their family members but identified multiple barriers to supporting behaviour change. Additional support from general and mental health services accessed

by their family members is desired. Carers have the potential to support and extend service interventions aimed at improving the chronic disease risk behaviours of people with a mental illness in the home environment but may require additional support, information, and collaboration from health services. Further research is needed to explore these constructs in a large representative sample. Future research could investigate carers' need for services and support to assist them in supporting behaviour change and specifically the types of programs or interventions they would find useful. Additionally, future interventions could attempt to address shared risk behaviours between carers and people with a mental illness concurrently.

References

1. Brown, S., et al., Twenty-five year mortality of a community cohort with schizophrenia. *Br J Psychiatry*. 2010;196(2):116-21.
2. Laursen, T.M., et al., Life expectancy and death by diseases of the circulatory system in patients with bipolar disorder or schizophrenia in the Nordic countries. *PLoS One*. 2013;8(6):e67133.
3. Wahlbeck, K., et al., Outcomes of Nordic mental health systems: life expectancy of patients with mental disorders. *Br J Psychiatry*. 2011;199(6):453-8.
4. Chang, C.K., et al., Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. *PLoS One*. 2011;6(5):e19590.
5. Lawrence, D., K. Hancock, and S. Kisely, The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *BMJ*. 2013;346:f2539.
6. Callaghan, R.C., et al., Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. *J Psychiatr Res*. 2014;48(1):102-10.
7. Scott, D. and B. Happell, The high prevalence of poor physical health and unhealthy lifestyle behaviours in individuals with severe mental illness. *Issues Ment Health Nurs*. 2011;32(9):589-97.
8. Stanley, F. and J. Laugharne, The impact of lifestyle factors on the physical health of people with a mental illness: a brief review. *Int J Behav Med*. 2014;21(2):275-81. doi: 10.1007/s12529-013-9298-x.
9. Australian Institute of Health and Welfare, Risk factors contributing to chronic disease. Cat no. PHE157. 2012, AIHW: Canberra.

10. Cook, J.A., et al., Health risks and changes in self-efficacy following community health screening of adults with serious mental illnesses. *Plos One*. 2015;10(4):1-15.
11. Hahn, L.A., et al., Inadequate fruit and vegetable intake in people with psychosis. *Aust N Z J Psychiatry*. 2014;48(11):1025-35.
12. Kilbourne, A.M., et al., Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *Gen Hosp Psychiatry*. 2009;31(6):555-63.
13. Kilian, R., et al., Health behavior in psychiatric in-patients compared with a German general population sample. *Acta Psychiatr Scand*. 2006;114(4):242-8.
14. Morgan, V.A., et al., Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychol Med*. 2014;44:2163-2176.
15. Prochaska, J.J., et al., Multiple risk-behavior profiles of smokers with serious mental illness and motivation for change. *Health Psychology*. 2014;33(12):1518-29.
16. Ussher, M., et al., Cardiovascular risk factors in patients with schizophrenia receiving continuous medical care. *Community Ment Health J*. 2011;47(6):688-93.
17. Bartlem, K., et al., Chronic disease health risk behaviours amongst people with a mental illness. *Australian and New Zealand Journal of Psychiatry*. 2015;49(8):731-41.
18. Lawrence, D., F. Mitrou, and S. Zubrick, Smoking and mental illness: results from population surveys in Australia and the United States. *BMC Public Health*. 2009;9:285.

19. AK, M., et al., Smoking characteristics of adults with selected lifetime mental illnesses: Results from the 2007 National Health Interview Survey. *American Journal of Public Health*. 2010;100(12):2464-2472.
20. Reichler, H., et al., Smoking among in-patients with drug-related problems in an Australian psychiatric hospital. *Drug and Alcohol Review*. 2001;20(2):231-237.
21. Lineberry, T.W., et al., Population-based prevalence of smoking in psychiatric inpatients: a focus on acute suicide risk and major diagnostic groups. *Compr Psychiatry*. 2009;50(6):526-32.
22. PJ, K., et al., Prevalence of smoking and other health risk factors in people attending residential substance abuse treatment. *Drug and Alcohol Review*. 2012;31(5):638-644.
23. de Leon, J. and F.J. Diaz, A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. *Schizophr Res*. 2005;76(2-3):135-57.
24. Stockings, E., et al., Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine Tob Res*. 2013;15(5):942-9.
25. Ussher, M., et al., Physical activity preferences and perceived barriers to activity among persons with severe mental illness in the United Kingdom. *Psychiatric Services*. 2007;58(3):405-408.
26. Filia, S.L., et al., Health behaviour risk factors for coronary heart disease (CHD) in smokers with a psychotic disorder: baseline results. *Mental Health and Substance Use*. 2011;4(2):158-171.
27. Moeller-Saxone, K., Cigarette smoking and interest in quitting among consumers at a Psychiatric Disability Rehabilitation and Support Service in Victoria. *Aust N Z J Public Health*. 2008;32(5):479-81.

28. Siru, R., G.K. Hulse, and R.J. Tait, Assessing motivation to quit smoking in people with mental illness: a review. *Addiction*. 2009;104(5):719-33.
29. NSW Mental Health Commission, *Living well: A strategic plan for mental health in NSW*. 2014, NSW Mental Health Commission: Sydney.
30. NSW Department of Health, *Physical health care of mental health consumers*. 2009, NSW Department of Health, Sydney.
31. National Preventive Health Taskforce, *Australia: the healthiest country by 2020 - A discussion paper*. 2008, Commonwealth of Australia: Canberra.
32. Bobes-Garcia, J., et al., Delphi consensus on the physical health of patients with schizophrenia: evaluation of the recommendations of the spanish societies of psychiatry and biological psychiatry by a panel of experts. *Actas Españolas De Psiquiatría*. 2012;40(3):114-128.
33. National Institute for Health and Care Excellence, *Psychosis and schizophrenia in adults: The NICE guideline on treatment and management*, N.C.C.f.M. Health, Editor. 2014, National Institute for Health and Care Excellence: London.
34. Collings, S., *Who cares for people with schizophrenia: Family carers' health, circumstances and adjustment*. 2009, University of Otago: Wellington.
35. Sinha, M., *Spotlight on Canadians: Results from the General Social Survey. Portrait of caregivers*, 2012. 2013, Statistics Canada: Ottawa.
36. AARP Public Policy Institute, N.A.f.C., *Executive summary: Caregiving in the U.S*. 2015, AARP, NAC: Chicago.
37. Pirkis, J., et al., *Who cares? A profile of people who care for relatives with a mental disorder*. *Australian and New Zealand Journal of Psychiatry*, 2010. 44: p. 929-937.

38. Australian Bureau of Statistics, A profile of carers in Australia, A.B.o. Statistics, Editor. 2008, Australian Bureau of Statistics: Canberra.
39. NHS Information Centre Social Care Team, Survey of Carers in Households 2009/2010. 2010, NHE Information Centre for Health and Social Care.
40. Office of the Chief Psychiatrist, Communicating with carers and families: Information sharing for better outcomes. Delivering a healthy WA, D.o. Health, Editor. 2007, Government of Western Australia: Perth.
41. Aschbrenner, K.A., et al., A mixed methods exploration of family involvement in medical care for older adults with serious mental illness. *Int J Psychiatry Med*. 2014;48(2):121-33.
42. NICE, Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care (Updated edition) Clinical guideline 82. 2010, The British Psychological Society & The Royal College of Psychiatrists.
43. National Mental Health Commission, The national review of mental health programmes and services. 2014, NMHC: Sydney.
44. Steering Committee for the Review of Government Service Provision, Report on government services 2013. 2013, Canberra: Productivity Commission.
45. Mental Health Council of Australia, Recognition and respect: Mental health carers report 2012. 2012, Mental Health Council of Australia: North Sydney.
46. Lawn, S., D. McNaughton, and L. Fuller, What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: a qualitative study. *International Journal of Mental Health Promotion*. 2015;17(5):261-277.

47. Mavundla, T.R., F. Toth, and M.L. Mphelane, Caregiver experience in mental illness: a perspective from a rural community in South Africa. *Int J Ment Health Nurs*. 2009;18(5):357-67.
48. El-Mallakh, P., B.E. Yates, and S. Adkins, Family caregiving for adults with schizophrenia and diabetes mellitus. *Issues Ment Health Nurs*. 2013;34(8):566-77.
49. Bailey, J.M., et al., Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness? *Prev Med Rep*. 2017;7:140-146.
50. Kitzinger, J., Qualitative research: Introducing focus groups. *BMJ*. 1995;311:299-306.
51. Morgan, D.L., Focus Groups. *Annual Review of Sociology*. 1996;22(1):129-152.
52. Schizophrenia Fellowship of NSW Inc. Carer assist: Support for mental health carers. 2008 [cited 2014 23.10.]; Available from: http://www.sfnsw.org.au/carers-assist/home/Home#.VEg_kxCukTU.
53. Guest, G., E. Namey, and M. Mitchell, Collecting qualitative data: A field manual for applied research. 2012, Thousand Oaks: SAGE Publications, Inc.
54. QSR International, NVivo qualitative data analysis software. Version 11. 2012, QSR International Pty Ltd.
55. Braun, V. and V. Clarke, Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.
56. Borland, R., et al., The potential of quitlines to increase smoking cessation. *Drug and alcohol review*. 2006;25(1):73-78.
57. National Disability Insurance Agency. What is the NDIS? 2013.
58. Happell, B., et al., Physical health and mental illness: Listening to the voice of carers. *Journal of Mental Health*. 2017;26:127-133.

59. Missen, R.L., T. Brannelly, and G. Newton-Howes, Qualitative exploration of family perspectives of smoke-free mental health and addiction services. *Int J Ment Health Nurs*. 2013;22(4):294-303.
60. Royal College of Physicians and Royal College of Psychiatrists, Smoking and mental health. Royal College of Psychiatrists Council Report CR178. 2013, London: Royal College of Physicians.
61. Australian Institute of Health and Welfare, National drug strategy household survey detailed report 2013. Drug statistics series no. 28. Cat. no. PHE 183. 2014, Australian Institute of Health and Welfare: Canberra.
62. Diaz, F.J.R., D. M. Velasquez D. M. Susce M. T. de Leon J., Smoking and smoking cessation among persons with severe mental illnesses. *Psychiatric Services*. 2006;57(4):462.
63. Thornton, L., et al., Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*. 2011;4(2):105-115.
64. Nonnemaker, J., et al., The influence of antismoking television advertisements on cessation by race/ethnicity, socioeconomic status, and mental health status. *PLoS One*. 2014;9(7):e102943.
65. Wye, P., et al., Total smoking bans in psychiatric inpatient services: a survey of perceived benefits, barriers and support among staff. *BMC Public Health*. 2010;10:372.
66. Connolly, M., et al., Mental health nurses' beliefs about smoking by mental health facility inpatients. *Int J Ment Health Nurs*. 2013;22(4):288-93.
67. Lancet Editorial, Smoke alarm: mental illness and tobacco. *The Lancet*. 2013;381(9872):1071.

68. NSW Ministry of Health, NSW tobacco strategy 2012-2017, N.M.o. Health, Editor. 2012, NSW Health: North Sydney.
69. Government of South Australia, South Australia health: Smoke-free policy, D.f.H.a. Ageing, Editor. 2013, Government of South Australia: Adelaide.
70. National Institute for Health and Care Excellence, Smoking cessation in secondary care: Acute, maternity and mental health services. 2013, NICE: London.
71. Bartlem, K., et al., Acceptability and Receipt of Preventive Care for Chronic-Disease Health Risk Behaviors Reported by Clients of Community Mental Health Services. *Psychiatric Services*. 2015;66(8):857-64.
72. Bartlem, K., et al., Care provision to prevent chronic disease by community mental health clinicians. *Am J Prev Med*. 2014;47(6):762-70.
73. Wye, P., et al., An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital. *Aust N Z J Public Health*. 2010;34(3):298-303.
74. Wye, P., et al., Observation of the extent of smoking in a mental health inpatient facility with a smoke-free policy. *BMC Psychiatry*. 2014;14(94):1-8.
75. Prochaska, J.J., P. Gill, and S.M. Hall, Treatment of tobacco use in an inpatient psychiatric setting. *Psychiatric Services*. 2004;55(11):1265-1270.
76. McCann, T.V., J. Bamberg, and F. McCann, Family carers' experience of caring for an older parent with severe and persistent mental illness. *Int J Ment Health Nurs*. 2015;24(3):203-12.
77. New South Wales Government, NSW carers strategy 2014-2019. 2014, New South Wales Government: Sydney.

78. Happell, B., et al., Physical health nurse consultant role to improve physical health in mental health services: A carer's perspective. *International Journal of Mental Health Nursing*. 2016;25(3):243-250.
79. Parliament of Australia, National Disability Insurance Scheme, in 20, H. Families, Community Services and Indigenous Affairs, Editor. 2013, Parliament of Australia: Canberra.
80. Independent Advisory Council, IAC advice on implementing the NDIS for people with mental health issues, A.D.o.H. Services, Editor. 2014.
81. COAG Disability Reform Council, National Disability Insurance Scheme quarterly actuarial report, A.D.o.H. Services, Editor. 2016.
82. NSW Department of Health, NSW carers action plan 2007-2012 summary, N.D.o. Health, Editor. 2007, NSW Department of Health: North Sydney.

**SUMMARY OF KEY FINDINGS AND
IMPLICATIONS FOR FUTURE RESEARCH**

CHAPTER 7

SUMMARY OF KEY FINDINGS AND IMPLICATIONS FOR FUTURE RESEARCH

Introduction

A synthesis of the key findings of the research undertaken will be presented in this final chapter, together with an assessment of their implications for future research and practice. A review of the literature presented in Chapter 1 identified gaps in the literature regarding research addressing the prevalence of health risk behaviours and interest in changing such behaviours among people with a mental illness. It also identified family carers as having a key support role for people with a mental illness, yet their views on issues such as the impact of health risk behaviours on mental health and the role mental health care services should play in providing care have received little research attention. Further, the role of family carers in influencing the health risk behaviours of people with a mental illness was found to have been scarcely investigated,¹⁻³ as was research exploring barriers to and potential means of providing support to carers to support health risk behaviour change. To address these evidence gaps, the aims of this thesis were:

1. To examine the need for preventive care for health risk behaviours in traditional mental health service settings and its current provision. Specifically to:
 - a. Determine the prevalence of health risk behaviours (tobacco smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity); interest in improving ‘at risk’ behaviours; and acceptability of receiving health risk behaviour change support during mental health treatment among a sample of Australian psychiatric inpatients (Chapter 2).
 - b. Ascertain the prevalence of preventive care provision for the four health risk behaviours in mental health services generally through the conduct of a systematic review (Chapter 3).
 - c. Explore family carers’: understanding of relationships between smoking and mental health; views and expectations of smoking bans in specialist mental

health treatment settings; and smoking cessation care across a number of service settings (Chapter 4).

2. To explore family carer current and potential provision of health risk behaviour change support to people with a mental illness, through:

- c. Investigating the extent of carers' current involvement in promoting positive health risk behaviours; carers' own health risk behaviours, attitudes and perceptions of their role and ability to address health risk behaviours of the person for whom they provide care (Chapter 5).
- d. Exploring carers' experiences in addressing the health risk behaviours of the person they care for; existing barriers to addressing such behaviours, and; perceptions of potential strategies to assist them to provide health risk behaviour change support (Chapter 6).

Summary of Key Findings

Chapter 2: Do mental health consumers want to improve their long-term disease risk behaviours? A survey of over 2000 psychiatric inpatients

Chapter 2 reported the findings of a cross-sectional survey undertaken with 2075 psychiatric inpatients. The study aimed to determine: the prevalence of health risk behaviours; interest in improving such behaviours; perceived acceptability of being provided with behaviour change advice and support during a psychiatric inpatient stay, and; to investigate any differences between diagnostic groups.

The study found, consistent with previous research,⁴⁻¹¹ high engagement in health risk behaviours where almost all participants (98.9%) were at risk for at least one health risk behaviour, with 88.4% engaging in two or more health risk behaviours. Inadequate vegetable consumption was most prevalent, followed by smoking, inadequate fruit

consumption, harmful alcohol consumption, and inadequate physical activity. Participants with substance-related, anxiety or stress-related, or 'other' disorders were most likely to engage in tobacco smoking, while those with personality or mood disorders were least likely. Participants with substance-related disorders were twice as likely to be at risk for harmful alcohol consumption, while those with schizophrenia or psychotic disorders were least likely.

The study found high levels of interest in improving health risk behaviours, in contrast to the findings of some previous research suggesting that mental health clinicians may not understand clients to be interested in behaviour change or to find the provision of support to do so acceptable.¹²⁻¹⁵ The majority of participants at risk for smoking (65.3%) and inadequate physical activity (60.6%) were interested in improving those behaviours; while nearly half of participants at risk for harmful alcohol consumption (49.5%) and inadequate fruit or vegetable consumption (47.6%) were interested in improving such behaviours. The majority of participants (80.4%) agreed or strongly agreed that it would be acceptable for inpatient staff to provide advice and support to assist in health risk behaviour change; findings consistent with a growing body of research.^{4,6,11,16-18}

The study identified variable results regarding association between primary psychiatric diagnosis and interest in changing health risk behaviours, and receiving behaviour change advice and support. For instance, participants with substance-related disorders were most interested in reducing their alcohol consumption, while those with schizophrenia or psychotic disorders were less likely to have such an interest (though 42% nevertheless expressed such interest). Participants with mood disorders were more likely to be interested in increasing fruit and/or vegetable consumption than people with other psychiatric diagnoses. Participants with schizophrenia or psychotic disorders were

less likely to report that it would be acceptable to receive behaviour change advice and support during their inpatient stay than people with other diagnoses (however 75% nevertheless reported acceptability of receiving such support).

The study findings contribute to the limited research literature in the field with regard to the health behaviour risk status and views of people receiving inpatient psychiatric care in particular. Given the high prevalence of health risk behaviours reported in the study, combined with findings of interest in and acceptability of care to improve health risk behaviours, the findings reinforce the need to address the health risk behaviours of people with a mental illness, and for further research to explore what form of support would be acceptable to people.

Chapter 3: Systematic review and meta-analysis of the provision of preventive care for modifiable chronic disease risk behaviours by mental health services

Chapter 3 reported the results of a systematic review and meta-analysis which aimed to: assess the prevalence of preventive care provision (by five preventive care elements; the 5As: Ask, Assess, Advise, Assist, Arrange) for health risk behaviours (smoking, harmful alcohol consumption, inadequate nutrition, and inadequate physical activity) among clients of mental health services; and quantify pooled prevalence estimates of preventive care provision for each health risk behaviour by care element and service type (inpatient, outpatient, other/multiple service settings), conducting a narrative synthesis where meta-analysis was not possible.

Findings of overall pooled prevalence estimates of care provision suggested sub-optimal care for health risk behaviours across studies utilising clinician reported data (30% to 78%) and those utilising client or audit reported data (17% to 62%), confirming previous reports of sub-optimal preventive care provision in mental health services.¹⁹

Overall pooled prevalence estimates indicated assessment for risk status was provided most often, however action following on from assessment- the provision of advice, assistance or arranging referral to behaviour change support services- was low. The review concluded that the included studies were however of very low quality and further more rigorous research is required, with a particular focus on the utilisation of consistent measures to assess the provision of preventive care across all mental health services to facilitate direct comparison between studies over time and to strengthen future quantitative synthesis.

Chapter 3 was the first review to comprehensively synthesise, through meta-analysis, evidence of the prevalence of preventive care provision in mental health services in terms of multiple health risk behaviours, preventive care elements and service type. The findings of sub-optimal provision of preventive care suggest a need to increase care provision in mental health services, and for research to explore opportunities for people with a mental illness to receive health risk behaviour change support.

Chapter 4: Smoking cessation care for people with a mental illness: Family carer expectations of health and community services

Chapter 4 explored family carer expectations of smoking cessation care provision by health services through the conduct of a cross-sectional survey of 144 carers. The study aimed to explore family carer: understanding of the relationships between smoking and mental health; views of smoking bans in specialist mental health services (both inpatient [mental health hospitals] and outpatient [community mental health services]); and expectations of smoking cessation care provision across four types of services (mental health hospitals, community mental health services, general practice, and non-government organisations). Additionally, association analyses were conducted to

determine if participant characteristics were associated with expectations of smoking cessation care provision.

The study found that the majority of participating carers, irrespective of their own smoking status, believed smoking had a very negative impact on mental health (59%), and that quitting smoking would have a very positive impact on mental health (62%). Further, holding the view that quitting smoking would have a very positive impact on mental health was the factor most consistently and strongly associated with expectations of smoking cessation care from: mental health hospitals; community mental health services; non-government organisations, and; all services combined.

The study found the prevalence of carer support for total smoking bans in mental health hospitals (50.8%) and community mental health services (65%) was consistent with previous research.^{2,20-22} However, the considerable proportion of participants that were 'unsure' of the benefits of smoking bans in such settings (up to 22.8%) suggests a need to improve education, provision of information, and consultation with family carers regarding the rationale for and implementation of smoking bans and the need for concurrent clinical care to manage withdrawal and promote cessation; a desire previously expressed by carers.²⁰ The findings suggest that dissemination of the mental health benefits from smoking cessation²³⁻²⁵ to family carers as a component of care by health professionals may enhance their understanding and acceptance of the need for smoking bans and cessation care provision in mental health services.

The study found the majority of carers considered that all services should provide smoking cessation care to people with a mental illness (56.6% - 82.7% across the service types examined). Such findings align with previous research among family carers

identifying an expectation that the smoking behaviours of people with a mental illness should be addressed by the health services they attend.^{2,20}

As the first study to quantitatively explore family carer expectations of smoking cessation care in general and mental health services, further research is required to confirm the study findings. The study extended the currently limited body of literature by reinforcing the appropriateness for such services to provide smoking cessation care for clients in an effective and systematic manner. Further, the study identified the value of research exploring the potential benefits of including carers, and their potential to adopt such a role, in health services' smoking cessation care interventions for people with a mental illness.

Chapter 5: Family carers: A role in addressing chronic disease risk behaviours for people with a mental illness?

Data from a cross-sectional survey of 144 family carers of people with a mental illness was utilised to conduct a study with the aim of investigating carers' current involvement in promoting: quitting smoking; decreasing alcohol consumption; fruit and vegetable consumption; and physical activity of the person for whom they provided care. Carer health risk behaviours, attitudes and perceptions of their role and ability in addressing the health risk behaviours of the person cared for, and whether such characteristics were associated with the promotion of positive behaviours were also examined.

