ALCOHOL USE IN PREGNANCY: MIXED METHODS APPLIED TO THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH

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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.

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I hereby certify that the work embodied in this thesis has been done in collaboration with other researchers. I have included as part of the thesis a statement clearly outlining the extent of collaboration, with whom and under what auspices.

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I hereby certify that the work embodied in this thesis contains published papers of which I am a joint author. I have included as part of this thesis a written statement, endorsed by my supervisors, attesting to my contribution to the joint publications.

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CO-AUTHOR STATEMENT

I attest that Research Higher Degree candidate Amy Anderson contributed to the listed publications included in this thesis by publication:

1. Anderson A, Hure A, Powers J, Kay-Lambkin F, Loxton D: Determinants of pregnant women's compliance with alcohol guidelines: a prospective cohort study. *BMC Public Health* 2012, 12:777
2. Anderson A, Hure A, Forder P, Powers J, Kay-Lambkin F, Loxton D: Predictors of antenatal alcohol use among Australian women: a prospective cohort study. *BJOG: An International Journal of Obstetrics and Gynaecology* 2013, 120(11):1366- 1374
3. Anderson A, Hure A, Forder P, Powers J, Kay-Lambkin F, Loxton D: Risky Drinking Patterns Are Being Continued into Pregnancy: A Prospective Cohort Study. *PLoS ONE* 2014, 9(1):e86171
4. Anderson A, Hure A, Kay-Lambkin F, Loxton D: Women's perceptions of information about alcohol use during pregnancy: a qualitative study *BMC Public Health* 2014, 14:1048

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- Developing analyses plans
- Developing research materials and collecting data
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THESIS PUBLICATIONS

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Chapter 7

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OTHER THESIS-RELATED OUTCOMES

Journal articles

Loxton D, Chojenta C, Anderson A, Powers J, Shakeshaft A, Burns L: Acquisition and utilization of information about alcohol use in pregnancy among Australian pregnant women and service providers. *Journal of Midwifery and Women's Health* 2013, 58:523–530.

Hure A, Gresham E, Lai J, Anderson A, Martin J, Fealy S, Blumfield M: **Nutrition in pregnancy: The balancing act**. *International Journal of Birth and Parent Education* 2014, **1**(4):7-12.

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Government report

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Published abstract

Anderson AE, Loxton D, Kay-Lambkin F, Powers J. Compliance with Alcohol Guidelines for Pregnant Women: Using Data from the Australian Longitudinal Study on Women's Health (Poster). Abstracts from Women's Health 2012: The 20th Annual Congress, March 16–18, 2012 Washington, DC *Journal of Women's Health* 2012;21(4): A-1-A-61.doi:10.1089/jwh.2012.Ab01.

Conferences

Anderson AE, Hure AJ, Forder P, Powers JR, Kay-Lambkin FJ, Loxton DJ. **Predictors of Antenatal Alcohol Consumption in Australia**. (Oral presentation). Australasian Fetal Alcohol Spectrum Disorders Conference, Brisbane, Queensland, Australia, 19–20 November 2013.

Harris M, Anderson A, Rich J, Loxton D. **Drinking alcohol during pregnancy: How do women experience information delivery?** (Poster). First International Conference on the Prevention of Fetal Alcohol Spectrum Disorder, Alberta, Canada, 23 - 25 September 2013.

Anderson A, Hure AJ, Forder P, Powers JR, Kay-Lambkin FJ, Loxton DJ **Predicting alcohol use during pregnancy among Australian women: A population based prospective cohort study** (Poster). First International Conference on the Prevention of Fetal Alcohol Spectrum Disorder, Alberta, Canada, 23 - 25 September 2013.

Anderson A, Chojenta C, Gresham E, Harris M, Rich J. **Australian Longitudinal Study on Women's Health: Insights from research higher degree students**. (Panel Discussion). 7th Australian Women's Health Conference, Sydney, New South Wales, Australia, 8-10 May 2013.

Anderson A, Powers J, Hure A, Kay-Lambkin F, Loxton D. **Compliance with Alcohol Guidelines for Pregnant Women: Using Data from the Australian Longitudinal Study on Women's Health.** (Poster). Women's Health 2012: The 20th Annual Congress, Washington, DC, United States of America, 16-18 March 2012.

Media coverage

Related to Chapter 5:

- BJOG Press Release 17 July 2013 for publication included in Chapter 5
- HMRI Press