The finding that the majority of participants (56.2% to 63.8%) were trying to improve each of the health risk behaviours of the person they cared for adds to the limited body of literature in this area.^{1,3,26} The findings suggested that a number of carer attributes may influence their promotion of positive health risk behaviours. For example, for all

behaviours, a positive association was identified between current promotion and the perception that it was ‘very important’ to influence the behaviours; a relationship supported by the theory of planned behaviour.²⁷ The theory posits that perceived ‘importance’ is a significant determination in undertaking a behaviour; whereby an individual is more likely to engage in a behaviour if they perceive it is important to do so.²⁷

Differences in carers’ perceptions according to each of the health risk behaviours were found. For smoking and alcohol behaviours, as compared to fruit and vegetable consumption and physical activity, carers were approximately 20% less likely to report that: they had the knowledge and skills to encourage healthy behaviours; the person they cared for would find it acceptable to talk about their behaviours, and; they felt confident to talk to the person they cared for about those behaviours. Additionally, for smoking and alcohol behaviours, 20% more carers reported that encouraging risk reduction could harm their relationship with the person with a mental illness, than was the case for fruit and vegetable consumption and physical activity; concerns echoed among carers in reference to addressing their family members’ tobacco consumption.² Future research is required to better understand these differing attitudes and potentially identify strategies to enable carers to positively influence smoking and alcohol behaviours in particular.

The study found that generally less than half of carers reported that the person they cared for expressed an interest in changing health risk behaviours (varying from 18.4% to 58.7% across behaviours); a perception that contrasts somewhat with previous research among people with a mental illness themselves, where generally higher proportions indicated interest in such change.^{4,11,17,18,28-31} Carer perceptions of a lack of interest in health risk behaviour change on the part of the person they care for may discourage them from considering they could or should provide behaviour change

support. Future research could explore this possibility, and might also investigate how carers might be supported to have conversations around health risk behaviour change that might elicit interest in doing so and minimise risk to the caring relationship.

Chapter 5 represents the first quantitative investigation of the extent to which carers seek to influence the health risk behaviours of people with a mental illness and the characteristics of carers that are associated with doing so. The findings suggest a large proportion of carers seek to influence such health risk behaviours but may have limited capability or confidence in doing so. Such findings suggest that carers have the potential to extend and reinforce public and clinical programs seeking to improve the health risk behaviours of people with a mental illness, however, additional support for carers may be required.

Chapter 6: Supporting change in chronic disease risk behaviours for people with a mental illness: A qualitative study of the experience of family carers

Chapter 6 aimed to explore family carers' experiences in addressing the health risk behaviours (smoking, harmful alcohol consumption, inadequate nutrition and inadequate physical activity) of their family members; existing barriers to addressing such behaviours, and; perceptions of potential strategies to increase their capacity to provide behaviour change support to the person for whom they provided care. These aims were addressed through a qualitative semi-structured focus group methodology with 31 carers of a person with a mental illness.

Through the discussion of carers' experiences, two main themes were identified: (1) health risk behaviour change support was an important concern for carers, and (2) carers perceived a bi-directional interaction between the health risk behaviours and the mental health of the person they cared for. Whilst most carers were actively engaged in

supporting the health risk behaviours of the person they cared for, carers acknowledged a need to prioritise the mental health and mental illness management of their family member over their physical health at times. Such a prioritisation has been previously reported by carers^{2,20,32} and mental health professionals.^{33,34}

The findings suggest a need for mental and general health services accessed by people with a mental illness to address the needs of family carers in addition to those of their clients with a mental illness. For example, participating carers reported a lack of attention to their own physical and mental health needs by services accessed by their family member; echoing previous research relating to the importance of carer need for physical and mental health support in order to continue in the caring role.^{32,35}

Carers also expressed a need for health services to provide more holistic care for people with a mental illness, and a desire for additional support from health services to increase their own capability to support behaviour change interventions provided by health services. Such support was requested by carers to be tailored to the carer's particular circumstances and relationship with the person they cared for. Despite carers reporting their attempts to address the health risk behaviours of their family member with a mental illness, multiple barriers to such care were identified; with different barriers being evident across the behaviours and particularly so for smoking and alcohol as compared to nutrition and physical activity.

Chapter 6 was the first research to qualitatively explore carers' experience of addressing all four health risk behaviours for the person they cared for, the barriers influencing their capacity to address the health risk behaviours, and potential supportive strategies to assist them in doing so. Further research is required to investigate the type of support or interventions carers would find useful and effective. Given carers' reported

need to maintain their own physical health which is currently not attended to by services accessed by their family member, such research could take a dyadic approach³⁶ and address shared health risk behaviours between carers and people with a mental illness concurrently. Additionally, some carers reported improvements in their family member's health risk behaviours as a result of accessing psycho-social support services through their National Disability Insurance Scheme plans.³⁷⁻³⁹ Further research is needed to explore the potential of such services to support the health risk behaviours of clients with a mental illness.

Implications for Research

The research findings summarised in the preceding section make an important addition to a limited body of research addressing the need for health risk behaviour prevention care for people with a mental illness and particularly regarding the role of carers in the delivery of such care. Although the research findings strengthen the evidence base in these areas, the findings also highlight the need for additional research to inform policy and practice decision-making. Based on the findings of the studies undertaken within this thesis, three areas are suggested as foci of future research with the potential to contribute to reducing health risk behaviours and resultant health inequity for people with a mental illness:

1. How adherence to preventive care policies in mental health services might be increased;
2. How the capacity of family carers to support health risk behaviour change might be facilitated, and;
3. How people with a mental illness themselves perceive health risk behaviour change and what may be helpful in supporting them.

1. How adherence to preventive care policies in mental health services might be increased

This thesis elucidated a lack of adherence to policies for the delivery of preventive care in mental health services resulting in sub-optimal and variable provision of preventive care by mental health services (Chapter 3), despite the existence of policies and guidelines⁴⁰⁻⁵⁵ advocating the provision of such care. Both consumers of mental health services (psychiatric inpatients specifically, Chapter 2) and family carers (Chapters 4, 6) were found to consider the provision of such care to be highly acceptable, and have an expectation that mental health services provide care to address health risk behaviours to their clients. Existing smoking cessation guidelines have also been suggested to inadequately report details such as methodology, stakeholder involvement and the competing interests of authors.⁵⁶ It may be that inadequate or inconsistent reporting between guidelines could further confusion and contribute to sub-optimal provision of care. Consequently, the findings of included chapters demonstrate the need for further implementation research to determine the most effective methods of increasing care provision to address health risk behaviours experienced by people with a mental illness.⁵⁷ Whilst beyond the scope of this thesis, future research could also seek to further explore the effectiveness of public health interventions at the societal level to address the health risk behaviours of people with a mental illness. For instance, mass media campaigns aimed at reducing smoking among the general population have been found to have no impact on the smoking behaviours of people with a mental illness.^{58,59}

Previous research conducted in mental health settings has identified multiple barriers to the provision of preventive care at the clinician and system/service level. Clinician characteristics that have been reported as barriers to preventive care provision include: a prioritisation of mental health care over health risk behaviours;^{12,13} a lack of

confidence in providing preventive care;^{60,61} perceptions of client lack of interest in improving risk behaviours,^{12,15,61-63} and; a lack of client receptivity to receive behaviour change support.^{61,64} System level factors reported to impede preventive care provision include a lack of: time to provide such care;^{65,66} integration and communication of physical and mental health care services (given the established role of general practitioners in providing preventive care,^{49,67} a collaborative approach between mental health services and general practice is recommended^{68,69});^{61,65,70} training in the provision of care;^{12,71} organisational policies regarding the recording of care provision,^{61,70} and; reminders to facilitate care provision.^{66,72}

Various strategies have been tested to reduce health professional burden in providing preventive care and increase its provision. Such strategies that have resulted in improved provision of care across health services generally, include: use of the '5As' model, or the modified '2As and R' (Ask, Advise, Refer) model;^{73,74} the incorporation of tools such as prompts, recording and arrange/referral protocols,⁷⁵⁻⁷⁷ and; training in the provision of care and referral options.⁷⁸ However, the effectiveness of such strategies for increasing care provision in mental health services specifically remains unclear. For example, a multiple baseline trial investigating the effectiveness of a practice change intervention to increase preventive care provision (utilising the 2As and R framework) for four health risk behaviours in 19 Australian community mental health services found limited effectiveness of the intervention.⁷⁹ The intervention utilised a variety of clinical practice change strategies that were designed to increase the provision of preventive care by mental health clinicians in routine mental health consultations. Strategies included: clinician training in preventive care, provision of practice change resources and support, monitoring and feedback of care provision, implementation of a policy on care provision, and tailoring of electronic medical records to facilitate provision and recording of care

for each client. Despite the utilisation of such evidence-based practice change strategies however, the intervention was effective in increasing just 1 of 16 preventive care outcome measures (provision of assessment for all four risk behaviours combined, from 18% to 29%); suggesting a greater understanding of the barriers and contextual characteristics relevant to increasing preventive care in mental health services specifically is required.

An alternative strategy to preventive care being incorporated into routine mental health consultations involves the embedding of a specialist preventive care provider in mental health services with a role of providing preventive care.⁸⁰⁻⁸³ Descriptions of the role such a specialist preventive care provider may have in mental health services varies, sometimes for instance from being responsible for encouraging or supplementing the provision of preventive care by mental health clinicians during usual care;^{84,85} or in other cases providing preventive care themselves through additional service contacts.^{81,82,86,87} Research has also varied in the reporting of outcomes to measure the effectiveness of such a specialist provider where studies have reported outcomes relevant to: provision of preventive care for health risk behaviours or metabolic risk factors;^{81,82,84,85} client change in health risk behaviours;⁸⁷ or client access to and quality of primary care services.^{85,86}

Just four randomised controlled trials investigating the efficacy of such a specialist preventive care provider in community mental health services have been reported;^{82,84,86,87} and one study (a retrospective cohort study) could be located that investigated such a provider in a psychiatric inpatient setting.⁸⁵ The studies, conducted in the US,^{82,86} Australia,^{85,87} and UK,⁸⁴ reported an increase in the provision of preventive care in terms of assessment and monitoring of risk behaviours,^{82,84-86} however subsequent change in individual risk behaviours were not reported⁸² or no significant improvements in risk behaviours were found when compared to usual treatment.⁸⁶ One study reported improvements in health risk behaviours in descriptive terms only and rates of preventive

care provision were not reported.⁸⁷ Additionally, two studies reported an increase in assessment and screening for risk behaviours, however no significant increases in referrals to behaviour change support services were found.^{84,85} Such studies suggest whilst increases in assessment may be gained, additional barriers may exist to providing behaviour change support and treatment for health risk behaviours. Strategies which link assessment with a responsibility to provide treatment to address health risk behaviours may be beneficial to increasing the provision of support to improve health risk behaviours once identified by assessment.

While the design of health behaviour change interventions to address individual and system level barriers has been found to be more effective when interventions are informed by behaviour change theory^{88,89} and based on evidence-based principles of behaviour change;⁹⁰ a number of systematic reviews have indicated that behaviour change theories are rarely drawn upon.^{91,92} The Theoretical Domains Framework (TDF) is a tool developed to facilitate the incorporation of theory into behaviour change practice and explores potential barriers to the implementation of practices through an integrated framework of synthesised behaviour change constructs.⁹³ The framework is informed by 33 behaviour change theories and consists of 84 component constructs grouped across 14 behaviour change domains (including: knowledge, skills, environmental context and resources, and social and professional role and identity).^{93,94} The framework has been applied to identify barriers to the implementation of evidence-based guidelines in health services for multiple health issues.⁹⁴⁻⁹⁹ Utilisation of such a framework has been recommended to assist in the accurate identification of barriers to preventive care provision, inform interventions to address such barriers, and subsequently assess whether barriers are altered or eliminated after the implementation of an intervention.^{100,101} Future

research might explore the value of this tool in doing so within the context of mental health services.

Findings from both previous implementation research and this thesis suggest that further research is required to develop strategies to overcome the barriers to the provision of preventive care in mental health settings. In particular, further implementation research is required to identify and understand mental health service characteristics that impede on the provision of preventive care; and subsequently tailor practice change intervention strategies to address such characteristics within mental health services.

2. How the capacity of family carers to support health risk behaviour change might be facilitated

This thesis provides an initial exploration of the potential involvement of family carers in addressing the health risk behaviours of those they care for with a mental illness (Chapters 4 to 6). The findings of these studies highlight the need for continued research in this area in order to gain further understanding of carer capacity to support health risk behaviour change.

Chapter 6 and previous research outlined in Chapter 1^{2,102-105} identified the desire of carers to be involved with mental and general health service care, and the potential benefits that might result for consumers- including the possible strengthening of support available to consumers for modifying health risk behaviours. The reported lack of engagement with carers by mental health services in spite of government and mental health service policies and guidelines advocating for carer engagement in mental health care planning, delivery and review¹⁰⁶⁻¹¹⁰ may reflect a lack of knowledge of how to effectively engage carers in service planning and provision;¹¹¹⁻¹¹³ and accordingly, a need for further research is required to explore strategies for doing so.

A number of systematic reviews have also identified other barriers to greater engagement of carers with mental health services, and some strategies for addressing them. Identified barriers include: ineffective communication between staff and carers resulting in carer absence from consumer care planning discussions;^{113,114} limited capacity of carers to attend care planning meetings due to other commitments;^{113,115-117} confidentiality and its impact on communication between families and staff;^{114,117} unmet staff needs for training (such as lack of skills or confidence from staff to communicate with carers);¹¹⁵⁻¹¹⁷ unsupportive systems/services (such as unsupportive attitudes of managers or a lack of recognition by professionals);^{116,117} family/client interest and readiness (for example, family members not identifying as caregivers), and;^{115,117} family support needs/preferences (such as differing needs of support intensity for each family and members within the family).¹¹⁵ Strategies for addressing identified barriers included: addressing confidentiality and privacy between stakeholder and mental health services, and; a clarification of roles and responsibilities for all stakeholders.¹¹⁷ Such reviews provide a wide range of potential barriers to carer engagement in health services and possible strategies for addressing them, however there are limits to the scope of previous reviews, either by the lack of focus on carers or the types of services/engagement explored. In addition, many studies identifying barriers have been from the clinician or service perspective rather than the family or carer. Use of a framework such as the TDF^{93,94}- encompassing the perspectives of carers, consumers, and health care service providers in order to capture relevant barriers for all stakeholders – could valuably inform the development of strategies to increase carer engagement and participation in health care service planning, provision and review of services for people with a mental illness.

In addition to exploring barriers to carer engagement in health care services generally, the findings of this thesis suggest value in future research comprehensively

investigating barriers impacting carer capacity to support health risk behaviour change specifically; and perhaps for each risk behaviour independently. The findings of Chapters 4 to 6 for example identified that: carers were concerned about the impact of the four health risk behaviours on their family member's physical and mental health; that they sought to positively influence the health risk behaviours of their family members; that there were barriers that impeded their ability to do so; that they desired health services to address health risk behaviours, and; that they required support and information from services accessed by their family members to increase their capacity to support behaviour change. Such findings were extended by those of Chapters 5 and 6 where variation was observed in carers' perceptions of their capabilities for different health risks, for example, for nutrition and physical activity as compared to smoking and alcohol consumption.

Future research could also investigate carer's preferred mode of delivery for support to increase their capacity to provide behaviour change support. While in Chapter 5 the majority of carers reported they have the knowledge and skills to encourage healthy behaviours of the person they care for, just 30% to 51% agreed it was possible to positively influence behaviour change. Findings of carer need for support from services in encouraging change in the health risk behaviours of the person they care for is consistent with previous research.^{2,3} It may be that interventions conducted within the context of health services may be acceptable to carers and may facilitate improved communication between carers and service providers, and further research could explore this possibility among carers and service providers. Alternatively, as carers have reported a lack of assistance from health services (Chapter 6)^{2,3} to address health risk behaviours among those they care for, supportive interventions delivered via a different means may also be preferred.

The studies contained within this thesis and previous research have provided preliminary explorations of barriers impacting carers' capacity to support health risk behaviour change. However, given the scant research to date (Chapter 6),^{2,3} and small sample sizes in some studies (N<150, Chapter 5, 6),^{2,3} and focus on smoking specifically,^{2,118} existing research is limited. Future research could aim to assess a wide range of barriers and explore their relevance to each of the behaviours individually, with large, representative samples of carers.

2.1. Considerations for interventions aimed at increasing carer capacity to support behaviour change

Carers in Chapter 6 cited a need to, at times, prioritise acute mental health care over health risk behaviours, as has been found in other qualitative research among family carers.^{2,20,32} Such findings suggest that content of future supportive interventions might include acknowledgment and acceptance of the need to attend to mental health symptoms when the family member is acutely unwell. Such a consideration may inform the design of interventions to allow flexibility to be sensitive to the varying mental health needs of a family member. Future research could explore such speculation.

One potential means of supporting carers to provide health behaviour change assistance could be to provide information and support through a telephone service. Such a medium was proposed to facilitate easier access to health care for carers themselves in the NSW 2014-2019 Carers Strategy due to the limited time available to carers to attend service appointments in addition to their caring responsibilities.¹¹⁹ Similarly, carers may find such a service acceptable to receive support to increase their capacity to provide behaviour change support to people with a mental illness. A telephone service could have the potential to address numerous barriers identified above. For instance, such a service could: provide health risk behaviour change information to carers as requested by health

services; be individualised to provide support and information for health risk behaviours identified as relevant by the carer, and; be available for carers to access when they perceive appropriate (such as, when their family member's mental health symptoms are managed and they are motivated to address health risk behaviours). Further research is required to determine the feasibility and acceptability of such a service by carers of people with a mental illness.

When developing interventions for carers to support health risk behaviour change in their family members with a mental illness, interventions may benefit from the use of a holistic dyadic intervention approach; where the focus of the intervention is on changing the health risk behaviours of both the person with a mental illness and the carer. As discussed in Chapter 1, social influence theory and the ecological theory of health behaviour support such an approach as the latter suggests an individual's behaviour is influenced by their social environment and the attitudes and behaviours of those within that environment;²⁷ supported by randomised control trial research among general population samples where greater weight loss has been achieved when family or friends are enrolled in weight loss programs together.^{120,121} Among people with a mental illness, research suggests the recruitment of a family member or friend can result in increased efforts to address health risk behaviours.¹²²⁻¹³² Furthermore, joint attempts to improve health risk behaviours among carers may be of benefit given their reported poor physical health, often a direct result of the caring role.^{119,133-139} With respect to research reporting the prevalence of health risk behaviours among family carers of people with a mental illness specifically (excluding carers of people with dementia), only two studies could be located. A small sample (N = 42) of Australian carers of young people with psychosis reported 24% were daily smokers and 31% engaged in inadequate physical activity.¹⁴⁰ Another Australian survey of (N=144) carers of people with any mental illness reported:

74.8% consumed inadequate quantities of fruit and vegetables; 57.6% engaged in inadequate physical activity; 36.3% engaged in harmful alcohol consumption, and; 11.8% were current smokers.¹⁴¹ For cohabiting carers and persons with a mental illness in particular, a dyadic approach may have the potential to improve the health behaviours of both parties, however research is needed among carers and people with a mental illness to further explore this potential intervention approach.

2.2. Professional carers: A potential source of behaviour change support?

This thesis has focused on the potential of family carers to positively influence the health risk behaviours of people with a mental illness. A further opportunity exists for behaviour change through professional care organisations such as non-government organisations (NGOs) that provide psycho-social support services to people with a mental illness. Professional carers are a growing proportion of individuals who provide care and assistance to people with a mental illness. As such, research is needed to explore the extent to which this population has the potential to influence behaviour change in people with a mental illness and if they currently provide such support. Internationally and in Australia, the shift in mental health service funding and structure has led to a decrease in provision of mental health care in inpatient settings, with a larger proportion of care in recent years being provided in the community, by community mental health services, family carers, and NGOs focused on providing psycho-social support to clients.¹⁴²⁻¹⁴⁴ Such a shift is evidenced by an objective in the World Health Organisation's 2013-2030 Mental Health Action Plan to provide wide-ranging and responsive mental health and social care services in community-based settings.¹⁴² This shift has created a larger professional carer workforce in Australia; where many people with a mental illness will continue to access such support in the future, largely under the National Disability Insurance scheme (an agency facilitating support to people with a range of disabilities,

including mental illness, to have a positive impact on everyday life).³⁷⁻³⁹ For instance, data from the Australian Bureau of Statistics suggests that disability care needs for people with mental and behavioural disorders will more than double by the year 2031;¹⁴⁵ suggesting a continually growing role for both family and professional carers in the care and support of people with a mental illness. In addition to family carers, the emergence of professional carers as increasingly important stakeholders in the provision of care and support to people with a mental illness, supports the requirement for research that explores the extent to which this group of carers also currently provide health risk behaviour change support to people with a mental illness, and their potential to do so.

3. How people with a mental illness themselves perceive health behaviour change and what may be helpful in supporting them

The research in this thesis and elsewhere^{4,6,11,16-18} confirms the desire of mental health consumers to modify their health risk behaviours and for support in doing so. However, there remains a paucity of research seeking consumers' views directly in terms of what form of support they would find most acceptable and helpful. Scant research has explored the views of people with a mental illness regarding health risk behaviour change; their interest, barriers, need for support, what form of support and from whom support should be provided, especially with particular reference to the role of their carer. Research is required which explores the perspectives of people with a mental illness in order to further inform the development of practice change interventions to increase care provision.

In addition to investigating the provision of preventive care for health risk behaviours by mental health services, this thesis also added to the limited research on the views of clients of mental health services towards being provided care for such risk behaviours in the context of mental health care (Chapters 1 and 2). Findings presented in

Chapter 2, that psychiatric inpatients are interested in improving their health risk behaviours and find it acceptable to receive behaviour change support during an inpatient stay, are consistent with a growing body of research conducted in other mental health settings.^{4,6,11,16-18} For instance, people with a mental illness have identified a link between physical and mental health,^{146,147} and are concerned about physical fitness, weight gain and the influence of psychotropic medication on physical health.¹⁴⁷⁻¹⁴⁹ However, qualitative and descriptive studies have suggested people with a mental illness may have limited knowledge of physical activity and dietary guidelines to maintain optimum health, and may not identify tobacco smoking as a health concern.^{17,147,149,150} Such findings suggest a need to ensure mental health service clients are provided with information on health risk behaviours.

Limited research has also explored how mental health service clients would prefer to receive information on health risk behaviours. Qualitative research has reported clients have expressed a desire for their physical health to be attended to during mental health service visits,^{147,151} however scarce research exists on client preferences for modality of care delivery. The limited research exploring this to date has reported that clients would like to receive such care from respectful clinicians with whom they have established positive rapport.¹⁴⁶ Alternatively peer support (support from people who have lived experience with mental illness and health risk behaviour change) has also been identified as acceptable and efficacious in supporting smoking cessation among people with a mental illness,^{152,153} which may represent another potential mode of support to be explored further.

Additionally, qualitative research suggests there may be a preference for individually tailored and verbal information rather than written,¹⁴⁷ when communicating with clients about health risk behaviours. An Australian qualitative study of 40 clients of

community and inpatient mental health settings reported inconsistent receipt of preventive care by clinicians and expressed a desire to receive tailored information (educational sessions) and health risk behaviour change support (practical case management and communication with other stakeholders and emotional support), particularly in times where they experienced low motivation to change.¹⁴⁷ Previous research from a psychotropic medication information programme conducted with 36 Australian inpatients found a combined approach of verbal and written provision of information was most effective in knowledge transfer about medications to inpatients and carers.¹⁵⁴ Such findings should be disseminated to mental health service providers as they may have relevance to the provision or communication of information pertaining to preventive care for health risks. Individually tailoring information and support, provided by clinicians with whom client have established rapport, may also be appropriate given the suggestion that the provision of support to change health risk behaviours may require long-term support or interventions.¹⁵⁵⁻¹⁵⁷ Given the acknowledged benefit of co-design (the engagement of clients and carers in all aspects of design and development of health services, practices, and systems) in mental health services,^{111,158-160} such research should be inclusive of people with a mental illness to ensure their views and preferences are represented when developing practice change interventions.

Limitations

A number of limitations should be considered with respect to the studies contained in this thesis, and are noted in each respective chapter. There are also some limitations however which apply to the research more broadly including, firstly, the research reported in Chapters 2, and 4 to 6 was conducted in one regional local health district in NSW, Australia and with reference to mental health services in the Australian service and cultural context. The generalisability of findings to other jurisdictions is unknown.

Secondly, all chapters rely in part on self-reported outcome data leaving results potentially vulnerable to participant recall and/or social desirability biases. Thirdly, as the studies undertaken with family carers of people with a mental illness (Chapters 4 to 6) contribute to a limited and emerging body of literature, the studies were largely exploratory. Further research is needed to investigate the role of family carers in influencing the health risk behaviours of people they care for with a mental illness in order to confirm, or otherwise, the current findings.

Strengths and Key Contributions to the Field

The studies contained in this thesis contribute to the existing research documenting the health inequities experienced by people with a mental illness and efforts to address such inequities. Thesis chapters explored: the prevalence of health risk behaviours among people with a mental illness; the extent to which such health risk behaviours are addressed in mental health services; the need to consider the family carer role in both advocating for preventive care by health services and their potential to extend such care in the home environment, and; finally carers' perceptions towards this potential role, including any barriers and potential supports to increase their capacity to provide behaviour change support.

Chapters 2 and 3 took a comprehensive approach, investigating all four health risk behaviours where previous research has predominately focused on smoking. Chapter 2 assessed the prevalence of all four health risk behaviours among a large sample of Australian psychiatric inpatients; their interest in changing health risk behaviours, and acceptability to receive behaviour change support during an inpatient stay. Chapter 3 provided the first qualitative and quantitative synthesis of the international published literature reporting care provided to address all four health risk behaviours by the 5A's¹⁶¹ care elements across a range of mental health services.

Chapters 4 to 6 provided the first investigations of the role of family carers in influencing the health risk behaviours of those they care for with a mental illness. Chapter 4 details the first quantitative exploration of carers' expectations of smoking cessation care by general and community health services. Whilst most literature conducted among carers to date has focused on either smoking or broad physical health, Chapters 5 and 6 explored all four health risk behaviours; an important addition to the field given the burden of disease associated with all.^{40,162-165}

Conclusions

This thesis elucidated the need to: investigate the prevalence of risk and interest in changing health risk behaviours among psychiatric inpatients given the paucity of previous research, and; synthesise the existing literature on the prevalence of the provision of preventive care to address health risk behaviours by mental health services. Given family carers recognised role as stakeholders in mental health service planning and care provision, a need was also identified to explore: the expectations of family carers with regards to the provision of preventive care by health and community services accessed by people with a mental illness, and; their perceptions of their current role in supporting health risk behaviour change, any barriers to providing such support and potential supportive strategies to increase carer capacity to support behaviour change in people with a mental illness. Several cross-sectional quantitative surveys, a systematic review and meta-analysis, and qualitative focus group methodologies were employed to investigate such phenomena. The results of this thesis support and extend on previous research conducted among people accessing mental health services, mental health service staff, and family carers of people with a mental illness. They further demonstrate the need to address health risk behaviours among people with a mental illness given their interest in change and acceptability to receive behaviour change support; where family carers may

have the potential to support behaviour change in the home environment and extend service interventions. However, to further understand how best to address the health risk behaviour inequities experienced by people with a mental illness, future research should consider: 1) aspects relevant to increasing clinician adherence to preventive care policies in mental health services; 2) further understanding the capacity of family carers to support health risk behaviour change, and; 3) exploring health risk behaviour change among people with a mental illness from their own perspective. Once a clearer understanding of barriers and facilitators from all stakeholder perspectives is obtained, effective strategies to ensure improved health risk behaviours for people with mental illness may be a reality.

References

1. Mavundla TR, Toth F, Mphelane ML. Caregiver experience in mental illness: a perspective from a rural community in South Africa. *International journal of mental health nursing*. 2009;18(5):357-367.
2. Lawn S, McNaughton D, Fuller L. What carers of family members with mental illness say, think and do about their relative's smoking and the implications for health promotion and service delivery: a qualitative study. *International Journal of Mental Health Promotion*. 2015;17(5):261-277.
3. Aschbrenner KA, Pepin R, Mueser KT, et al. A mixed methods exploration of family involvement in medical care for older adults with serious mental illness. *Int J Psychiatry Med*. 2014;48(2):121-133.
4. Bartlem K, Bowman J, Bailey J, et al. Chronic disease health risk behaviours amongst people with a mental illness. *Australian and New Zealand Journal of Psychiatry*. 2015;49(8):731-741.
5. Dipasquale S, Pariante CM, Dazzan P, Aguglia E, McGuire P, Mondelli V. The dietary pattern of patients with schizophrenia: A systematic review. *Journal of Psychiatric Research*. 2013;47(2):197-207.
6. Filia SL, Baker AL, Richmond R, et al. Health behaviour risk factors for coronary heart disease (CHD) in smokers with a psychotic disorder: baseline results. *Mental Health and Substance Use*. 2011;4(2):158-171.
7. Janney CA, Fagiolini A, Swartz HA, Jakicic JM, Holleman RG, Richardson CR. Are adults with bipolar disorder active? Objectively measured physical activity and sedentary behavior using accelerometry. *J Affect Disord*. 2014;152-154:498-504.

8. Kilbourne AM, Morden NE, Austin K, et al. Excess heart-disease-related mortality in a national study of patients with mental disorders: identifying modifiable risk factors. *General hospital psychiatry*. 2009;31(6):555-563.
9. Kilian R, Becker T, Kruger K, Schmid S, Frasch K. Health behavior in psychiatric in-patients compared with a German general population sample. *Acta psychiatrica Scandinavica*. 2006;114(4):242-248.
10. Morgan VA, McGrath JJ, Jablensky A, et al. Psychosis prevalence and physical, metabolic and cognitive co-morbidity: data from the second Australian national survey of psychosis. *Psychological medicine*. 2014;44:2163-2176.
11. Prochaska JJ, Fromont SC, Delucchi K, et al. Multiple risk-behavior profiles of smokers with serious mental illness and motivation for change. *Health Psychology*. 2014;33(12):1518-1529.
12. Chwastiak L, Cruza-Guet MC, Carroll-Scott A, Sernyak M, Ickovics J. Preventive counseling for chronic disease: missed opportunities in a community mental health center. *Psychosomatics*. 2013;54(4):328-335.
13. Johnson K, Fry C. The attitudes and practices of community managed mental health service staff in addressing physical health: Findings from a targeted online survey. *Advances in Mental Health*. 2013;11(3):163-171.
14. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
15. Robson D, Haddad M, Gray R, Gournay K. Mental health nursing and physical health care: a cross-sectional study of nurses' attitudes, practice, and perceived

- training needs for the physical health care of people with severe mental illness. *International journal of mental health nursing*. 2013;22(5):409-417.
16. Bartlem K, Bowman J, Freund M, et al. Acceptability and receipt of preventive care for chronic-disease health risk behaviours reported by clients of community mental health services. *Psychiatric Services*. 2015;66(8):857-864.
 17. Buhagiar K, Parsonage L, Osborn DP. Physical health behaviours and health locus of control in people with schizophrenia-spectrum disorder and bipolar disorder: a cross-sectional comparative study with people with non-psychotic mental illness. *BMC psychiatry*. 2011;11:104.
 18. Ussher M, Stanbury L, Cheeseman V, Faulkner G. Physical activity preferences and perceived barriers to activity among persons with severe mental illness in the United Kingdom. *Psychiatric Services*. 2007;58(3):405-408.
 19. Wye P, Bowman J, Wiggers J, Freund M, Wolfenden L, Stockings E. Treating nicotine dependence in mental health hospitals. *Mental Health and Substance Use*. 2011;4(2):130-143.
 20. Missen RL, Brannelly T, Newton-Howes G. Qualitative exploration of family perspectives of smoke-free mental health and addiction services. *International journal of mental health nursing*. 2013;22(4):294-303.
 21. Wye P, Bowman J, Wiggers J, et al. Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of psychiatric and mental health nursing*. 2010;17(4):319-327.
 22. Stockings EA, Bowman JA, Bartlem KM, et al. Implementation of a smoke-free policy in an inpatient psychiatric facility: Patient-reported adherence, support, and receipt of nicotine-dependence treatment. *International journal of mental health nursing*. 2015;24(4):342-349.

23. Lancet Editorial. Smoke alarm: mental illness and tobacco. *The Lancet*. 2013;381(9872):1071.
24. Royal College of Physicians, Royal College of Psychiatrists. Smoking and mental health. Royal College of Psychiatrists Council Report CR178. In: London: Royal College of Physicians; 2013.
25. Taylor G, McNeill A, Girling A, Farley A, Lindson-Hawley N, Aveyard P. Change in mental health after smoking cessation: systematic review and meta-analysis. *Bmj*. 2014;348:g1151.
26. El-Mallakh P, Yates BE, Adkins S. Family caregiving for adults with schizophrenia and diabetes mellitus. *Issues in mental health nursing*. 2013;34(8):566-577.
27. Rimer BK, Glanz K. Theory at a glance: A guide for health promotion practice. In: Washington DC: National Cancer Institute; 2005.
28. Bartlem K, Bailey J, Metse AP, et al. Do mental health consumers want to improve their long-term disease risk behaviours? A survey of over 2000 psychiatric inpatients. *International journal of mental health nursing*. 2017.
29. Stockings E, Bowman J, McElwaine K, et al. Readiness to quit smoking and quit attempts among Australian mental health inpatients. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2013;15(5):942-949.
30. Siru R, Hulse GK, Tait RJ. Assessing motivation to quit smoking in people with mental illness: a review. *Addiction*. 2009;104(5):719-733.
31. Aschbrenner KA, Brunette MF, McElvery R, et al. Cigarette smoking and interest in quitting among overweight and obese adults with serious mental illness

- enrolled in a fitness intervention. *The Journal of nervous and mental disease*. 2015;203(6):473-476.
32. Happell B, Wilson K, Platania-Phung C, Stanton R. Physical health and mental illness: Listening to the voice of carers. *Journal of Mental Health*. 2016.
 33. Connolly M, Floyd S, Forrest R, Marshall B. Mental health nurses' beliefs about smoking by mental health facility inpatients. *International journal of mental health nursing*. 2013;22(4):288-293.
 34. Wye P, Bowman J, Wiggers J, et al. Total smoking bans in psychiatric inpatient services: a survey of perceived benefits, barriers and support among staff. *BMC public health*. 2010;10:372.
 35. McCann TV, Bamberg J, McCann F. Family carers' experience of caring for an older parent with severe and persistent mental illness. *International journal of mental health nursing*. 2015;24(3):203-212.
 36. Thompson L, Walker AJ. The dyad as the unit of analysis: Conceptual and methodological issues. *Journal of Marriage and the Family*. 1982;44(4):889-900.
 37. Parliament of Australia. National Disability Insurance Scheme. In: Families H, Community Services and Indigenous Affairs, ed. 20. Canberra: Parliament of Australia; 2013.
 38. Independent Advisory Council. IAC advice on implementing the NDIS for people with mental health issues. In: Services ADoH, ed2014.
 39. COAG Disability Reform Council. National Disability Insurance Scheme quarterly actuarial report. In: Services ADoH, ed2016.
 40. World Health Organisation. *2008-2013 action plan for global strategy for the prevention and control of noncommunicable diseases*. Geneva2008.

41. United States Preventive Services Task Force. The guide to clinical preventive services 2014: Recommendations of the U.S. Preventive Services Task Force. Report No.: 14-05158. In. Rockville, MD: Agency for Healthcare Research and Quality; 2014.
42. United States Preventive Services Task Force. Counseling and interventions to prevent tobacco use and tobacco-caused disease in adults and pregnant women: U.S. Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med.* 2009;150(8):551-555.
43. Moyer VA. Screening and behavioral counseling interventions in primary care to reduce alcohol misuse: U.S. preventive services task force recommendation statement. *Ann Intern Med.* 2013;159(3):210-218.
44. National Institute for Health and Care Excellence. Physical activity: Encouraging activity in all people in contact with the NHS. NICE quality standard 84. In: National Institute for Health and Care Excellence; 2015.
45. National Institute for Health and Care Excellence. Preventing type 2 diabetes: Risk identification and interventions for individuals at high risk. NICE public health guidance 38. In: National Institute for Health and Care Excellence; 2012.
46. Department of Health HM Government. No health without mental health: A cross-government mental health outcomes strategy for people of all ages. In: Health Do, ed. London: HM Government; 2011.
47. Ministry of Health. New Zealand Smoking Cessation Guidelines. In. Wellington: Ministry of Health; 2014.
48. National Preventive Health Taskforce. Australia: The healthiest country by 2020 - National Preventative Health Strategy - the roadmap for action. In. Canberra, Australia 2010.

49. Royal Australian College of General Practitioners. Smoking cessation guidelines for Australian general practice. Practice handbook. In: Ageing DoHa, ed. Canberra: Australian Government; 2014.
50. Royal Australian College of General Practitioners. *Guidelines for preventive activities in general practice. 9th edn.* East Melbourne, Vic: RACGP; 2016.
51. Royal Australian and New Zealand College of Psychiatrists. Keeping body and mind together. Improving the physical health and life expectancy of people with serious mental illness. In. Melbourne, Vic: RANZCP; 2016.
52. Queensland Health. The health of Queenslanders 2008: Prevention of chronic disease. Second report of the chief health officer Queensland. In. Brisbane: Queensland Health; 2008.
53. Department of Health Victoria. Victorian public health and wellbeing plan 2001-2015. In. Melbourne: Prevention and Population Health Branch, Victorian Government, Department of Health; 2011.
54. Hunter New England Local Health District. Preventive Care Area Policy Statement, HNEH Pol 10_01. In: Hunter New England Health; 2010.
55. New South Wales Health. Managing nicotine dependence: A guide for NSW Health staff. In. North Sydney: New South Wales Ministry of Health; 2015.
56. Sharma R, Alla K, Pfeffer D, et al. An appraisal of practice guidelines for smoking cessation in people with severe mental illness. *Australian & New Zealand Journal of Psychiatry.* 2017;51(11):1106-1120.
57. Deenik J, Czosnek L, Teasdale SB, et al. From impact factors to real impact: Translating evidence on lifestyle interventions into routine mental health care. *Translational Behavioral Medicine.* 2019.

58. Nonnemaker J, Allen J, Davis K, Kamyab K, Duke J, Farrelly M. The influence of antismoking television advertisements on cessation by race/ethnicity, socioeconomic status, and mental health status. *PloS one*. 2014;9(7):e102943.
59. Thornton L, Baker A, Johnson M, Kay-Lambkin F. Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*. 2011;4(2):105-115.
60. Johnson JL, Malchy LA, Ratner PA, et al. Community mental healthcare providers' attitudes and practices related to smoking cessation interventions for people living with severe mental illness. *Patient education and counseling*. 2009;77(2):289-295.
61. Price JH, Ambrosetti LM, Sidani JE, Price JA. Psychiatrists' smoking cessation activities with Ohio community mental health center patients. *Community mental health journal*. 2007;43(3):251-266.
62. Happell B, Scott D, Platania-Phung C, Nankivell J. Should we or shouldn't we? Mental health nurses' views on physical health care of mental health consumers. *International journal of mental health nursing*. 2012;21(3):202-210.
63. Hyland B, Judd F, Davidson S, Jolley D, Hocking B. Case managers' attitudes to the physical health of their patients. *Australian and New Zealand Journal of Psychiatry*. 2003;37(6):710-714.
64. Ashton M, Lawn S, Hosking JR. Mental health workers' views on addressing tobacco use. *Australian & New Zealand Journal of Psychiatry*. 2010;44(9):846-851.
65. Organ B, Nicholson E, Castle D. Implementing a physical health strategy in a mental health service. *Australasian psychiatry : bulletin of Royal Australian and New Zealand College of Psychiatrists*. 2010;18(5):456-459.

66. Happell B, Scott D, Nankivell J, Platania-Phung C. Screening physical health? Yes! But...: nurses' views on physical health screening in mental health care. *Journal of Clinical Nursing*. 2013;22(15-16):2286-2297.
67. Royal Australian College of General Practitioners. Smoking, nutrition, alcohol, physical activity (SNAP): A population health guide to behavioural risk factors in general practice. In: Melbourne: Royal Australian College of General Practitioners; 2004.
68. Van den Broeck K, Remmen R, Vanmeerbeek M, Destoop M, Dom G. Collaborative care regarding major depressed patients: A review of guidelines and current practices. *Journal of Affective Disorders*. 2016;200:189-203.
69. Fredheim T, Danbolt LJ, Haavet OR, Kjøsberg K, Lien L. Collaboration between general practitioners and mental health care professionals: a qualitative study. *International Journal of Mental Health Systems*. 2011;5(1):13.
70. Dunbar L, Brandt T, Wheeler A, Harrison J. Barriers and solutions to implementing metabolic risk assessment in a secondary mental health service. *Australasian Psychiatry*. 2010;18(4):322-325.
71. Nash M. Physical care skills: a training needs analysis of inpatient and community mental health nurses. *Mental Health Practice*. 2005;9(4):20-23.
72. Anderson AE, Bowman JA, Knight J, et al. Smoking cessation care provision and support procedures in Australian community mental health centers. *Psychiatric Services*. 2013;64(7):707-710.
73. Schroeder SA. What to do with a patient who smokes. *Journal of the American Medical Association*. 2005;294(4):482-487.

74. Revell C, Schroeder S. Simplicity matters: Using system-level changes to encourage clinician intervention in helping tobacco users quit. *Nicotine and Tobacco Research*. 2005;7(S1):S67-S69.
75. Shojania K, Jennings A, Mayhew A, Ramsay C, Eccles M, Grimshaw J. The effects of on-screen, point of care computer reminders on processes and outcomes of care. In: Cochrane Database of Systematic Reviews. Issue 3. Art. No.: CD001096.; 2009.
76. Wolfenden L, Wiggers J, Campbell E, Knight J, Kerridge R, Spigelman A. Providing comprehensive smoking cessation care to surgical patients: the case for computers. *Drug and alcohol review*. 2009;28:60-65.
77. Krist A, Woolf S, Frazier C, et al. An electronic linkage system for health behavior counseling: Effect on delivery of the 5A's. *American journal of preventive medicine*. 2008;35(5S):S350-358.
78. Sheffer M, Baker T, Fraser D, Adsit R, McAfee T, Fiore M. Fax referrals, academic detailing, and tobacco quitline use: a randomized trial. *American journal of preventive medicine*. 2012;42(1):21-28.
79. Bartlem K, Bowman J, Freund M, et al. Effectiveness of an intervention in increasing the provision of preventive care by community mental health services: A non-randomised, multiple baseline implementation trial. *Implementation Science*. 2016;11(46).
80. Osborn DP, Nazareth I, Wright CA, King MB. Impact of a nurse-led intervention to improve screening for cardiovascular risk factors in people with severe mental illnesses. Phase-two cluster randomised feasibility trial of community mental health teams. *BMC health services research*. 2010;10:61.

81. McKenna B, Furness T, Wallace E, et al. The effectiveness of specialist roles in mental health metabolic monitoring: a retrospective cross-sectional comparison study. *BMC psychiatry*. 2014;14:234.
82. Druss BG, von Esenwein SA, Compton MT, Rask KJ, Zhao L, Parker RM. A randomized trial of medical care management for community mental health settings: the Primary Care Access, Referral, and Evaluation (PCARE) study. *Am J Psychiatry*. 2010;167(2):151-159.
83. Happell B, Stanton R, Hoey W, Scott D. Reduced ambivalence to the role of the cardiometabolic health nurse following a 6-month trial. *Perspect Psychiatr Care*. 2015;51:80-85.
84. Osborn DP, Nazareth I, Wright CA, King MB. Impact of a nurse-led intervention to improve screening for cardiovascular risk factors in people with severe mental illnesses. Phase-two cluster randomised feasibility trial of community mental health teams. *BMC health services research*. 2010;10:61.
85. Brown T, McKenna B, Furness T. Impact of a nurse practitioner role on metabolic monitoring completion and referrals for consumers admitted to the intensive care area of an acute inpatient psychiatric unit. *International journal of mental health nursing*. 2018;27:341-348.
86. Rogers ES, Maru M, Kash-MacDonald M, Archer-Williams M, Hashemi L, Boardman J. A randomised clinical trial investigating the effect of a healthcare access model for individuals with severe psychiatric disabilities. *Community mental health journal*. 2016;52:667-674.
87. Happell B, Stanton R, Platania-Phung C, McKenna B, Scott D. The cardiometabolic health nurse: physical health behaviour outcomes from a

- randomised controlled trial. *Issues in mental health nursing*. 2014;35(10):768-775.
88. Albarracin D, Gillette JG, Earl AN, Glasman LR, Durantini MR, MH H. A test of major assumptions about behaviour change: A comprehensive look at the effects of passive and active HIV-prevention interventions since the beginning of the epidemic. *Psychological bulletin*. 2005;131:856-897.
89. Noar SM, Zimmerman RS. Health behavior theory and cumulative knowledge regarding health behaviors: Are we moving in the right direction? *Health Ed Res: Theory Pract*. 2005;20:275-290.
90. Abraham C, Kelly MP, West R, Michie S. The UK national institute for health and clinical excellence public health guidance on behavior change: A brief introduction. *Psychology Health Med*. 2009;14:1-8.
91. Davies PS, Walker A, Grimshaw J. A systematic review of the use of theory in the design and implementation strategies and interpretation of the results of rigorous evaluations. *Implementation science : IS*. 2010;5:1-6.
92. Michie S, Prestwich A. Are interventions theory-based? Development of a theory coding scheme. *Heal Psychol*. 2010;29:1-8.
93. Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A. Making psychological theory useful for implementing evidence based practice: a consensus approach. *Quality & safety in health care*. 2005;14(1):26-33.
94. Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. *Implementation science : IS*. 2012;7:37.
95. McKenzie JE, French SD, O'Connor DA, et al. Implementing a clinical practice guideline for acute low back pain evidence-based management in general practice

- (IMPLEMENT): Cluster randomised controlled trial study protocol. *Implementation science : IS*. 2008;3(11).
96. McKenzie JE, O'Connor DA, Page MJ, et al. Improving the care for people with acute low-back pain by allied health professionals (the ALIGN trial): A cluster randomised trial protocol. *Implementation Science*. 2010;5(1):86.
 97. Dyson J, Lawton R, Jackson C, Cheater F. Does the use of a theoretical approach tell us more about hand hygiene behaviour? The barriers and levers to hand hygiene. *Journal of Infection Prevention*. 2010;12(1):17-24.
 98. Francis JJ, Stockton C, Eccles MP, et al. Evidence-based selection of theories for designing behaviour change interventions: using methods based on theoretical construct domains to understand clinicians' blood transfusion behaviour. *Br J Health Psychol*. 2009;14(Pt 4):625-646.
 99. Michie S, Pilling S, Garety P, et al. Difficulties implementing a mental health guideline: an exploratory investigation using psychological theory. *Implementation science : IS*. 2007;2:8.
 100. Litwin M. *How to measure survey reliability and validity*. Thousand Oaks, CA: Sage Publications, Inc; 1995.
 101. Bellg AJ, Borrelli B, Resnick B, et al. Enhancing treatment fidelity in health behavior change studies: best practices and recommendations from the NIH Behavior Change Consortium. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*. 2004;23(5):443-451.
 102. Ewertzon M, Andershed B, Svensson E, Lutzen K. Family members' expectation of the psychiatric healthcare professionals' approach towards them. *Journal of psychiatric and mental health nursing*. 2011;18(2):146-157.

103. Harvey C, O'Hanlon B. Family psycho-education for people with schizophrenia and other psychotic disorders and their families. *The Australian and New Zealand journal of psychiatry*. 2013;47(6):516-520.
104. McAuliffe D, Andriske L, Moller E, O'Brien M, Breslin P, Hickey P. "Who cares?" An exploratory study of carer needs in adult mental health. *Australian e-Journal for the Advancement of Mental Health*. 2009;8(1):1-12.
105. Lawn S, McMahon J. Experiences of family carers of people diagnosed with borderline personality disorder. *Journal of psychiatric and mental health nursing*. 2015;22(4):234-243.
106. NSW Department of Health. NSW carers action plan 2007-2012 summary. In: Health NDo, ed. North Sydney: NSW Department of Health; 2007.
107. Galletly C, Castle D, Dark F, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for the management of schizophrenia and related disorders. *Australian & New Zealand Journal of Psychiatry*. 2016;50(5):1-117.
108. Malhi GS, Bassett D, Boyce P, et al. Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders. *Australian & New Zealand Journal of Psychiatry*. 2015;49(12):1-185.
109. Kreyenbuhl J, Buchanan RW, Dickerson FB. The Schizophrenia Patient Outcomes Research Team (PORT): Updated treatment recommendations 2009. *Schizophrenia Bulletin*. 2010;36:94-103.
110. National Institute for Health and Care Excellence. Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care (Updated edition) Clinical guideline 82. In: The British Psychological Society & The Royal College of Psychiatrists; 2010.

111. National Consumer and Carer Forum. Consumer and carer participation policy: A framework for the mental health sector. In. Canberra, ACT: National Consumer and Carer Forum of Australia; 2004.
112. Quality Improvement and Change Management Unit. You matter: A guideline to support engagement with consumers, carers, communities and clinicians in health. In. Perth: Western Australian Department of Health; 2017.
113. Jones A, Hannigan B, Coffey M, Simpson A. Traditions of research in community mental health care planning and care coordination: A systematic meta-narrative review of the literature. *PloS one*. 2018;13(6):e0198427.
114. Doody O, Butler MP, Lyons R, Newman D. families' experiences of involvement in care planning in mental health services: An integrative literature review. *Journal of Psychiatric & Mental Health Nursing*. 2017;24:412-430.
115. Selick A, Durbin J, Vu N, O'Connor K, Volpe T, Lin E. Barriers and facilitators to implementing family support and education in Early Psychosis Intervention programmes: A systematic review. *Early Interv Psychiatry*. 2016;11:365-374.
116. Eassom E, Giacco D, Dirik A, Priebe S. Implementing family involvement in the treatment of patients with psychosis: A systematic review of facilitating and hindering factors. *BMJ open*. 2014;4:e006108.
117. Landeweer E, Molewijk B, Hem MH, Pederson R. Worlds apart? A scoping review addressing different stakeholder perspectives on barriers to family involvement in the care for persons with severe mental illness. *BMC health services research*. 2017;17(349).
118. Aschbrenner KA, Dixon LB, Naslund JA, et al. An online survey of family members' beliefs and attitudes about smoking and mental illness. *J Dual Diagn*. 2017;13(3):179-183.

119. New South Wales Government. NSW carers strategy 2014-2019. In. Sydney: New South Wales Government; 2014.
120. Gorin AA, Powers TA, Koestner R, Wing RR, Raynor HA. Autonomy support, self-regulation, and weight loss. *Health Psychology*. 2014;33(4):332-339.
121. Wing RR, Jeffery RW. Benefits of recruiting participants with friends and increasing social support for weight loss and maintenance. *Journal of Consulting and Clinical Psychology*. 1999;67(1):132-138.
122. Aschbrenner KA, Mueser KT, Naslund JA, et al. Facilitating partner support for lifestyle change among adults with serious mental illness: A feasibility pilot study. *Community mental health journal*. 2017;53:394-404.
123. Aschbrenner KA, Mueser KT, Naslund JA, et al. Feasibility study of increasing social support to enhance a healthy lifestyle intervention for individuals with serious mental illness. *Journal of the Society for Social Work and Research*. 2016;7(2):289-313.
124. Andersen JS, Owen DC. Helping relationships for smoking cessation: grounded theory development of the process of finding help to quit. *Nurs Res*. 2014;63(4):252-259.
125. Creswell KG, Cheng Y, Levine MD. A test of the stress-buffering model of social support in smoking cessation: is the relationship between social support and time to relapse mediated by reduced withdrawal symptoms? *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2015;17(5):566-571.
126. Falba TA, Sindelar JL. Spousal concordance in health behavior change. *Health Serv Res*. 2008;43(1 Pt 1):96-116.

127. Rohrbaugh MJ, Shoham V, Butler EA, Hasler BP, Berman JS. Affective synchrony in dual- and single-smoker couples: further evidence of "symptom-system fit"? *Family process*. 2009;48(1):55-67.
128. Cobb LK, McAdams-DeMarco MA, Huxley RR, et al. The association of spousal smoking status with the ability to quit smoking: the Atherosclerosis Risk in Communities Study. *American journal of epidemiology*. 2014;179(10):1182-1187.
129. Margolis R, Wright L. Better Off Alone Than With a Smoker: The Influence of Partner's Smoking Behavior in Later Life. *The journals of gerontology Series B, Psychological sciences and social sciences*. 2016;71(4):687-697.
130. vanDellen MR, Boyd SM, Ranby KW, MacKillop J, Lipkus IM. Willingness to provide support for a quit attempt: A study of partners of smokers. *Journal of health psychology*. 2016;21(9):1840-1849.
131. May S, West R. Do social support interventions ("buddy systems") aid smoking cessation? A review. *Tobacco Control*. 2000;9(4):415.
132. Aschbrenner KA, Naslund JA, Gill L, Bartels SJ, O'Malley AJ, Brunette MF. Preferences for smoking cessation support from family and friends among adults with serious mental illness. *Psychiatr Q*. 2017;88:701-710.
133. Scottish Government. Caring together:The carers strategy for Scotland 2010-2015. In. Edinburgh: The Scottish Government; 2010.
134. Singleton N, Aye Maung N, Cowie A, Sparks J, Bumpstead R, Meltzer H. Mental health of carers. In: Statistics N, ed. London: The Stationery Office; 2002.
135. AARP Public Policy Institute NAFc. Executive summary: Caregiving in the U.S. In. Chicago: AARP, NAC; 2015.

136. Cummins RA, Hughes J, Tomin A, Gibson A, Woerner J, Lai L. The wellbeing of Australians: Carer health and wellbeing. In: Life ACoQo, ed. Melbourne: Deakin University; 2007.
137. Mental Health Council of Australia. Recognition and respect: Mental health carers report 2012. In. North Sydney: Mental Health Council of Australia; 2012.
138. Mental Health Council of Australia. Mental Health Carers Survey 2010. In: Mental Health Council of Australia; 2010.
139. Pirkis J, Burgess P, Hardy J, Harris M, Slade T, Johnston A. Who cares? A profile of people who care for relatives with a mental disorder. *Australian and New Zealand Journal of Psychiatry*. 2010;44:929-937.
140. Poon AWC, Curtis J, Ward P, Loneragan C, Lappin J. Physical and psychological health of carers of young people with first episode psychosis. *Australasian Psychiatry*. 2018;26(2):184-188.
141. Bailey JM, Regan TW, Bartlem KM, Wiggers JH, Wye PM, Bowman JA. A survey of the prevalence of modifiable health risk behaviours among carers of people with a mental illness. *BMC public health*. 2019;19(1240).
142. World Health Organisation. Mental health action plan 2013-2020. In. Geneva: WHO Press; 2013.
143. Kisely S, Lesage A. Mental health services in Australia. *Sante Ment Que*. 2014;39(1):195-208.
144. Australian Institute of Health and Welfare. Mental health services in brief 2018. Cat. no. HSE 211. In. Canberra, ACT: AIHW; 2018.
145. Giles LC, Cameron ID, Crotty M. Disability in older Australians: Projections for 2006-2031. *Medical Journal of Australia*. 2003;179(3):130-134.

146. Ehrlich C, Chester p, Kisely S, Crompton D, Kendall E. Making sense of self-care practices at the intersection of severe mental illness and physical health: An Australian study. *Health and Social Care*. 2018;26:e47-e55.
147. Young SJ, Praskova A, Hayward N, Patterson S. Attending to physical health in mental health services in Australia: A qualitative study of service users' experiences and expectations. *Health and Social Care*. 2017;25(2):602-611.
148. Happell B, Scott D, Hoey W, Stanton R. Self-reported health, health behaviors, attitudes, and beliefs of regional mental health consumers. *Perspectives in Psychiatric Care*. 2014;50(3):193-200.
149. Osborn D, Nazareth I, King M. Physical activity, dietary habits and Coronary Heart Disease risk factor knowledge amongst people with severe mental illness: A cross sectional comparative study in primary care. *Social psychiatry and psychiatric epidemiology*. 2007;42:787-793.
150. Brunero S, Lamont S. Health behaviour beliefs and physical health risk factors for cardiovascular disease in an outpatient sample of consumers with a severe mental illness: a cross-sectional survey. *International journal of nursing studies*. 2010;47(6):753-760.
151. Wright CA, Osborn DP, Nazareth I, King MB. Prevention of coronary heart disease in people with severe mental illnesses: a qualitative study of patient and professionals' preferences for care. *BMC psychiatry*. 2006;6:16.
152. Williams JM, Dwyer M, Verna M, et al. Evaluation of the CHOICES program of peer-to-peer tobacco education and advocacy. *Community mental health journal*. 2011;47(3):243-251.

153. McKay CE, Dickerson F. Peer Supports for Tobacco Cessation for Adults with Serious Mental Illness: A Review of the Literature. *J Dual Diagn.* 2012;8(2):104-112.
154. Tran N, Castle D. Outcomes from a regular medication information programme for consumers with a mental illness. *Pharmacotherapy.* 2012;20:143-147.
155. McGinty EE, Baller J, Azrin ST, Juliano-Bult D, Daumit GL. Interventions to Address Medical Conditions and Health-Risk Behaviors Among Persons With Serious Mental Illness: A Comprehensive Review. *Schizophrenia bulletin.* 2016;42(1):96-124.
156. Evins AE, Cather C, Pratt SA, et al. Maintenance treatment with varenicline for smoking cessation in patients with schizophrenia and bipolar disorder: a randomized clinical trial. *Jama.* 2014;311(2):145-154.
157. Green CA, Yarborough BJH, Leo MC, et al. The STRIDE Weight Loss and Lifestyle Intervention for Individuals Taking Antipsychotic Medications: A Randomized Trial. *American Journal of Psychiatry.* 2014;172(1):71-81.
158. Slay J, Stephens L. Co-production in mental health: A literature review. In. London: New Economics Foundation; 2013.
159. World Health Organization. User empowerment in mental health: A statement by the WHO Regional Office for Europe. In. Geneva: World Health Organization; 2010.
160. The Co-Design Initiative. Co-design: Putting consumers and carers at the centre of mental health reform. In. Mountain View, CA: The Co-Design Initiative; 2016.
161. Glasgow RE, Goldstein MG, Ockene JK, Pronk NP. Translating what we have learned into practice. Principles and hypotheses for interventions addressing

- multiple behaviors in primary care. *American journal of preventive medicine*. 2004;27(2 Suppl):88-101.
162. World Health Organisation. *World health report 2002*. Geneva 2003.
163. Australian Institute of Health and Welfare. *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011*. Canberra: AIHW; 2016.
164. World Health Organisation. Global health risks: Mortality and burden of disease attributable to selected major risks. In. Geneva: World Health Organisation; 2009.
165. Firth J, Siddiqi N, Koyanagi A, et al. The Lancet Psychiatry Commission: a blueprint for protecting physical health in people with mental illness. *Lancet Psychiatry*. 2019;6(8):675-712.

APPENDICES

APPENDIX 1: UNIVERSITY OF NEWCASTLE THESIS BY PUBLICATION GUIDELINES

Office of Graduate Studies Information Sheet Thesis by Publication



A thesis may be submitted in the form of a series of published papers and the additional rules specific to this style of thesis are presented below. It is important to note that the general rules for a University of Newcastle thesis are also applicable. Please ensure you also refer to [The Rules Governing Research Higher Degrees](#) for the full scope of applicable rules.

Rule 39.1 A thesis by publication will include:

- i. a full explanatory overview that links the separate papers and places them in the context of an established body of knowledge;
- ii. a literature review;
- iii. if detailed data and descriptions of methods are not otherwise given within the separate papers, they must be included in the body of the thesis or as appendices to the thesis;

Rule 39.2 For a thesis by publication:

- i. the separate papers provided under sub-clause 39.1(i) must be published, in press or submitted to scholarly media only, i.e. refereed publications classified by current national standards and refereed conference papers, however at least 50% of these papers must have been published. Papers published up to three years prior to enrolment may be included provided they were published in scholarly media and do not represent more than 50% of the total papers;
- ii. publications submitted by the candidate for another degree may only be referred to in the thesis literature review;
- iii. the number of papers submitted should demonstrate that the body of work meets the requirements of the degree as outlined in the relevant schedule;
- iv. the candidate must be the lead author in at least 50% of the papers written in the time of their formal Research Higher Degree candidature. Any published paper of which the candidate is a joint author may only be included in the thesis provided the work done by the candidate is clearly identified. The candidate must include in the thesis a written statement from each co-author attesting to the candidate's contribution to a joint publication included as part of the thesis. These statements must be endorsed by the Assistant Dean (Research Training).
- v. the Assistant Dean (Research Training) may seek the approval of the Dean of Graduate Studies to include a paper that is outside the scope of these rules.

Office of Graduate Studies Information Sheet Thesis by Publication



A thesis may be submitted in the form of a series of published papers and the additional rules specific to this style of thesis are presented below. It is important to note that the general rules for a University of Newcastle thesis are also applicable. Please ensure you also refer to [The Rules Governing Research Higher Degrees](#) for the full scope of applicable rules.

Rule 39.1 A thesis by publication will include:

- i. a full explanatory overview that links the separate papers and places them in the context of an established body of knowledge;
- ii. a literature review;
- iii. if detailed data and descriptions of methods are not otherwise given within the separate papers, they must be included in the body of the thesis or as appendices to the thesis;

Rule 39.2 For a thesis by publication:

- i. the separate papers provided under sub-clause 39.1(i) must be published, in press or submitted to scholarly media only, i.e. refereed publications classified by current national standards and refereed conference papers, however at least 50% of these papers must have been published. Papers published up to three years prior to enrolment may be included provided they were published in scholarly media and do not represent more than 50% of the total papers;
- ii. publications submitted by the candidate for another degree may only be referred to in the thesis literature review;
- iii. the number of papers submitted should demonstrate that the body of work meets the requirements of the degree as outlined in the relevant schedule;
- iv. the candidate must be the lead author in at least 50% of the papers written in the time of their formal Research Higher Degree candidature. Any published paper of which the candidate is a joint author may only be included in the thesis provided the work done by the candidate is clearly identified. The candidate must include in the thesis a written statement from each co-author attesting to the candidate's contribution to a joint publication included as part of the thesis. These statements must be endorsed by the Assistant Dean (Research Training).
- v. the Assistant Dean (Research Training) may seek the approval of the Dean of Graduate Studies to include a paper that is outside the scope of these rules.

Components and Layout

PLEASE NOTE: the layout and ordering of the contents is flexible and should be based on the judgement and experience of candidates and supervisors as well as discipline norms. Please use your own discretion and seek expert advice. The following is a suggested layout only.

1. Title Page

2. Declarations

Originality

I hereby certify that to the best of my knowledge and belief this thesis is my own work and contains no material previously published or written by another person except where due references and acknowledgements are made. It contains no material which has been previously submitted by me for the award of any other degree or diploma in any university or other tertiary institution.

Thesis by Publication

*I hereby certify that this thesis is in the form of a series of *papers. I have included as part of the thesis a written statement from each co-author, endorsed in writing by the Faculty Assistant Dean (Research Training), attesting to my contribution to any jointly authored papers. (*Refer to clause 39.2 of the Rules Governing Research Higher Degrees for acceptable papers).*

3. Acknowledgements

4. List of publications included as part of the thesis

4.1 List all of the included published work with the full bibliographic citations in the order they appear in the thesis.

4.2 Provide a statement to indicate that where necessary permission regarding copyright has been obtained from copyright owners. For example, the statement may say "I warrant that I have obtained, where necessary, permission from the copyright owners to use any third party copyright material reproduced in the thesis (e.g. questionnaires, artwork, unpublished letters), or to use any of my own published work (e.g. journal articles) in which the copyright is held by another party (e.g. publisher, co-author)."

5. Table of Contents

6. Abstract

An abstract of approximately 300 words is required to describe the content of the thesis.

7. Overview

A full explanatory overview is required to link the published papers to the research thesis. This may include sections for Literature Review (if not included separately), Research Design and Review/Discussion. Not all of these sections may be necessary. Choose the format that underpins the academic argument so that the contents of the thesis are established as a substantial and significant body of work, but without unnecessary repetition.

8. Literature Review

9. Statement of Contribution of Others

In the thesis, at the front of each paper, include a written statement from each co-author attesting to the candidate's contribution to a joint publication included as part of the thesis. The purpose of this statement is to summarise and clearly identify the nature and extent of the intellectual input by the candidate and any co-authors.

9.1 Sample co-author statement

By signing below I confirm that [Candidate Name] contributed [insert outline of contribution]) to the paper/publication entitled [insert reference details].

List:

Full Name of Co-Author/s, Date, Signature of Co-Authors

Full Name of Faculty Assistant Dean Research Training, Date, Signature

10. Papers/Chapters

Each paper/chapter should have an introduction to explain how it contributes to the overall body of knowledge. It is not necessary to reformat published papers in the thesis. Where appropriate publications can be included in full or in parts thereof.

11. Appendices**12. Bibliography**

APPENDIX 2: ETHICS APPROVAL

Appendix 2.1: Ethics Approval for Chapter 2



21 February 2012

AI/Professor Jenny Bowman
School of Psychology
University of Newcastle

Dear Professor Bowman,

Re: Evaluating the efficacy of an integrated smoking cessation intervention for mental health patients: a randomised controlled trial (11/12/14/4.02)

HNEHREC reference number: 11/12/14/4.02
HREC reference number: HREC/11/HNE/464
SSA reference number: SSA/11/HNE/484

Thank you for submitting an application for authorisation of this project. I am pleased to inform you that authorisation has been granted for this study to take place at the following sites:

- **Hunter New England Mental Health**

The following conditions apply to this research project. These are additional to those conditions imposed by the Human Research Ethics Committee that granted ethical approval:

1. Proposed amendments to the research protocol or conduct of the research which may affect the ethical acceptability of the project, and which are submitted to the lead HREC for review, are copied to the research governance officer;
2. Proposed amendments to the research protocol or conduct of the research which may affect the ongoing site acceptability of the project, are to be submitted to the research governance officer.

Yours faithfully

Dr Nicole Gerrand
Research Governance Officer
Hunter New England Local Health District

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit



Health
Hunter New England
Local Health District

15 February 2012

A/Professor J Bowman
School of Psychology
University of Newcastle

Dear Professor Bowman,

Re: Smoking cessation for mental health inpatients (11/12/14/4.02)

HNEHREC Reference No: 11/12/14/4.02
NSW HREC Reference No: HREC/11/HNE/464
SSA Reference No: SSA/11/HNE/484

Thank you for submitting the above protocol for single ethical review for a multi-centre study. This project was first considered by the Hunter New England Human Research Ethics Committee at its meeting held on **14 December 2012**. This Human Research Ethics Committee is constituted and operates in accordance with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research (2007)* (National Statement) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*. Further, this Committee has been accredited by the NSW Department of Health as a lead HREC under the model for single ethical and scientific review. The Committee's Terms of Reference are available from the Hunter New England Local Health District website: http://www.hnehealth.nsw.gov.au/Human_Research_Ethics.

I am pleased to advise that following acceptance under delegated authority of the requested clarifications and revised Information Statement by Dr Nicole Gerrand Manager, Research Ethics & Governance, the Hunter New England Human Research Ethics Committee has granted ethical approval of the above project.

The following documentation has been reviewed and approved by the Hunter New England Human Research Ethics Committee:

- For the Information Statement Sheet and Consent Form (Version 3 dated 14 February 2012); and
- For the HNE Mental Health "Smoke Free" Combined QA & Baseline Patient Interview (Version 1 dated 29 November 2011)

For the protocol: **Smoking cessation for mental health inpatients**

Approval has been granted for this study to take place at the following sites:

• **Hunter New England Mental Health Inpatient Facilities:**

- **Calvary Mater Newcastle**
- **Maitland**
- **Taree**
- **Tamworth**

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

Approval from the Hunter New England Human Research Ethics Committee for the above protocol is given for a maximum of **3** years from the date of this letter, after which a renewal application will be required if the protocol has not been completed.

The *National Statement on Ethical Conduct in Human Research (2007)*, which the Committee is obliged to adhere to, include the requirement that the committee monitors the research protocols it has approved. In order for the Committee to fulfil this function, it requires:

- A report of the progress of the above protocol be submitted at 12 monthly intervals. Your review date is **February 2012**. A proforma for the annual report will be sent two weeks prior to the due date.
- A final report must be submitted at the completion of the above protocol, that is, after data analysis has been completed and a final report compiled. A proforma for the final report will be sent two weeks prior to the due date.
- All variations or amendments to this protocol, including amendments to the Information Sheet and Consent Form, must be forwarded to and approved by the Hunter New England Human Research Ethics Committee prior to their implementation.
- The Principal Investigator will immediately report anything which might warrant review of ethical approval of the project in the specified format, including:
 - any serious or unexpected adverse events
 - Adverse events, however minor, must be recorded as observed by the Investigator or as volunteered by a participant in this protocol. Full details will be documented, whether or not the Investigator or his deputies considers the event to be related to the trial substance or procedure. These do not need to be reported to the Hunter New England Human Research Ethics Committee
 - Serious adverse events that occur during the study or within six months of completion of the trial at your site should be reported to the Manager, Research Ethics & Governance, of the Hunter New England Human Research Ethics Committee as soon as possible and at the latest within 72 hours.
 - All other safety reporting should be in accordance with the NHMRC's Safety Monitoring Position Statement – May 2009 available at http://www.nhmrc.gov.au/health_ethics/hrecs/reference/files/090609_nhmrc_position_statement.pdf
 - Serious adverse events are defined as:
 - Causing death, life threatening or serious disability.
 - Cause or prolong hospitalisation.
 - Overdoses, cancers, congenital abnormalities whether judged to be caused by the investigational agent or new procedure or not.
 - Unforeseen events that might affect continued ethical acceptability of the project.

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

- If for some reason the above protocol does not commence (for example it does not receive funding); is suspended or discontinued, please inform Dr Nicole Gerrand, as soon as possible.

You are reminded that this letter constitutes ethical approval only. You must not commence this research project at a site until separate authorisation from the Chief Executive or delegate of that site has been obtained.

A copy of this letter must be forwarded to all site investigators for submission to the relevant Research Governance Officer.

Should you have any concerns or questions about your research, please contact Dr Gerrand as per the details at the bottom of the page. The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Please quote **11/12/14/4.02** in all correspondence.

The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Yours faithfully

For: Associate Professor M Parsons
Chair
Hunter New England Human Research Ethics Committee

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

4/8/2019

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=BC6...>

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Associate Professor Jennifer Bowman
Cc Co-investigators / Research Students:	Associate Professor John Wiggers Ms Paula Wye Associate Professor Judith Prochaska Ms Megan Freund Doctor Luke Wolfenden Doctor Libby Campbell Associate Professor John Allan Associate Professor Jill Williams Mr Richard Clancy Ms Margaret Terry Professor Amanda Baker Professor David Castle Ms Jenny Knight Conjoint Associate Professor Dinesh Arya Mr Louis Lecathelinais Miss Emily Stockings
Re Protocol:	Evaluating the efficacy of an integrated smoking cessation intervention for mental health patients: a randomised controlled trial
Date:	30-Mar-2012
HREC Reference No:	H-2012-0061
External HREC Reference No:	11/12/14/4.02
Date of Initial Approval:	27-Mar-2012

Thank you for your **Initial Application** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited Review of External Approval** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **External HREC Approval Noted** effective **27-Mar-2012**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research, 2007*, and the requirements within this University relating to human research.

As the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

The full Committee will be asked to note this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is **H-2012-0061**.

PLEASE NOTE:

As the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=BC6BF54C3DA...>

1/2

4/8/2019 <https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=BC8...>

Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

For communications and enquiries:
Human Research Ethics Administration

Research Services
Research Integrity Unit
HA148, Hunter Building
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 18999
F +61 2 492 17164
Human-Ethics@newcastle.edu.au

Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref
National Health & Medical Research Council/Project Grant(")	Evaluating the efficacy of an integrated smoking cessation intervention for mental health patients: a randomised controlled trial	Bowman Jennifer,	G1100130

Appendix 2.2: Ethics Approval for Chapters 4 and 5

15 July 2013

A/Professor J Bowman
School of Psychology
University of Newcastle

Dear Dr Bowman,

Re: The Views of Carers in Addressing the 'SNAP' Risk Factors (13/06/19/5.11)

HNEHREC Reference No: 13/06/19/5.11

NSW HREC Reference No: LNR/13/HNE/243

Thank you for submitting the above protocol for single ethical review. This project was considered to be eligible to be reviewed as Low and Negligible risk research and so was reviewed under the by the Hunter New England Human Research Ethics Committee expedited process at an executive meeting held on **15 July 2013**. This Human Research Ethics Committee is constituted and operates in accordance with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research (2007)* (National Statement) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*. Further, this Committee has been accredited by the NSW Department of Health as a lead HREC under the model for single ethical and scientific review. The Committee's Terms of Reference are available from the Hunter New England Local Health District website: http://www.hnehealth.nsw.gov.au/Human_Research_Ethics.

I am pleased to advise that following acceptance under delegated authority of the requested clarifications and changes to the Information Statement by Dr Nicole Gerrand Manager, Research Ethics & Governance, the Hunter New England Human Research Ethics Committee has granted ethical approval of the above project.

The following documentation has been reviewed and approved by the Hunter New England Human Research Ethics Committee:

- For the Information Statement (Version 1 dated 30 May 2013);
- For the Consent Form (Version 1 dated 30 May 2013); and
- For the Views of Carers Towards Addressing Physical Health Risk Behaviours Survey (Version dated 30 May 2013)

For the protocol: **The Views of Carers in Addressing the 'SNAP' Risk Factors**

Approval has been granted for this study to take place at the following site:

- **Hunter New England Local Health District**

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

- Approval from the Hunter New England Human Research Ethics Committee for the above protocol is given for a maximum of **3** years from the date of this letter, after which a renewal application will be required if the protocol has not been completed.

The *National Statement on Ethical Conduct in Human Research (2007)*, which the Committee is obliged to adhere to, include the requirement that the committee monitors the research protocols it has approved. In order for the Committee to fulfil this function, it requires:

- A report of the progress of the above protocol be submitted at 12 monthly intervals. Your review date is **July 2014**. A proforma for the annual report will be sent two weeks prior to the due date.
- A final report must be submitted at the completion of the above protocol, that is, after data analysis has been completed and a final report compiled. A proforma for the final report will be sent two weeks prior to the due date.
- All variations or amendments to this protocol, including amendments to the Information Sheet and Consent Form, must be forwarded to and approved by the Hunter New England Human Research Ethics Committee prior to their implementation.
- The Principal Investigator will immediately report anything which might warrant review of ethical approval of the project in the specified format, including:
 - any serious or unexpected adverse events
 - Adverse events, however minor, must be recorded as observed by the Investigator or as volunteered by a participant in this protocol. Full details will be documented, whether or not the Investigator or his deputies considers the event to be related to the trial substance or procedure. These do not need to be reported to the Hunter New England Human Research Ethics Committee
 - Serious adverse events that occur during the study or within six months of completion of the trial at your site should be reported to the Manager, Research Ethics & Governance, of the Hunter New England Human Research Ethics Committee as soon as possible and at the latest within 72 hours.
 - All other safety reporting should be in accordance with the NHMRC's Safety Monitoring Position Statement – May 2009 available at http://www.nhmrc.gov.au/health_ethics/hrecs/reference/files/090609_nhmrc_position_statement.pdf
 - Serious adverse events are defined as:
 - Causing death, life threatening or serious disability.
 - Cause or prolong hospitalisation.
 - Overdoses, cancers, congenital abnormalities whether judged to be caused by the investigational agent or new procedure or not.
 - Unforeseen events that might affect continued ethical acceptability of the project.
- If for some reason the above protocol does not commence (for example it does not receive funding); is suspended or discontinued, please inform Dr Nicole Gerrand, as soon as possible.

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 950 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

You are reminded that this letter constitutes ethical approval only. You must not commence this research project at a site until separate authorisation from the Chief Executive or delegate of that site has been obtained.

A copy of this letter must be forwarded to all site investigators for submission to the relevant Research Governance Officer.

Should you have any concerns or questions about your research, please contact Dr Gerrand as per the details at the bottom of the page. The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Please quote **13/06/19/5.11** in all correspondence.

The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Yours faithfully

For: Professor ~~M~~ Parsons
Chair
Hunter New England Human Research Ethics Committee

Hunter New England Research Ethics & Governance Unit

(Locked Bag No 1)

(New Lambton NSW 2305)

Telephone (02) 49214 960 Facsimile (02) 49214 818

Email: hnehrec@hnehealth.nsw.gov.au

http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

4/2/2019

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=E83...>

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Associate Professor Jennifer Bowman
Cc Co-investigators / Research Students:	Miss Jacqueline Bailey Doctor Paula Wye
Re Protocol:	Exploring the Views of Carers in Addressing the SNAP Risk Factors for People with Mental Illness
Date:	08-Oct-2013
HREC Reference No:	H-2013-0343
External HREC Reference No:	13/06/19/5.11
Date of Initial Approval:	08-Oct-2013

Thank you for your **Initial Application** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited Review of External Approval** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **External HREC Approval Noted** effective **08-Oct-2013**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research, 2007*, and the requirements within this University relating to human research.

As the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

The full Committee will be asked to note this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is H-2013-0343.

PLEASE NOTE:

As the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

For communications and enquiries:

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=E834CC8E5E0D...> 1/2

4/2/2019 <https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=E83...>

Human Research Ethics Administration

Research Services
Research Integrity Unit
The Chancellery
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 17894
F +61 2 492 17164
Human-Ethics@newcastle.edu.au

RIMS website - <https://RIMS.newcastle.edu.au/login.asp>

Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref
		.	

Appendix 2.3: Ethics Approval for Chapter 6

12 November 2014

A/Professor Jenny Bowman
School of Psychology
University of Newcastle

Dear Professor Bowman,

Re: Addressing Physical Health Risk Behaviours for People with Mental Illness: Exploring a Role for Carers (14/10/15/4.04)

HNEHREC Reference No: 14/10/15/4.04
NSW HREC Reference No: HREC/14/HNE/393

Thank you for submitting the above application for single ethical review for a multi-centre study. This project was first considered by the Hunter New England Human Research Ethics Committee at its meeting held on **15 October 2014**. This Human Research Ethics Committee is constituted and operates in accordance with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research (2007)* (National Statement) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*. Further, this Committee has been accredited by the NSW Department of Health as a lead HREC under the model for single ethical and scientific review. The Committee's Terms of Reference are available from the Hunter New England Local Health District website.

I am pleased to advise that following acceptance under delegated authority of the requested clarifications and revised Participant Information Sheet and the Survey Cover Letter by Dr Nicole Gerrand Manager, Research Ethics & Governance, the Hunter New England Human Research Ethics Committee has granted ethical approval of the above project.

The following documentation has been reviewed and approved by the Hunter New England Human Research Ethics Committee:

- For the Participant Information Statement (Version 3 dated 24 October 2014);
- For the Consent Form (Version 2 dated 20 October 2014);
- For the Poster (Version 3 dated 24 October 2014);
- For the Brochure (Version 3 dated 24 October 2014);
- For the Consumer focus group discussion points (no version, undated)
- For the Carer Focus Group discussion points (no version, undated)
- For the Consumer Questionnaire (Version 2 dated 20 October 2014); and
- For the Carer Questionnaire (Version 2 dated 20 October 2014)

For the study: **Addressing Physical Health Risk Behaviours for People with Mental Illness: Exploring a Role for Carers**

Hunter New England Research Ethics & Governance Unit
Locked Bag 1
New Lambton NSW 2305
Telephone: (02) 49214950 Facsimile: (02) 49214818
Email: HNELHD-HREC@hnehealth.nsw.gov.au
http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

Approval has been granted for this study to take place at the following sites:

– **HNE Community Mental Health Services**

Approval from the Hunter New England Human Research Ethics Committee for the above protocol is given for a maximum of **3** years from the date of this letter, after which a renewal application will be required if the protocol has not been completed.

The *National Statement on Ethical Conduct in Human Research (2007)*, which the Committee is obliged to adhere to, include the requirement that the committee monitors the research protocols it has approved. In order for the Committee to fulfil this function, it requires:

- A report of the progress of the above protocol be submitted at 12 monthly intervals. Your review date is **November 2015**. A proforma for the annual report will be sent two weeks prior to the due date.
- A final report must be submitted at the completion of the above protocol, that is, after data analysis has been completed and a final report compiled. A proforma for the final report will be sent two weeks prior to the due date.
- All variations or amendments to this protocol, including amendments to the Information Sheet and Consent Form, must be forwarded to and approved by the Hunter New England Human Research Ethics Committee prior to their implementation.
- The Principal Investigator will immediately report anything which might warrant review of ethical approval of the project in the specified format, including:
 - any serious or unexpected adverse events
 - Adverse events, however minor, must be recorded as observed by the Investigator or as volunteered by a participant in this protocol. Full details will be documented, whether or not the Investigator or his deputies considers the event to be related to the trial substance or procedure. These do not need to be reported to the Hunter New England Human Research Ethics Committee
 - Serious adverse events that occur during the study or within six months of completion of the trial at your site should be reported to the Manager, Research Ethics & Governance, of the Hunter New England Human Research Ethics Committee as soon as possible and at the latest within 72 hours.
 - All other safety reporting should be in accordance with the NHMRC's Safety Monitoring Position Statement – May 2009 available at http://www.nhmrc.gov.au/health_ethics/hrecs/reference/files/090609_nhmrc_position_statement.pdf
 - Serious adverse events are defined as:
 - Causing death, life threatening or serious disability.
 - Cause or prolong hospitalisation.
 - Overdoses, cancers, congenital abnormalities whether judged to be caused by the investigational agent or new procedure or not.

Hunter New England Research Ethics & Governance Unit

Locked Bag 1
New Lambton NSW 2305
Telephone: (02) 49214950 Facsimile: (02) 49214818
Email: HNELHD-HREC@hnehealth.nsw.gov.au
http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

- Unforeseen events that might affect continued ethical acceptability of the project.
- If for some reason the above protocol does not commence (for example it does not receive funding); is suspended or discontinued, please inform Dr Nicole Gerrand, as soon as possible.

You are reminded that this letter constitutes ethical approval only. You must not commence this research project at a site until separate authorisation from the Chief Executive or delegate of that site has been obtained.

A copy of this letter must be forwarded to all site investigators for submission to the relevant Research Governance Officer.

Should you have any concerns or questions about your research, please contact Dr Gerrand as per the details at the bottom of the page. The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Please quote **14/10/15/4.04** in all correspondence.

The Hunter New England Human Research Ethics Committee wishes you every success in your research.

Yours faithfully

For: Professor M Parsons
Chair
Hunter New England Human Research Ethics Committee

Hunter New England Research Ethics & Governance Unit
Locked Bag 1
New Lambton NSW 2305
Telephone: (02) 49214950 Facsimile: (02) 49214818
Email: HNELHD-HREC@hnehealth.nsw.gov.au
http://www.hnehealth.nsw.gov.au/research_ethics_and_governance_unit

4/2/2019

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=21F...>

HUMAN RESEARCH ETHICS COMMITTEE



Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	Associate Professor Jennifer Bowman
Cc Co-investigators / Research Students:	Doctor Paula Wye Miss Jacqueline Bailey
Re Protocol:	Addressing Physical Health Risk Behaviours for People with a Mental Illness: Exploring a Role for Carers
Date:	13-Oct-2015
HREC Reference No:	H-2015-0387
External HREC Reference No:	14/10/15/4.04
Date of Initial Approval:	12-Oct-2015

Thank you for your **Initial Application** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited Review of External Approval** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **External HREC Approval Noted** effective **12-Oct-2015**.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research, 2007*, and the requirements within this University relating to human research.

As the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

The full Committee will be asked to note this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is H-2015-0387.

PLEASE NOTE:

As the HREC has "noted" the approval of an External HREC, progress reports and reports of adverse events are to be submitted to the External HREC only. In the case of Variations to the approved protocol, or a Renewal of approval, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

Linkage of ethics approval to a new Grant

HREC approvals cannot be assigned to a new grant or award (ie those that were not identified on the application for ethics approval) without confirmation of the approval from the Human Research Ethics Officer on behalf of the HREC.

Best wishes for a successful project.

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

<https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=21F83FE553481...> 1/2

4/2/2019 <https://rims.newcastle.edu.au/InfoEdCommon/Handlers/Attachments.ashx?method=ViewDocument&Type=DocVersionId&Value=21F...>

For communications and enquiries:

Human Research Ethics Administration

Research Services
Research Integrity Unit
The Chancellery
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 17894
F +61 2 492 17164

Human-Ethics@newcastle.edu.au

RIMS website - <https://RIMS.newcastle.edu.au/login.asp>

Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref

APPENDIX 3: INFORMATION STATEMENTS AND CONSENT FORMS

Appendix 3.1: Information Statement and Consent Form for Chapter 2



Assoc Prof Jenny Bowman
School of Psychology
Faculty of Science and IT
University of Newcastle
ph 49215958 fax 49216980
Email jenny.bowman@newcastle.edu.au

Information Statement for the Research Project:

'No Butts' Support for Health

Document version no. 4 Date 06/09/12

You are invited to participate in the research project identified above which is being conducted by Associate Professor Jenny Bowman at the University of Newcastle and a number of other researchers: Associate Professor John Wiggers, Dr Paula Wye, Associate Professor Judith Prochaska, Dr Megan Freund, Dr Luke Wolfenden, and Dr Elizabeth Campbell.

Why is the research being done?

The purpose of the research is to identify strategies which are effective in assisting people to reduce or cease their tobacco smoking. We believe that an approach that links mental health services with supports in the community, such as the Quitline, is likely to help. This research will help test whether this is the case.

Who can participate in the research?

We are seeking to recruit people who are mental health inpatients of the Mater Hospital, Maitland Hospital, Taree Hospital and Tamworth Hospital who are aged 18 years and over, who identify themselves as smokers at the time of admission.

What choice do you have?

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. The doctors and treating clinicians here at the hospital will not be informed as to whether you have decided to take part or not.

If you do decide to participate but later decide to withdraw, you can do so at any time without giving a reason. In that event, any information collected from you or about you would be destroyed.



What would you be asked to do?

If you agree to participate, you will be asked to do six things:

1. Take part in a brief interview and questionnaire survey here today, about your smoking and your mental well-being, eg. 'How many cigarettes do you smoke per day?', 'In the last 12 months, have you tried to quit smoking?' and 'In the last four (4) weeks, how often did you feel depressed?'. This will take about 20 minutes.
2. Agree to us accessing your medical records which have already been collected by the hospital: smoking status, psychiatric diagnoses, medication use, and use of Nicotine Replacement Therapy (NRT) and any nicotine withdrawal symptoms experienced as an inpatient.
3. Agree to being assigned, by chance, to either an intervention group (where as part of the research we will offer a number of options to assist you in addressing your smoking after discharge from hospital), or a Control group (where this does not happen). A control group is required to test whether the intervention has any effect on smoking behaviour. The options which will be offered to you if assigned to the Smoking Intervention group include: referral to the Quitline, referral to your GP, extended provision of NRT, and telephone counselling support.
4. Agree to us contacting you again – by telephone - in 1 month, 6 months, and 12 months following your discharge to ask some similar questions about your smoking and strategies you may have tried to help you reduce or cease smoking.
5. In order to help us locate you at the project follow-up points, a) agree to us seeking contact information for you from Hunter New England health services and b) provide home address and telephone details for family members, friends, or other agencies you would be happy for us to phone or post a letter to in order to up-date contact information for you. We would contact these people or services only if we have difficulty locating you for project follow-up, and seek only your current phone number and address details which would be used by the research team to contact you.
6. Agree to providing a breath sample if selected to do so at the time of a follow-up phone call to allow us to measure the amount of tobacco you have smoked in the past 24 hours. To collect this breath sample, members of the research team will arrange to meet you at a healthcare service, or other public facility convenient to you. If this is not possible, it may be arranged to visit you at home. Not all participants will be selected to provide a breath sample, and you will be informed at the time of each follow-up call if you have been selected to do so on that occasion.

What are the risks and benefits of participating?

There are no known risks to you in taking part in this research.

While there may be no direct benefits for you personally in taking part, your participation in this research may ultimately help to improve the assistance available to people with mental health conditions for addressing their tobacco smoking. If you are assigned at random to the Smoking Intervention group for this research project, you will be offered a number of options for support as mentioned above in point 3.

NEWCASTLE | **CENTRAL COAST** | **FORT MACQUARIE** | **SINGAPORE**

The University of Newcastle enquirycentre@newcastle.edu.au T +61 2 4921 5000
Callaghan NSW 2308 Australia CRICOS Provider Number: 00109J www.newcastle.edu.au

***How will your privacy be protected?***

The information you provide will be treated with strictest confidence.

The research requires that we collect some personal information, including your name and contact details. This is so that we can obtain some information already collected by the hospital (mentioned above), and also so that we can contact you for follow-up telephone surveys. Your personal information will not be used for any other purpose. Your personal information and all other study information (including questionnaires) will be kept in a locked cabinet in the project research office at the University.

Interview and questionnaire information, and data entered from them onto computer, will be retained for a period of 5 years at the University following the completion of the study. After this time the information will be destroyed.

Will there be any costs associated with participation?

There is no financial cost associated with participation.

How will the information collected be used?

Individual participants will not be identified in any reports arising from this project.

The results may be reported in a paper submitted for publication in a scientific journal, and also possibly at an appropriate scientific conference. They may also form part of a student's research thesis.

What do you need to do to participate?

Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.

If you would like to participate, please read and sign the consent form attached.

Further information

If you would like further information please contact Associate Professor Jenny Bowman at the University of Newcastle (ph 49215958, email jenny.bowman@newcastle.edu.au) or the No Butts project team (ph 49217781).

Thank you for considering this invitation.

**Principal Investigators**

Assoc Prof Jenny Bowman
Chief Investigator

Dr Paula Wye

Prof John Wiggers

Dr Megan Freund

Assoc Prof Judith Prochaska

Dr Luke Wolfenden

Dr Elizabeth Campbell

Complaints about this research

This project has been approved by the Hunter New England Human Research Ethics Committee of Hunter New England Health, Ref No. 11/12/14/4.02.

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to Dr Nicole Gerrand, Manager Research Ethics and Governance, Hunter New England Human Research Ethics Committee, Hunter New England Health, Locked bag 1, New Lambton NSW 2305, telephone 02 49214950, email hnehrec@hnehealth.nsw.gov.au

Assoc Prof Jenny Bowman
 School of Psychology
 Faculty of Science and IT
 University of Newcastle
 ph 49215958 fax 49216980
 Email jenny.bowman@newcastle.edu.au

Consent Form for the Research Project:

'No Butts' Support for Health

Document version no.4 Date 06/09/12

This research project is being conducted by Associate Professor Jenny Bowman at the University of Newcastle and a number of other researchers.

Please read the statements below, and add your name, signature and date at the bottom if you are willing to take part.

I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statements, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing.

I consent to:

1. Take part in an interview / survey here today, about smoking and my psychological well-being
2. Allow the researchers access to information already collected about me by the admitting hospital (being smoking status, psychiatric diagnoses, medication use, and use of NRT and nicotine withdrawal symptoms experienced while I have been an inpatient)
3. Be assigned, by chance, to either a Supported Care intervention group (where in addition to standard hospital smoking care, I would be provided with encouragement and support to address smoking following discharge) or a Usual Care control group (where I would receive standard hospital smoking care, including brief smoking advice and provision of, and advice about nicotine replacement therapy)
4. Be contacted, by telephone – in 1 month, 6 months and 12 months time - for the collection of follow-up information about smoking and any strategies I may have used to reduce or cease smoking.
5. Provide contact details for family members, friends, or other agencies, and give permission for these bodies and local health care services to release my contact information (phone numbers and address only) to members of the research team, for them to use in contacting me for project follow-up phone calls.
6. Provide a breath sample, if I am selected to do so at the time of a follow-up call, to measure the amount of tobacco I have smoked in the last 24 hours,

I understand that my personal information will remain confidential to the researchers.

I have had the opportunity to have questions answered to my satisfaction.

Print Name:.....

Signature:..... Date:.....

Appendix 3.2: Information Statement and Consent Form for Chapters 4 and 5

Jenny Bowman
School of Psychology, the University of Newcastle
University Drive, Callaghan, 2308
Phone: 49215958
Fax: 49216980
Jenny.Bowman@newcastle.edu.au

**Information Statement for the Research Project:
Exploring the Views of Carers in Addressing the 'SNAP' Risk Factors for People
with Mental Illness
Jenny Bowman, Paula Wye and Jacqueline Bailey**

Document Version 1; dated 30/05/2013

You are invited to participate in the research project identified above which is being conducted by Jenny Bowman, Principal investigator, Paula Wye, investigator, and Jacqueline Bailey, student researcher, from the School of Psychology at the University of Newcastle.

The research is part of Jacqueline Bailey's studies at the University of Newcastle, supervised by Jenny Bowman and Paula Wye from the School of Psychology.

Why is the research being done?

The purpose of the research is to explore the views of carers of people with mental illness in addressing physical health behaviour risks of the people they care for. The physical health risk behaviours being investigated are Smoking tobacco, Nutrition (in terms of fruit and vegetable consumption), harmful Alcohol use and inadequate Physical activity (SNAP). The risk status of both the carer and the person being cared for will be explored. Carers will also be asked their opinions on their role in addressing the physical health risks of the person they care for and whether it is appropriate for physical health behaviours to be addressed in various health care settings.

In the past carers have not been asked their opinions regarding physical health risks so this study will give carers the opportunity to share their opinions which will make a valuable contribution to research regarding the physical health risk behaviours of people with mental illness.

***Who can participate in the research?***

Any carer who is over the age of 18 is invited to participate in our research. You will only be contacted through your carers support organisation from which you received this statement. Therefore you must be affiliated with a carers support organisation to participate in the research.

What choice do you have?

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you.

What would you be asked to do?

If you agree to participate, you will be asked to participate in an online survey or a paper copy can be made available to people without internet access.

Your support organisation will send you a link to the survey along with a unique identification number. You will need to enter this number when completing the survey. This number ensures that the researchers will not be given your name, they will only be provided with the responses you provide in the survey. Your responses will only be made available to the researchers; your support organisation will not be given access to any of your responses. If not completing the survey online, a similar process will be used for distribution and return of paper surveys where you cannot be identified by the researchers.

You will be asked some basic personal questions such as your age, marital, education and work status and similar questions will be asked about the person you care for. You will also be asked your opinions on addressing the physical health risks of the person you care for and in particular asked about any personal experiences you might have had with smoke free policy or smoking cessation support in inpatient or community mental health settings.

How much time will it take?

The survey should take between 20-40 minutes to complete.

What are the risks and benefits of participating?

There are no risks to participating in this study.

By participating in this study you will be able to share your opinions regarding the physical health risks of the person you care for. Your responses could help guide



practice and policy of care provision for mental health services and/or guide the design of future health behaviour interventions which include a role for carers in helping to address the physical health risk behaviours of those they care for.

How will your privacy be protected?

Your privacy will be protected as the researchers will never be given any identifying information such as your name or address. You will be contacted through your support organisation to ensure your privacy. Your organisation will not be given access to any of the information you provide individually in the survey. Any report of the study will not identify individual responses, just the combined views of all participants.

How will the information collected be used?

The information collected in the survey will be analysed and used in a thesis to be submitted for Miss Jacqueline Bailey's Bachelor of Psychology. A short presentation on the thesis will also be conducted at a University Conference in November, 2013. The information will also be used to create a brief report, in lay language, of the findings which will be made available to participants, support organisations and Hunter New England Mental Health at the completion of the study. The information collected may also be written up for publication in a scientific journal. At no time will information be written up that identifies any individual.

What do you need to do to participate?

Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact your support organisation or the researchers.

Further information

If you would like further information you can email any queries to your support organisation which will forward your questions to the research team who will then provide answers which can then be distributed to you. Otherwise you can contact the researchers directly; you do not need to provide your name.

Jenny Bowman, Principal Investigator

Phone: 49215958

Email: Jenny.Bowman@newcastle.edu.au

NEWCASTLE | **CENTRAL COAST** | **PORT MACQUARIE** | **SINGAPORE**
The University of Newcastle enquirycentre@newcastle.edu.au T +61 2 4921 5000
Callaghan NSW 2308 Australia CRICOS Provider Number: 00109J www.newcastle.edu.au



Paula Wye, Investigator
Phone: 0458090467
Email: Paula.Wye@hnehealth.gov.au
Based in Tamworth

Jacqueline Bailey, Student Researcher
Phone: 0400343044
Email: jacqueline.m.bailey@uon.edu.au

Thank you for considering this invitation.

Jenny Bowman
Principal Investigator and Supervisor

Complaints about this research

This project has been approved by the Hunter New England Human Research Ethics Committee, Approval No. 13/06/19/5.11

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Executive Officer, Dr Nicole Gerrand, Hunter New England Health, Locked Bag 1, New Lambton, NSW, 2305, Australia, telephone (02) 49214950, fax (02) 49214818, email nicole.gerrand@hnehealth.nsw.gov.au

Carers Views: Addressing Physical Health Risk Behaviours (version 2, 26/7/13)

Thank you for taking the time to complete this survey.

Please complete the survey only once. As we will be contacting carers via a number of services, it is possible that you could come across the survey a couple of times.

Some of the questions in this survey are about you, and some are about a person you care for who has a mental illness, and who is 18 years of age or older. You should only be completing this if you are aged 18 years or older, and provide care to someone with a mental illness.

If you care for more than one person with a mental illness, we will ask you to select just one person to answer the survey questions about.

Most of the questions in this survey require you to make a response by replacing a cross or a tick in a circle corresponding to your answer.

Not all questions may be relevant to you and you will be instructed to skip certain questions where appropriate. Depending on the answer you give, a skip statement will be alongside and look like this *(Skip question 7, Go to question 8 on page 10)*.

1. I consent to completing this survey. I understand that my personal information will remain confidential to the researchers and that the researchers will only gain the information I provide in my responses.

I understand that the survey is part of a university project and will be conducted as described in the Information Statement, a copy of which I have received.

I have had the opportunity to have questions answered to my satisfaction.

Please check the box to indicate your consent.

☐

2. Please enter your Identification Number (ID) provided to you by your support organisation. Your Identification Number is attached to a piece of paper attached to this survey. It is a five digit number.

Please write your ID number here:

Appendix 3.3: Information Statement and Consent Form for Chapter 6

Jenny Bowman
School of Psychology, the University of Newcastle
University Drive, Callaghan, 2308
Phone: 49215958
Fax: 49216980
Jenny.Bowman@newcastle.edu.au

**Information Statement for the Research Project: Addressing Physical Health
Behaviours for People with Mental Illness: Exploring a Role for Carers
Jenny Bowman, Paula Wye and Jacqueline Bailey**

Document Version 3; dated 24/10/2014

You are invited to take part in the research project identified above which is being conducted by Associate Professor Jenny Bowman, Principal investigator, Dr Paula Wye, investigator, and Ms Jacqueline Bailey, research assistant, from the School of Psychology at the University of Newcastle.

The research is part of a larger project supervised by Jenny Bowman and Paula Wye from the School of Psychology at the University of Newcastle, exploring the physical health behaviours of carers and people with mental illness.

Why is the research being done?

The purpose of the project is to explore the views of carers of people with mental illness, as well as people who have a mental illness, about addressing physical health behaviour risks for chronic disease. These risk behaviours include Smoking tobacco, Nutrition (in terms of fruit and vegetable consumption), harmful Alcohol use and inadequate Physical activity (SNAP). We are especially interested in finding out if carers might play a part in helping people with a mental illness address these risks. In particular, we'd like your views, as either a carer or someone with a mental illness who has a support person or carer in their lives, as to what kinds of assistance might be provided to help this to happen.

We hope that your views will help us to develop some support strategies and that future research might then be able to look to see how well they work as well as to continue to improve them.

Who can take part in the research?

Any carer of a person with mental illness who is over the age of 18 and is fluent in English is invited to take part.

NEWCASTLE | **CENTRAL COAST** | **PORT MACQUARIE** | **SINGAPORE**
The University of Newcastle enquirycentre@newcastle.edu.au T +61 2 4921 5000
Callaghan NSW 2308 Australia CRICOS Provider Number: 00109J www.newcastle.edu.au

***What choice do you have?***

Taking part in this project is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. You can elect to stop participating at any time throughout the project.

What would you be asked to do?

If you agree to take part, you will be asked to join in a focus group held at Newcastle, Lake Macquarie or Hunter Valley Community Mental Health Service. A focus group is where a small group of people are asked their opinions and attitudes towards an idea. Questions are asked by the researchers in a setting where participants are free to talk with other group members.

You will receive a brochure with information about the focus group, what you will be asked to do and where they will be held from the Community Mental Health Services. If you are interested in taking part in the project you can contact the research team. Their contact details are on the brochure and this document. They will check your availability for one of the focus groups and book you in for a group.

When you arrive at the focus group, you will be asked some basic questions about yourself such as your age, marital, education and work status, and physical health risk behaviours in a short survey.

The focus group discussions will include questions asking you what you think about a plan to develop supportive strategies for carers to help people with mental illness to improve their physical health behaviours. The focus group discussions will be recorded by the research team.

How much time will it take?

The questionnaire should take approximately 5-10 minutes to complete and the focus groups will last for approximately one hour. You could expect to be at the Community Mental Health Service for approximately one hour and a half. Morning or afternoon tea will be provided.

What are the risks and benefits of being involved?

There are no risks to being involved in this project.

NEWCASTLE | **CENTRAL COAST** | **PORT MACQUARIE** | **SINGAPORE**

The University of Newcastle enquirycentre@newcastle.edu.au T +61 2 4921 5000
Callaghan NSW 2308 Australia CRICOS Provider Number: 00109J www.newcastle.edu.au



You will be reimbursed for your travel and parking expenses on the day.

How will your privacy be protected?

Your privacy will be protected as the researchers will not be asking you any identifying information such as your full name or address. Your responses will remain confidential to the researchers, the Community Mental Health Service will not be given access to any of the information you provide individually in the survey or focus group. Any report of the project will not identify individual responses, just the combined views of all the people who take part.

How will the information collected be used?

The information collected in the project will be used to create a brief report, in lay language, of the findings which will be made available to people involved in the discussions, support organisations and Hunter New England Mental Health at the completion of the study. The information collected will also be written up for publication in a scientific journal. The information collected will also inform the development of a pilot program and may be used in a grant application for funding purposes. At no time will information be written up that identifies any individual.

What do you need to do to be involved?

Please read this Information Statement and be sure you understand its contents before you consent to take part. If there is anything you do not understand, or you have questions, please contact the researchers.

Further information

If you would like further information you can forward any queries to the research team; you do not need to provide your name.

Jenny Bowman, Principal Investigator

Phone: 0249215958

Email: Jenny.Bowman@newcastle.edu.au



Paula Wye, Investigator
Phone: 0458090467
Email: Paula.Wye@hnehealth.gov.au
Based in Tamworth

Jacqueline Bailey, Student Researcher
Phone: 0249854485
Email: jacqueline.m.bailey@uon.edu.au

Thank you for considering this invitation.

Jenny Bowman
Principal Investigator and Supervisor

Complaints about this research

This project has been approved by the Hunter New England Human Research Ethics Committee, Approval No. 14/1015/4.04

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Executive Officer, Dr Nicole Gerrand, Hunter New England Health, Locked Bag 1, New Lambton, NSW, 2305, Australia, telephone (02) 49214950, fax (02) 49214818, email nicole.gerrand@hnehealth.nsw.gov.au



Jenny Bowman
School of Psychology, the University of Newcastle
University Drive, Callaghan, 2308
Phone: 49215958
Fax: 49216980
Jenny.Bowman@newcastle.edu.au

**Consent Form for the Research Project: Addressing Physical Health Behaviours
for People with Mental Illness: Exploring a Role for Carers
Jenny Bowman, Paula Wye and Jacqueline Bailey**

Document Version 2; dated 20/10/2014

I agree to take part in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which I have retained.

I understand I can withdraw from the project at any time and do not have to give any reason for withdrawing.

I consent to:

- completing a short questionnaire;
- taking part in a focus group and having it recorded

I understand that my personal information will remain confidential to the researchers.

I have had the opportunity to have questions answered to my satisfaction.

Please tick the box if you consent to taking part in the research project:

☐

Print Name: _____

Signature: _____ Date: _____

APPENDIX 4: RECRUITMENT MATERIALS

Appendix 4.1: Letter of Invitation for Chapters 4 and 5



Office 2, Tenison Woods Centre
78 Wynter Street
Taree NSW 2430
PO Box 1121
Taree NSW 2430
Phone: (02) 6551 4333
Fax: (02) 6551 4200
infohne@carerasst.org.au
www.carerasst.org.au

Dear [insert name],

We are collaborating with a research team from the University of Newcastle to examine the views and experiences of carers with regards to the provision of care for 'physical' health risk behaviours for people with mental illness.

The researchers have created a survey which can be completed online or, for those who don't have internet access as a pen and paper questionnaire. We are assisting by making the survey as available to as many of our clients as possible. It should take between 20 and 40 minutes to complete.

In the past carers have not been asked their opinions regarding these issues, and this is an important opportunity to share your views and experiences so that carers as a group may be more included in future policies and decisions.

The survey asks you about the health behaviours of smoking, fruit and vegetable consumption, alcohol use and physical activity. You will be asked questions about the health risk behaviours of both the person you care for and yourself. You will also be asked your opinions on the roles of health care services and carers in addressing these health risk behaviours.

It would be great if you would be able to complete the survey online. All you need to do is type the following survey link into the address bar of your internet. You will then need to enter the following Identification number in order to complete the survey.

Survey Link: <https://psych.newcastle.edu.au/survey/index.php?sid=41251&newtest=Y&lang=en>

Your Identification Number: [insert ID number]

If you would prefer to complete a paper version of the survey one has been attached to this letter with a reply paid envelope. You can also return any completed surveys to any Carer Assist office if you prefer.

We have attached an information statement to this letter. This document is from the researchers you should read this before you complete the survey.

If you have any trouble accessing the survey online or have any questions about the survey you can contact the researchers directly or let us know and we will ask them for you. If you would like to contact the researchers they can be contacted by phone or email.

Jenny Bowman, Principal Investigator
Phone: 49215958
Email: Jenny.Bowman@newcastle.edu.au

Jacqueline Bailey, Student Researcher
Phone: 0400343044
Email: jacqueline.m.bailey@uon.edu.au

Thank you for considering this invitation.

If you have any questions don't hesitate to contact us or Jenny Bowman or Jacqueline Bailey.

INFORMATION — EDUCATION — ADVOCACY — SUPPORT

Appendix 4.2: Recruitment Poster for Chapter 6

WE NEED YOU!



Improving the Physical Health of those with Mental Illness

Your mental health service now provides care relating to your physical health.
Clinicians are particularly interested in:

**Reducing Smoking
Improving Nutrition
Addressing Alcohol Misuse
Increasing Physical Activity**

Please come to our group to discuss the impact of these health risk behaviours; the benefits of receiving support to change these behaviours; and what more we can do to improve the health of people with a mental illness.

We value your opinion...

Refreshments provided

Reimbursements for travel and parking expenses provided

For more information or to get involved:

- Pick up a brochure or ask reception
- Give us a ring to find out when: Jay 49246299

Appendix 4.3: Recruitment Brochure for Chapter 6

A Research Partnership

This research is a partnership between Hunter New England Mental Health Services and the University of Newcastle, working together to improve the health of people with a mental illness.



Health
Hunter New England
Local Health District



For further information or to register your interest in attending, please contact by [insertdate]:

Jay Jones
Preventive Care Project Officer
Phone: 4924 6299
Email:
Jay.Jones@hnehealth.nsw.gov.au

**WE
NEED
YOU!**



Improving the
Physical Health
of those with
Mental Illness

Consumers & Carers

Your local mental health service now provides care relating to physical health.

Clinicians are particularly interested in:

- ◊ Reducing Smoking
- ◊ Improving Nutrition
- ◊ Addressing Alcohol misuse
- ◊ Increasing Physical Activity

Clinicians are interested in these behaviours because they are key factors leading to many chronic diseases such as cancer and heart disease, and may also be related to mental health as well as physical health.



A group to discuss...

The impact of these health risk behaviours; the benefits of receiving support to change these behaviours; and what more we can do to improve the health of people with a mental illness.

... at your community mental health service

Separate groups will be held for Consumers and for Carers

We value your opinion...

- ◊ Refreshments provided
- ◊ Reimbursements for travel and parking provided



Meetings will be held at:

- ◊ Newcastle CMHS
- ◊ Lake Macquarie CMHS
- ◊ Hunter Valley CMHS

For further information or to register your interest in attending, please contact by [insertdate]:

Jay Jones
Preventive Care Project Officer
Phone: 4924 6299
Email:
Jay.Jones@hnehealth.nsw.gov.au

APPENDIX 5: SURVEY INSTRUMENTS

Appendix 5.1: Patient Survey for Chapter 2

Patient Interview v.5 – 04.08.14

Patient Interview

RCT ID No: _____

Patient status:

(Diagnosis: P/ NP)

Approached- did not agree to chat (ever)	1
Approached- did not agree to chat at that time	2
Smoker – recruited	3
Smoker – consented <10 MMSE (complete at a later date)	4
Smoker- consent but interview incomplete	5
Smoker - did not consent	6
Ex- smoker	7
Nonsmoker	8
Interview incomplete prior to consent being gained	13
Like to participate- no fixed address/phone number	14

Time start: _____

Time finish: _____

Allocated to: **Supported Care (Grey)** / **Normal Care (Cream)** (please circle)

Site:

Mater (NMHU)	1
Mater (LMMHU)	2
Mater (MHSUU – North)	3
Mater (MHSUU – South)	4
Maitland	5
Taree	6
Tamworth	7

Today's date: ____ / ____ / ____
 d m y

Patient Name: _____

Patient Medical record Number (MRN): _____

Recruiters Interviewer Number _____

Intro.. "Could I have a few minutes of your time to chat about Hunter New England Health being smoke-free, and your views about it?

Hunter New England Health is committed to a smoke free workplace and to improving its implementation.

The policy means that all Hunter New England Health sites are smoke-free, including all grounds, vehicles, car parks and buildings.

Patient Interview v.5 – 04.06.14

We are trying to get around to all patients while they are here to find out what they think. Any information you give will be confidential. Your individual responses will not be made known to any of the clinical staff here."

Qu1. (CHCE) Have you found anything positive about the unit being 'smoke-free' during your stay?

No	1
Yes	2

- If Yes (Qu1 = 2), go to Qu1a.
- If No (Qu1 = 1), go to Qu2.

Qu1a. (OPEN) What was positive about it?

Qu2. (CHCE) Have you found anything negative about it?

No	1
Yes	2

- If Yes (Qu2 = 2), Go to Qu2a.
- If No (Qu2 = 1), go to Qu3.

Qu2a. (OPEN) What was negative about it?

Qu3. (CHCE) When you were admitted here, would you describe yourself as being:

A daily smoker (smokes cigarettes daily)	1
A weekly smoker (smokes at least weekly but not daily)	2
Irregular smoker (smokes less than weekly)	3
Ex-smoker (has not smoked at all for the last 4 months, and smoked at least 100 cigarettes in life time)	4
Never-smoker (does not smoke at all now, and smoked less than 100 cigarettes in life time)	5

- If daily smoker or weekly smoker (Qu3 = 1 or 2), go to Qu4.
- If irregular smoker (Qu3 = 3), go to Qu3a
- If ex-smoker or never-smoker (Qu3= 4 or 5), go to Qu12.

Qu3a. (CHCE) Were you smoking at all in the month before you were admitted to hospital?

No	1
Yes	2

- If Yes (Qu3a = 2), go to Qu4.
- If No (Qu3a = 1), go to Qu12.

Qu4. (NUM) How many cigarettes per day were you smoking before you came into hospital? ---

Qu5. (NUM) About how much (in dollars) were you spending on cigarettes per week before you came into hospital? _____

Patient Interview v.5 – 04.06.14

Fagerstrom Test for Nicotine Dependence (Qus 6-11)

"For the next few questions, I'd like you to answer them thinking about your smoking just before you came into hospital".

** Prior to these questions, say to respondent "I will read you four (4) responses. Choose the response that best describes you".

** Qu6. (CHCE) How soon after you wake up do you smoke your first cigarette?

After 60 minutes	0
31-60 minutes	1
6-30 minutes	2
Within 5 minutes	3

Qu7. (CHCE) Do you find it difficult to refrain from smoking in places where it is forbidden?

No	0
Yes	1

Qu8. (CHCE) Which cigarette would you hate most to give up?

Any other	0
The first in the morning	1

** Qu9. (CHCE) How many cigarettes per day do you smoke?

10 or less	0
11-20	1
21-30	2
31 or more	3

Qu10. (CHCE) Do you smoke more frequently during the first hours after awakening than during the rest of the day?

No	0
Yes	1

Qu11. (CHCE) Do you smoke even if you are so ill that you are in bed most of the day?

No	0
Yes	1

- End Fagerstrom test

Qu12. (CHCE) Have you smoked tobacco since you have been a patient in the hospital?

No	1
Yes	2

"If patient was an ex-smoker or never-smoker on admission (Qu3 = 4 or 5), and the patient smoked at any time while admitted here (Qu12 = 2), go to Qu13, otherwise go to Qu14.

Patient Interview v.5 – 04.06.14

Qu13. (CHCE) Is it right that you were not smoking at the time you were admitted, but have smoked during your stay?

No	1
Yes	2

- If Yes (Qu13 = 2), go to Qu13a.

- If No (Qu13 = 1), go to Qu14.

Qu13a. (OPEN) Can you tell me why you began smoking while here as an inpatient?

"Do you mind if I ask you a little about some of your other health behaviours, like physical activity...?"*

** If the patient refuses to answer these questions and is a smoker, begin introducing the project and attempt to gain consent. If the patient refuses to answer these questions and does not meet the eligibility criteria for the project, thank them for their time today and finish interview.*

Qu14. (CHCE) In the month before being admitted to hospital how many days a week did you usually do 30 minutes or more of physical activity?

no days	1
one	2
two	3
three	4
four	5
five or more	6
Don't know	7
Can't for health or treatment reasons	8
Did not state	9

Qu15. In the month before being admitted to hospital how many serves of vegetables did you usually eat each day? (A serve is half a cup of cooked vegetables or 1 cup of salad vegetables).

no serves	1
one	2
two	3
three	4
four	5
five or more	6
Don't know	7
Did not state	8

Qu16. In the month before being admitted to hospital how many serves of fruit did you usually eat each day? (A serve is 1 medium piece or 2 small pieces of fruit or 1 cup of diced pieces).

no serves	1
-----------	---

Patient Interview v.5 – 04.08.14

one	2
two	3
three	4
four	5
five or more	6
Don't know	7
Did not state	8

AUDIT – C (Qu's 17 – 19, 22 - 23)

Qu17. (CHCE) How often did you have a drink containing alcohol in the past year?

Never	1
Monthly or less	2
2 to 4 times a month	3
2 to 3 times per week	4
4 or more times a week	5

Qu18. (CHCE) How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?

1 or 2	1
3 or 4	2
5 or 6	3
7 to 9	4
10 or more	5

Qu19. (CHCE) How often did you have six or more drinks on one occasion in the past year?

Never	1
Monthly or less	2
2 to 4 times a month	3
2 to 3 times per week	4
4 or more times a week	5

**** Qu20. (CHCE)** Are you seriously thinking about making any positive changes to any of the health behaviours we have talked about?

	No	Yes	Don't Know
A. Smoking	1	2	3
B. Physical Activity	1	2	3
C. Alcohol	1	2	3
D. Fruit and Vegetables	1	2	3

**** Qu21. (CHCE)** Please respond to following statement with either Strongly Disagree (SD), Disagree (D), Unsure (U), Agree (A), Strongly Agree (SA)

"It would be acceptable for the staff looking after you whilst in the hospital to give advice and support to help with any of these health behaviours you would like to change."

Strongly disagree	1
Disagree	2
Unsure	3
Agree	4

Patient Interview v.5 – 04.06.14

Strongly agree	5
Refused to answer	6

Qu22. (CHCE) In the last year, have you used cannabis (pot)?

No	1
Yes	2

- If Yes (Qu22 = 2), go to Qu22a

- If No (Qu22 = 1), go to Qu23.

Qu22a. (CHCE) In the last year, how often have you used cannabis (pot)?

Monthly or less	1
2 to 4 times a month	2
2 to 3 times a week	3
4 or more times a week	4

Qu22b. (CHCE) Do you mix tobacco with cannabis (pot)?

No - Never	1
Yes - Occasionally	2
Yes - Mostly	3
Yes - Always	4

In the last year, have you used any of these substances?

	No	Yes
Qu23. (CHCE) Amphetamines (e.g. speed, loe, Ritalin)	1	2
Qu23a. (CHCE) Cocaine (e.g. Coke, Ecstasy)	1	2
Qu23b. (CHCE) Hallucinogens (e.g. LSD, mushies, Datura)	1	2
Qu23c. (CHCE) Inhalants (e.g. laughing gas ¹ , amyl nitrate/Rush)	1	2
Qu23d. (CHCE) Opioids (e.g. heroin/Methadone, Panadeine Forte)	1	2
Qu23e. (CHCE) Tranquillizers (e.g. Serapax, Valium, Mogadon)	1	2

- End Audit.

**** END OF QUESTIONNAIRE FOR EX-SMOKERS AND NEVER SMOKERS ****

"Thank you very much for your time today"

*** Please conduct the Mini Mental Status Examination if the client appears cognitively too unwell to proceed (review score for decision whether to proceed).*

FOR SMOKERS: PROVIDE INFORMATION ABOUT THE PROJECT AND SEEK CONSENT

Note: Patients are eligible if they described themselves as daily and weekly smokers (Qu3 = 1 or 2), and those irregular smokers (Qu3 =3) that smoked in the month prior to admission (Qu3a =2).

Appendix 5.2: Carer Survey for Chapters 4 and 5

The Views of Carers Towards Addressing Physical Health Risk Behaviours

Carers Views: Addressing Physical Health Risk Behaviours (version 2, 26/7/13)

Thank you for taking the time to complete this survey.

Please complete the survey only once. As we will be contacting carers via a number of services, it is possible that you could come across the survey a couple of times.

Some of the questions in this survey are about you, and some are about a person you care for who has a mental illness, and who is 18 years of age or older. You should only be completing this if you are aged 18 years or older, and provide care to someone with a mental illness.

If you care for more than one person with a mental illness, we will ask you to select just one person to answer the survey questions about.

Most of the questions in this survey require you to make a response by replacing a cross or a tick in a circle corresponding to your answer.

Not all questions may be relevant to you and you will be instructed to skip certain questions where appropriate. Depending on the answer you give, a skip statement will be alongside and look like this (*Skip question 7, Go to question 8 on page 10*).

1. I consent to completing this survey. I understand that my personal information will remain confidential to the researchers and that the researchers will only gain the information I provide in my responses.

I understand that the survey is part of a university project and will be conducted as described in the Information Statement, a copy of which I have received.

I have had the opportunity to have questions answered to my satisfaction.

Please check the box to indicate your consent.

☐

2. Please enter your Identification Number (ID) provided to you by your support organisation. Your Identification Number is attached to a piece of paper attached to this survey. It is a five digit number.

Please write your ID number here:

We would like to begin by asking some questions about a person you care for who has a mental illness, and who is aged 18 years or older...

3. How many people with a mental illness, 18 years or older, are you currently caring for?
Please choose only one of the following:

- ☐ 1 (*Skip question 4, Go to question 5 on page 3*)
☐ 2
☐ 3
☐ 4 or more

For the remaining questions in the survey which ask about the person you care for please answer questions about only one of the people you care for.

If you care for multiple people but only live with one person over the age of 18 years then answer all questions about the person that you live with.

If you live with multiple people with a mental illness that you care for then you can choose which person you want to tell us about as long as they are over 18 years old.

4. Can you please tell us why you chose to talk about that person?

You might choose the person you live with, who you spend the most time with, who needs the most care or the person you have been caring for the longest.

It is important that you answer the rest of the questions in this survey about that person only.

Please choose all that apply:

- ☐ I live with this person
☐ This person needs the most care
☐ This person is acutely unwell and cannot care for themselves
☐ I spend the most time with this person
☐ I have been caring for this person the longest
☐ I am closest with this person
☐ I receive a carer pension for this person
☐ I spend more of my energy on this person than the other people I care for
☐ Other:

Please describe

For the following questions about the person you care for, please answer in terms of your 'usual' relationship with them.

For example, if the person you care for usually lives with you but is in an inpatient facility at the current time, please answer questions based on what your behaviours are like when you are living together.

5. How many years have you been caring for this person?

Please choose only one of the following:

- ☐ Less than one year
- ☐ 1-2 years
- ☐ 3-10 years
- ☐ 11-20 years
- ☐ more than 20 years

6. Are you living in the same residence as the person you provide care for?

Please choose only one of the following:

- ☐ Yes
- ☐ No
- ☐ Sometimes

7. What is your relationship to the person you are providing care for?

What are you to them? For example, if you are their mother select 'parent'.

Please choose only one of the following:

I am their:

- ☐ Parent
- ☐ Partner
- ☐ Child
- ☐ Sibling (brother or sister)
- ☐ Neighbour
- ☐ Friend
- ☐ Other:

Please describe

The Views of Carers Towards Addressing Physical Health Risk Behaviours

8. How many days a week would you usually spend time with the person you care for?

9. Are you the sole carer of this person?

Please choose only one of the following:

- ☐ Yes *(skip question 10. Go to question 11 on this page)*
- ☐ No

10. If no, who else cares for this person?

Please choose all that apply:

- ☐ My spouse/ partner
- ☐ Another relative of the person being cared for
- ☐ Neighbour
- ☐ Friend of mine
- ☐ Friend of the person being cared for
- ☐ Other

11. What is the age of the person you care for?

12. What is their gender?

- ☐ Female
- ☐ Male

13. What is the primary psychiatric diagnosis of the person you care for?

Please choose only one of the following:

- ☐ Schizophrenia
- ☐ Depression
- ☐ Anxiety disorder
- ☐ Panic disorder
- ☐ Bipolar disorder
- ☐ Post-traumatic stress disorder
- ☐ Eating disorder
- ☐ Personality disorder
- ☐ Dementia
- ☐ Unsure
- ☐ Other:

Please describe

14. What is their current employment status?

- ☐ Employed full time
- ☐ Employed part time or casual
- ☐ Not currently employed- but seeking employment
- ☐ Not currently employed- not seeking employment

15. Are they of Aboriginal or Torres Strait Islander origin?

- ☐ Yes, Aboriginal origin
- ☐ Yes, Torres Strait Islander origin
- ☐ Yes, both Aboriginal and Torres Strait Islander origin
- ☐ No

16. What is their present marital status?

- ☐ Never married
- ☐ Married or living together in a relationship
- ☐ Divorced/ Separated
- ☐ Widowed

17. What is the highest level of education they have achieved?

- ☐ No formal schooling or attended primary school only
- ☐ Some high school with less than four years completed
- ☐ School certificate, Intermediate, Year 10, 4th Form
- ☐ Completed HSC, Leaving, Year 12 or 6th Form
- ☐ TAFE certificate or diploma
- ☐ University, College of Advanced Education, Degree or higher

The questions in this next section are about the physical health behaviours of the person you care for.

The questions are about smoking, fruit and vegetable consumption, alcohol consumption and physical activity.

Please answer these questions about the person you care for.

18. How many serves of vegetables does the person you care for usually eat each day?

One serve of vegetables or legumes is equal to: ½ cup green leafy vegetables like cabbage, spinach, Brussels sprouts or cauliflower; ½ cup green beans, zucchini, mushrooms, turnips, swede or eggplant; 1 cup salad vegetables such as tomato, capsicum and celery; 1 medium sized potato or parsnip.

Please choose only one of the following:

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more
- ☐ Unsure

19. How many serves of fruit do they usually eat each day?

One serve of fruit is equal to: 150 grams (5.29 oz.) of fresh fruit or; one medium sized fruit (e.g. apple); 2 smaller pieces (e.g. apricots); 1 cup canned or chopped fruit; ½ cup/ 125 ml (5 fl oz.) 100% fruit juice; 1.5 tablespoon dried fruit (e.g. sultanas or 4 dried apricot halves).

Please choose only one of the following:

- ☐ 0
- ☐ 1
- ☐ 2 or more
- ☐ Unsure

20. How many days a week does the person you care for usually do 30 minutes or more of physical activity?

By physical activity we mean any activity that increases your heart rate or makes you breathe harder than normal. This can include brisk walking, swimming, team sports or even things like gardening. You can add up your total time during the day, for example walking to the shops and back.

Please choose only one of the following:

- | | |
|-------------------------|--|
| <input type="radio"/> 0 | <input type="radio"/> 6 |
| <input type="radio"/> 1 | <input type="radio"/> 7, everyday |
| <input type="radio"/> 2 | <input type="radio"/> Unsure |
| <input type="radio"/> 3 | <input type="radio"/> Can't do physical activity for health or treatment reasons |
| <input type="radio"/> 4 | |
| <input type="radio"/> 5 | |

21. Do they live in a smoke-free household?

By this we mean people may be smokers but no smoking is permitted inside the residence.

Please choose only one of the following:

- ☐ Yes
- ☐ No
- ☐ Unsure

The Views of Carers Towards Addressing Physical Health Risk Behaviours

22. Is the person you care for a smoker of any tobacco products?

This could include 'roll your own', cigars, pipe etc.

Please choose only one of the following:

- ☐ Yes, daily [\(go to the next question\)](#)
- ☐ Yes, at least once a week [\(go to the next question\)](#)
- ☐ Yes, less than once a week [\(go to the next question\)](#)
- ☐ No, quit within the last 4 months [\(go to question 30 on page 10\)](#)
- ☐ No, quit longer than 4 months ago [\(go to question 30 on page 10\)](#)
- ☐ No, never smoked [\(go to question 31 on page 10\)](#)

23. How many cigarettes (or cigars or pipes) are they usually smoking each day?

Please choose only one of the following:

- ☐ 10 or less
- ☐ 11 to 20
- ☐ 21 to 30
- ☐ 31 or more
- ☐ Unsure

24. How soon after waking are they usually having their first smoke?

Please choose only one of the following:

- ☐ Within 5 minutes
- ☐ 6 to 30 minutes
- ☐ 31 to 60 minutes
- ☐ More than 60 minutes
- ☐ Unsure

25. In the last year, did they ever on purpose quit smoking for at least 24 hours?

Please choose only one of the following:

- ☐ Yes
- ☐ No
- ☐ Unsure

26. How many times have they ever made an attempt to quit smoking in the past?

Please choose only one of the following:

- ☐ Never (*Skip question 27. Go to question 28 on this page*)
- ☐ Once
- ☐ 2 to 4 attempts
- ☐ 5 or more attempts
- ☐ Unsure (*Skip question 27. Go to question 28 on this page*)

27. How long ago was their last quit attempt?

Please choose only one of the following:

- ☐ Currently trying to quit
- ☐ 3 months or less
- ☐ Between 3 and 12 months ago
- ☐ More than one year ago
- ☐ Unsure

28. Do they plan to quit smoking?

Please choose only one of the following:

- ☐ Yes
- ☐ No (*Skip question 29. Go to question 30 on page 10*)
- ☐ Unsure (*Skip question 29. Go to question 30 on page 10*)

29. When do they plan to quit smoking?

Please choose only one of the following:

- ☐ Within the next month
- ☐ Within the next 2 to 6 months
- ☐ More than 6 months
- ☐ Unsure

The Views of Carers Towards Addressing Physical Health Risk Behaviours

30. Which of the following have they ever used in an attempt to quit smoking?

Please choose all that apply:

- | | |
|--|---|
| <input type="radio"/> Nicotine Replacement Therapy (NRT); such as the patches or the chewing gum | |
| <input type="radio"/> E cigarette | <input type="radio"/> Zyban (Bupropion) |
| <input type="radio"/> Quitline | <input type="radio"/> Other medications |
| <input type="radio"/> GP (doctor) advice | <input type="radio"/> Cold turkey (they just stopped on their own with no assistance) |
| <input type="radio"/> Hypnosis | <input type="radio"/> None of these |
| <input type="radio"/> Acupuncture | |
| <input type="radio"/> Champix (Varenicline) | |

31. How often does the person you care for have a drink containing alcohol?

Please choose only one of the following:

- ☐ Never, not drinking alcohol ([*go to question 34 on page 13*](#))
- ☐ Monthly or less
- ☐ 2 to 4 times a month
- ☐ 2 to 3 times a week
- ☐ 4 or more times a week
- ☐ Unsure ([*go to question 34 on page 13*](#))

32. How many standard drinks would they have on a typical drinking day?

Please refer to the diagrams on the following pages as a guide of standard drink measurements.

Please choose only one of the following:

- ☐ 1 to 2
- ☐ 3 to 4
- ☐ 5 to 6
- ☐ 7 to 9
- ☐ 10 or more
- ☐ Unsure





* Ready-to-Drink

The Views of Carers Towards Addressing Physical Health Risk Behaviours

33. How often would they have four or more standard drinks on one occasion?

Please choose only one of the following:

- ☐ Never
☐ Less than monthly
☐ Monthly
☐ Weekly
☐ Daily or almost daily
☐ Unsure

34. In the last year, has the person you care for ever expressed an interest in improving any of the following health behaviours?

Please choose the appropriate response for each item:

You may want to answer Not Applicable for "Alcohol" or "Smoking" if the person you care for is not a smoker or does not drink alcohol.

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. Do you think any of the following factors are health risks for the person you care for?

Please choose the appropriate response for each item:

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Not eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mental Health Services

The next few questions are about whether mental health services should provide care for physical health behaviours for people with mental illness.

They are important for everyone to answer.

We would like you to answer the following questions even if the person you care for has not visited that type of service.

Please provide one answer for each service listed in each question.

36. For someone with a mental illness, do you think the services below should provide care for smoking?

	Yes	No	Unsure
Hunter New England mental health hospital/ unit (e.g. The Mater; Banksia)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hunter New England community mental health service/ team (e.g. Newcastle Mental Health Services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor/ General Practitioner (GP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Government Organisation (NGO) (e.g. NEAMI, Richmond PRA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community drug and alcohol service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General hospital emergency service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private mental health hospital/ unit (e.g. Warners Bay Private Hospital, Lake Side Clinic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Views of Carers Towards Addressing Physical Health Risk Behaviours

37. For someone with a mental illness, do you think the services below should provide care for fruit and vegetable consumption?

	Yes	No	Unsure
Hunter New England mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hunter New England community mental health service/ team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor/ General Practitioner (GP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Government Organisation (NGO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community drug and alcohol service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General hospital emergency service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. For someone with a mental illness, do you think the services below should provide care for alcohol?

	Yes	No	Unsure
Hunter New England mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hunter New England community mental health service/ team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor/ General Practitioner (GP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Government Organisation (NGO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community drug and alcohol service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General hospital emergency service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Views of Carers Towards Addressing Physical Health Risk Behaviours

39. For someone with a mental illness, do you think the services below should provide care for physical activity?

	Yes	No	Unsure
Hunter New England mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hunter New England community mental health service/ team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doctor/ General Practitioner (GP)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-Government Organisation (NGO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatrist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychologist in private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community drug and alcohol service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General hospital emergency service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Private mental health hospital/ unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

This set of questions is about mental health services that the person you care for may have visited. We want to know if the physical health behaviours of the person you care for have been discussed through these services. If the person you care for hasn't used a particular type of service, then you will be directed to skip the remaining questions about that type of service, and go to the next type of service.

Care received from a Hunter New England mental health hospital or inpatient unit e.g. the Mater; Banksia.

40. When was the most recent time that the person you provide care for attended (received care from) a Hunter New England mental health hospital/ unit?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 49, on page 19)*
- ☐ Unsure *(Go to question 49, on page 19)*

41. Has the person you care for ever been asked, when attending a Hunter New England mental health hospital/ unit, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 43, on this page)*
- ☐ Unsure *(Go to question 43, on this page)*

42. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

43. Has the person you care for ever been asked, when attending a Hunter New England mental health hospital/ unit, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 45, on page 18)*
- ☐ Unsure *(Go to question 45, on page 18)*

44. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

45. Has the person you care for ever been asked, when attending a Hunter New England mental health hospital/ unit, if they drink alcohol?

- ☐ Yes
- ☐ No *(Go to question 47, on this page)*
- ☐ Unsure *(Go to question 47, on this page)*

46. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

47. Has the person you care for ever been asked, when attending a Hunter New England mental health hospital/ unit about their physical activity levels?

- ☐ Yes
- ☐ No *(Go to question 49, on page 19)*
- ☐ Unsure *(Go to question 49, on page 19)*

48. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

Care received from a Hunter New England community mental health service/ team e.g. Newcastle Mental Health Services, Lake Macquarie Mental health services.

49. When was the most recent time that the person you provide care for attended (received care from) a Hunter New England community mental health service/ team?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 58, on page 21)*
- ☐ Unsure *(Go to question 58, on page 21)*

50. Has the person you care for ever been asked, when attending a Hunter New England community mental health service/ team, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 52, on this page)*
- ☐ Unsure *(Go to question 52, on this page)*

51. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

52. Has the person you care for ever been asked, when attending a Hunter New England community mental health service/ team, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 54, on page 20)*
- ☐ Unsure *(Go to question 54, on page 20)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

53. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
☐ No
☐ Unsure

54. Has the person you care for ever been asked, when attending a Hunter New England community mental health service/ team, if they drink alcohol?

- ☐ Yes
☐ No *(Go to question 56, on this page)*
☐ Unsure *(Go to question 56, on this page)*

55. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
☐ No
☐ Unsure

56. Has the person you care for ever been asked, when attending a Hunter New England community mental health service/ team, about their physical activity levels?

- ☐ Yes
☐ No *(Go to question 58, on page 21)*
☐ Unsure *(Go to question 58, on page 21)*

57. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
☐ No
☐ Unsure

Care received from a Doctor/ General Practitioner (GP).

58. When was the most recent time that the person you provide care for attended (received care from) a doctor/ GP?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 67, on page 23)*
- ☐ Unsure *(Go to question 67, on page 23)*

59. Has the person you care for ever been asked, when attending a doctor/ GP, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 61, on this page)*
- ☐ Unsure *(Go to question 61, on this page)*

60. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

61. Has the person you care for ever been asked, when attending a doctor/ GP, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 63, on page 22)*
- ☐ Unsure *(Go to question 63, on page 22)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

62. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
☐ No
☐ Unsure

63. Has the person you care for ever been asked, when attending a doctor/ GP, if they drink alcohol?

- ☐ Yes
☐ No *(Go to question 65, on this page)*
☐ Unsure *(Go to question 65, on this page)*

64. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
☐ No
☐ Unsure

65. Has the person you care for ever been asked, when attending a doctor/ GP, about their physical activity levels?

- ☐ Yes
☐ No *(Go to question 67, on page 23)*
☐ Unsure *(Go to question 67, on page 23)*

66. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
☐ No
☐ Unsure

Care received from a Non-Government Organisation (NGO) e.g. NEAMI, Richmond PRA.

67. When was the most recent time that the person you provide care for attended (received care from) a NGO?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 76, on page 25)*
- ☐ Unsure *(Go to question 76, on page 25)*

68. Has the person you care for ever been asked, when attending a NGO, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 70, on this page)*
- ☐ Unsure *(Go to question 70, on this page)*

69. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

70. Has the person you care for ever been asked, when attending a NGO, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 72, on page 24)*
- ☐ Unsure *(Go to question 72, on page 24)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

71. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

72. Has the person you care for ever been asked, when attending a NGO, if they drink alcohol?

- ☐ Yes
- ☐ No [*\(Go to question 74, on this page\)*](#)
- ☐ Unsure [*\(Go to question 74, on this page\)*](#)

73. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

74. Has the person you care for ever been asked, when attending a NGO, about their physical activity levels?

- ☐ Yes
- ☐ No [*\(Go to question 76, on page 25\)*](#)
- ☐ Unsure [*\(Go to question 76, on page 25\)*](#)

75. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

Care received from a psychiatrist in private practice.

76. When was the most recent time that the person you provide care for attended (received care from) a psychiatrist in private practice?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 85, on page 27)*
- ☐ Unsure *(Go to question 85, on page 27)*

77. Has the person you care for ever been asked, when attending a psychiatrist in private practice, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 79, on this page)*
- ☐ Unsure *(Go to question 79, on this page)*

78. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

79. Has the person you care for ever been asked, when attending a psychiatrist in private practice, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 81, on page 26)*
- ☐ Unsure *(Go to question 81, on page 26)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

80. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

81. Has the person you care for ever been asked, when attending a psychiatrist in private practice, if they drink alcohol?

- ☐ Yes
- ☐ No *(Go to question 83, on this page)*
- ☐ Unsure *(Go to question 83, on this page)*

82. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

83. Has the person you care for ever been asked, when attending a psychiatrist in private practice, about their physical activity levels?

- ☐ Yes
- ☐ No *(Go to question 85, on page 27)*
- ☐ Unsure *(Go to question 85, on page 27)*

84. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

Care received from a psychologist in private practice.

85. When was the most recent time that the person you provide care for attended (received care from) a psychologist in private practice?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 94, on page 29)*
- ☐ Unsure *(Go to question 94, on page 29)*

86. Has the person you care for ever been asked, when attending a psychologist in private practice, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 88, on this page)*
- ☐ Unsure *(Go to question 88, on this page)*

87. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

88. Has the person you care for ever been asked, when attending a psychologist in private practice, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 90, on page 28)*
- ☐ Unsure *(Go to question 90, on page 28)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

89. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

90. Has the person you care for ever been asked, when attending a psychologist in private practice, if they drink alcohol?

- ☐ Yes
- ☐ No *(Go to question 92, on this page)*
- ☐ Unsure *(Go to question 92, on this page)*

91. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

92. Has the person you care for ever been asked, when attending a psychologist in private practice, about their physical activity levels?

- ☐ Yes
- ☐ No *(Go to question 94, on page 29)*
- ☐ Unsure *(Go to question 94, on page 29)*

93. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

Care received from a community drug and alcohol service.

94. When was the most recent time that the person you provide care for attended (received care from) a community drug and alcohol service?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 103, on page 31)*
- ☐ Unsure *(Go to question 103, on page 31)*

95. Has the person you care for ever been asked, when attending a community drug and alcohol service, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 97, on this page)*
- ☐ Unsure *(Go to question 97, on this page)*

96. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

97. Has the person you care for ever been asked, when attending a community drug and alcohol service, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 99, on page 30)*
- ☐ Unsure *(Go to question 99, on page 30)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

98. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

99. Has the person you care for ever been asked, when attending a community drug and alcohol service, if they drink alcohol?

- ☐ Yes
- ☐ No *(Go to question 101, on this page)*
- ☐ Unsure *(Go to question 101, on this page)*

100. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

101. Has the person you care for ever been asked, when attending a community drug and alcohol service, about their physical activity levels?

- ☐ Yes
- ☐ No *(Go to question 103, on page 31)*
- ☐ Unsure *(Go to question 103, on page 31)*

102. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

Care received from a general hospital emergency service.

103. When was the most recent time that the person you provide care for attended (received care from) a general hospital emergency service?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 112, on page 33)*
- ☐ Unsure *(Go to question 112, on page 33)*

104. Has the person you care for ever been asked, when attending a general hospital emergency service, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 106, on this page)*
- ☐ Unsure *(Go to question 106, on this page)*

105. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

106. Has the person you care for ever been asked, when attending a general hospital emergency service, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 108, on page 32)*
- ☐ Unsure *(Go to question 108, on page 32)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

107. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
☐ No
☐ Unsure

108. Has the person you care for ever been asked, when attending a general hospital emergency service, if they drink alcohol?

- ☐ Yes
☐ No [*\(Go to question 110, on this page\)*](#)
☐ Unsure [*\(Go to question 110, on this page\)*](#)

109. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
☐ No
☐ Unsure

110. Has the person you care for ever been asked, when attending a general hospital emergency service, about their physical activity levels?

- ☐ Yes
☐ No [*\(Go to question 112, on page 33\)*](#)
☐ Unsure [*\(Go to question 112, on page 33\)*](#)

111. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
☐ No
☐ Unsure

Care received from a private mental health hospital/ unit e.g. Warners Bay Private Hospital, Lake Side Clinic.

112. When was the most recent time that the person you provide care for attended (received care from) a private mental health hospital?

- ☐ Within the last year
- ☐ More than 1 year ago
- ☐ Never *(Go to question 121, on page 35)*
- ☐ Unsure *(Go to question 121, on page 35)*

113. Has the person you care for ever been asked, when attending a private mental health hospital, if they smoke?

- ☐ Yes
- ☐ No *(Go to question 115, on this page)*
- ☐ Unsure *(Go to question 115, on this page)*

114. And if so, were they provided with any advice, treatment or referral relating to smoking?

- ☐ Yes
- ☐ No
- ☐ Unsure

115. Has the person you care for ever been asked, when attending a private mental health hospital, about their fruit and vegetable consumption?

- ☐ Yes
- ☐ No *(Go to question 117, on page 34)*
- ☐ Unsure *(Go to question 117, on page 34)*

The Views of Carers Towards Addressing Physical Health Risk Behaviours

116. And if so, were they provided with any advice, treatment or referral relating to their fruit and vegetable consumption?

- ☐ Yes
- ☐ No
- ☐ Unsure

117. Has the person you care for ever been asked, when attending a private mental health hospital, if they drink alcohol?

- ☐ Yes
- ☐ No [*\(Go to question 119, on this page\)*](#)
- ☐ Unsure [*\(Go to question 119, on this page\)*](#)

118. And if so, were they provided with any advice, treatment or referral relating to their alcohol use?

- ☐ Yes
- ☐ No
- ☐ Unsure

119. Has the person you care for ever been asked, when attending a private mental health hospital about their physical activity levels?

- ☐ Yes
- ☐ No [*\(Go to question 121, on page 35\)*](#)
- ☐ Unsure [*\(Go to question 121, on page 35\)*](#)

120. And if so, were they provided with any advice, treatment or referral relating to their physical activity levels?

- ☐ Yes
- ☐ No
- ☐ Unsure

The Views of Carers Towards Addressing Physical Health Risk Behaviours

These two questions are about your view of whether health behaviours influence mental health.

In general, do you think health behaviours can influence mental health?

121. To what extent do you think health behaviours can have a **positive impact** on mental health?

Please choose the appropriate response for each item:

	Not at all	A little	Moderately	Very	Unsure
Eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decreasing alcohol use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quitting smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

122. To what extent do you think health behaviours can have a **negative impact** on mental health?

Please choose the appropriate response for each item:

	Not at all	A little	Moderately	Very	Unsure
Not eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using too much alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Carer Role

This set of questions is about your role as a carer.

123. How important do you feel it is for you to try and have a positive influence on the health behaviours of the person you care for?

Please choose the appropriate response for each item:

You may want to answer Not Applicable for "Alcohol" or "Smoking" if the person you care for is not a smoker or does not drink alcohol.

	Not at all important	A little important	Somewhat important	Very important	Unsure	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

124. To what extent do you currently try to have a positive influence on the health behaviours of the person you care for?

Please choose the appropriate response for each item:

	I don't try	I try to address their behaviours sometimes	I try to address their behaviours most of the time	I try to address their behaviour all the time	Unsure	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Views of Carers Towards Addressing Physical Health Risk Behaviours

125. To what extent do you think it's possible for you to have a positive influence on the health behaviours of the person you care for?

Please choose the appropriate response for each item:

	Not at all possible	Sometimes possible	Often possible	Always possible	Unsure	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

126. The person I care for finds it acceptable for me to talk with them about their health behaviours.

Please choose the appropriate response for each item:

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Views of Carers Towards Addressing Physical Health Risk Behaviours

127. I feel confident to talk to the person I care for about their health behaviours.

Please choose the appropriate response for each item:

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

128. I have the knowledge and skills to encourage healthy behaviours for the person I care for.

Please choose the appropriate response for each item:

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Views of Carers Towards Addressing Physical Health Risk Behaviours

129. My encouraging healthy behaviours for the person I care for may harm our relationship.
Please choose the appropriate response for each item:

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Experience of Smoke Free Policy

This section of the survey contains questions about smoking bans and treatment for smoking provided within inpatient and community mental health settings. Currently total smoking bans exist in all health care facilities including mental health facilities.

130. Total smoking bans in public places such as public transport, shopping centres and restaurants are a good thing.

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

131. Total smoking bans in general hospitals are a good thing.

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

132. Total smoking bans in mental health hospitals are a good thing.

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

133. Total smoking bans in other mental health treatment facilities (e.g. community mental health services) are a good thing.

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

134. Smoking bans in a mental health hospital need to be properly put in place so that no smoking actually occurs.

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

135. Smoking bans in a mental health hospital need to include treatment for smokers such as Nicotine Replacement Therapy (NRT).

Strongly agree	Agree	Unsure	Disagree	Strongly disagree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

136. Is there anything you would like to comment on regarding your personal experience, or the person you care for, of smoking bans in inpatient and community mental health settings?

The Views of Carers Towards Addressing Physical Health Risk Behaviours

137. Is there anything you would like to comment on regarding your personal experience, or the person you care for, of smoking treatment (e.g. Nicotine Replacement Therapy (NRT)) in inpatient and community mental health settings?

Please answer the following questions about yourself.

138. This question asks about how you have been feeling in the *last four weeks*.

Please tick the appropriate response for each item:

In the last four (4) weeks...

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
About how often did you feel so depressed nothing could cheer you up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel hopeless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel restless or fidgety?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel that everything was an effort?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel worthless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
About how often did you feel nervous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

139. What is your age?

140. Gender?

☐ Female

☐ Male

141. What is your current employment status?

Please choose only one of the following:

☐ Employed full time

☐ Employed part time or casual

☐ Not currently employed- but seeking employment

☐ Not currently employed- not seeking employment

142. Are you of Aboriginal or Torres Strait Islander origin?

Please choose only one of the following:

☐ Yes, Aboriginal origin

☐ Yes, Torres Strait Islander origin

☐ Yes, both Aboriginal and Torres Strait Islander origin

☐ No

143. What is your present marital status?

Please choose only one of the following:

☐ Never married

☐ Married or living together in a relationship

☐ Divorced/ Separated

☐ Widowed

144. What is the highest level of education you have achieved?

Please choose only one of the following:

- ☐ No formal schooling or attended primary school only
- ☐ Some high school with less than four years completed
- ☐ School certificate, Intermediate, Year 10, 4th Form
- ☐ Completed HSC, Leaving, Year 12 or 6th Form
- ☐ TAFE certificate or diploma
- ☐ University, College of Advanced Education, Degree or higher

145. What is your postcode?

146. Have you ever been diagnosed with a mental illness?

Please choose only one of the following:

- ☐ Yes
- ☐ No *(Skip question 147. Go to question 148 on page 44)*

147. What was, or is your primary psychiatric diagnosis?

Please choose only one of the following:

- ☐ Schizophrenia
- ☐ Depression
- ☐ Anxiety disorder
- ☐ Panic disorder
- ☐ Bipolar disorder
- ☐ Post-traumatic stress disorder
- ☐ Eating disorder
- ☐ Personality disorder
- ☐ Dementia
- ☐ Unsure
- ☐ Other:

Please describe:

The questions in this section are about your own physical health behaviours.

It will contain questions about smoking, fruit and vegetable consumption, alcohol consumption and physical activity.

Please answer these questions about yourself.

148. How many serves of vegetables do you usually eat each day?

One serve of vegetables or legumes is equal to: $\frac{1}{2}$ cup green leafy vegetables like cabbage, spinach, Brussels sprouts or cauliflower; $\frac{1}{2}$ cup green beans, zucchini, mushrooms, turnips, swede or eggplant; 1 cup salad vegetables such as tomato, capsicum and celery; 1 medium sized potato or parsnip.

Please choose only one of the following:

- | | |
|-------------------------|---------------------------------|
| <input type="radio"/> 0 | <input type="radio"/> 4 |
| <input type="radio"/> 1 | <input type="radio"/> 5 or more |
| <input type="radio"/> 2 | <input type="radio"/> Unsure |
| <input type="radio"/> 3 | |

149. How many serves of fruit do you usually eat each day?

One serve of fruit is equal to: 150 grams (5.29 oz.) of fresh fruit or; one medium sized fruit (e.g. apple); 2 smaller pieces (e.g. apricots); 1 cup canned or chopped fruit; $\frac{1}{2}$ cup/ 125 ml (5 fl oz.) 100% fruit juice; 1.5 tablespoon dried fruit (e.g. sultanas or 4 dried apricot halves).

Please choose only one of the following:

- ☐ 0
- ☐ 1
- ☐ 2 or more
- ☐ Unsure

150. How many days a week do you usually do 30 minutes or more of physical activity?

By physical activity we mean any activity that increases your heart rate or makes you breathe harder than normal. This can include brisk walking, swimming, team sports or even things like gardening. You can add up your total time during the day, for example walking to the shops and back.

Please choose only one of the following:

- | | |
|-------------------------|--|
| <input type="radio"/> 0 | <input type="radio"/> 6 |
| <input type="radio"/> 1 | <input type="radio"/> 7, everyday |
| <input type="radio"/> 2 | <input type="radio"/> Unsure |
| <input type="radio"/> 3 | <input type="radio"/> Can't do physical activity for health or treatment reasons |
| <input type="radio"/> 4 | |
| <input type="radio"/> 5 | |

151. Do you live in a smoke-free household?

By this we mean people may be smokers but no smoking is permitted inside the residence.

Please choose only one of the following:

- ☐ Yes
- ☐ No
- ☐ Unsure

152. Are you a smoker of any tobacco products?

This could include 'roll your own', cigars, pipe etc.

Please choose only one of the following:

- | | |
|---|---|
| <input type="radio"/> Yes, daily | <i>(go to the next question)</i> |
| <input type="radio"/> Yes, at least once a week | <i>(go to the next question)</i> |
| <input type="radio"/> Yes, less than once a week | <i>(go to the next question)</i> |
| <input type="radio"/> No, trying to quit | <i>(go to question 160, on page 47)</i> |
| <input type="radio"/> No, quit longer than 4 months ago | <i>(go to question 160, on page 47)</i> |
| <input type="radio"/> No, never smoked | <i>(go to question 161, on page 48)</i> |

The Views of Carers Towards Addressing Physical Health Risk Behaviours

153. How many cigarettes are you usually smoking each day?

Please choose only one of the following:

- ☐ 10 or less ☐ 31 or more
☐ 11 to 20 ☐ Unsure
☐ 21 to 30

154. How soon after waking are you usually having your first smoke?

Please choose only one of the following:

- ☐ Within 5 minutes
☐ 6 to 30 minutes
☐ 31 to 60 minutes
☐ More than 60 minutes
☐ Unsure

155. In the last year, did you ever on purpose quit smoking for at least 24 hours?

Please choose only one of the following:

- ☐ Yes
☐ No
☐ Unsure

156. Have you ever made an attempt to quit smoking in the past?

Please choose only one of the following:

- ☐ Never (*skip question 157, go to question 158 on page 47*)
☐ Once
☐ 2 to 4 attempts
☐ 5 or more attempts
☐ Unsure (*skip question 157, go to question 158 on page 47*)

157. How long ago was your last quit attempt?

Please choose only one of the following:

- ☐ Currently trying to quit
- ☐ 3 months or less
- ☐ Between 3 and 12 months ago
- ☐ More than one year ago
- ☐ Unsure

158. Do you plan to quit smoking?

Please choose only one of the following:

- ☐ Yes
- ☐ No (*Skip question 159, go to question 160, on this page*)
- ☐ Unsure (*Skip question 159, go to question 160, on this page*)

159. When do you plan to quit smoking?

Please choose only one of the following:

- ☐ Within the next month
- ☐ Within the next 2 to 6 months
- ☐ More than 6 months
- ☐ Unsure

160. Which of the following have you ever used in an attempt to quit smoking?

Please choose all that apply:

- ☐ Nicotine Replacement Therapy (NRT); such as patches or gum
- ☐ E cigarette
- ☐ Quitline
- ☐ GP (doctor) advice
- ☐ Hypnosis
- ☐ Acupuncture
- ☐ Champix (Varenicline)
- ☐ Zyban (Bupropion)
- ☐ Other medications
- ☐ 'Cold turkey' (I just stopped on my own with no assistance)
- ☐ None of these

161. How often do you have a drink containing alcohol?

Please choose only one of the following:

- ☐ Never, not drinking alcohol (*go to question 164 on page 49*)
- ☐ Monthly or less
- ☐ 2 to 4 times a month
- ☐ 2 to 3 times a week
- ☐ 4 or more times a week
- ☐ Unsure

162. How many standard drinks would you have on a typical drinking day?

Please refer back to the diagrams on pages 11 and 12 as a guide of standard drink measurements.

Please choose only one of the following:

- ☐ 1 to 2
- ☐ 3 to 4
- ☐ 5 to 6
- ☐ 7 to 9
- ☐ 10 or more
- ☐ Unsure

163. How often would you have four or more standard drinks on one occasion?

Please choose only one of the following:

- ☐ Never
- ☐ Less than monthly
- ☐ Monthly
- ☐ Weekly
- ☐ Daily or almost daily
- ☐ Unsure

The Views of Carers Towards Addressing Physical Health Risk Behaviours

164. In the last year, have you had an interest in improving any of your own health behaviours?

Please choose the appropriate response for each item:

You may want to answer Not Applicable for "Alcohol" or "Smoking" if the person you care for is not a smoker or does not drink alcohol.

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

165. Do you think any of the following factors are health risks for you?

Please choose the appropriate response for each item:

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Not eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alcohol use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

166. Can you please tell us roughly how long it took you to complete this survey?

In minutes.

167. Any comments you would like to make on the survey would be appreciated. Was it easy? Hard? Were any questions difficult to understand? If you have any ideas on how to improve the survey that would be greatly appreciated. Thank you.

168. We may want to ask you some questions based on your responses to this survey and similar issues discussed within this survey.

If you are comfortable with this, you can check the box below that says "I consent to being contacted through my organisation" where we will ask your organisation (the organisation that you received this survey from) to contact you. If you check the box we will not gain access to your personal information, your organisation will contact you and provide you with the details of what we want to discuss with you and you can respond if you wish.

☐

I consent to being contacted through my organisation in the future.

Thank you very much for taking the time to complete this survey.

If you have any questions regarding the survey you can contact the lead investigator Jenny Bowman by email at Jenny.Bowman@newcastle.edu.au or by telephone: 49215958. Alternatively, you can ask any questions through your support organisation.

If answering any of the questions in the survey has left you feeling upset, worried or concerned you can contact Lifeline on 131114 or Beyondblue on 1300224636. Lifeline and Beyondblue are telephone helplines where you can talk to someone about how you are feeling. You can call these numbers and talk to someone 24 hours a day, 7 days a week.

Appendix 5.3: Carer Survey for Chapter 6

Please answer the following questions about yourself.

1. What year were you born?

2. Gender?

☐ Female

☐ Male

3. What is your current employment status?

Please choose only one of the following:

☐ Employed full time

☐ Employed part time or casual

☐ Not currently employed- but seeking employment

☐ Not currently employed- not seeking employment

☐ Performing unpaid work

4. Are you of Aboriginal or Torres Strait Islander descent?

Please choose only one of the following:

☐ Yes, Aboriginal but not Torres Strait Islander

☐ Yes, Torres Strait Islander but not Aboriginal

☐ Yes, Aboriginal and Torres Strait Islander

☐ Don't know (unsure)

☐ No

5. Are you of any other ethnic or national background? (for example, African-American, Canadian, or Chinese)

- ☐ No
☐ Yes

If yes, which ethnic or national origin are you?

6. What is your present marital status?
Please choose only one of the following:

- ☐ Never married
☐ Married or living together in a relationship
☐ Divorced/ Separated
☐ Widowed

7. What is the highest level of education you have achieved?
Please choose only one of the following:

- ☐ No formal schooling or attended primary school only
☐ Some high school with less than four years completed
☐ School certificate, Intermediate, Year 10, 4th Form
☐ Completed HSC, Leaving, Year 12 or 6th Form
☐ TAFE certificate or diploma
☐ University, College of Advanced Education, Degree or higher

8. What is your postcode?

9. Do you own a smart phone? For example, an iPhone.

☐ Yes

☐ No

10. What social media have you used within the last 12 months?

Tick all that apply.

☐ Facebook

☐ Twitter

☐ YouTube

☐ Instagram

☐ Other:

Please describe

11. In general, how often do you visit your Facebook page?

☐ Daily

☐ Weekly

☐ Monthly

☐ Less than monthly

☐ I don't have a Facebook page

12. Are you a smoker of any tobacco products?

This could include 'roll your own', cigars, pipe etc.
Please choose only one of the following:

- ☐ Yes, daily
☐ Yes, at least once a week
☐ Yes, less than once a week
☐ No, trying to quit
☐ No, quit longer than 4 months ago
☐ No, never smoked

13. Do you think any of the following factors are health risks for you?

Please choose the appropriate response for each item:

You may want to answer Not Applicable if you are not a smoker or do not drink alcohol.

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Not eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Not doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Alcohol use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Is any one of the factors more important to you than the others? If so, which one?

- ☐ Not eating enough fruit and vegetables
☐ Not doing enough physical activity
☐ Alcohol use
☐ Smoking
☐ Other _____

14. Do you think any of the following factors are health risks for your carer?

Please choose the appropriate response for each item:

You may want to answer Not Applicable if your carer does not smoke or does not drink alcohol.

	Yes	No	Unsure	Not Applicable, not a smoker or not drinking alcohol
Not eating enough fruit and vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Not doing enough physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Alcohol use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Is one or more factors more important to your carer than the others? If so, which one?

- ☐ Not eating enough fruit and vegetables
☐ Not doing enough physical activity
☐ Alcohol use
☐ Smoking
☐ Other _____

Changing physical health behaviours

This set of questions is about your physical health behaviours and the physical health behaviours of your carer.

15. I would like some supportive strategies to help me improve or change my physical health behaviours.

Please choose the appropriate response for each item:

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable- I'm not a smoker/ don't drink any alcohol
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

16. I would like my carer to help me improve or change my physical health behaviours.

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable- I'm not a smoker/ don't drink any alcohol
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

17. I would be interested in some supportive strategies to help my carer and me to improve or change our physical health behaviours together.

	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	Not applicable- <u>we are not</u> smokers/ don't drink any alcohol
Smoking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit and vegetable consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Alcohol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	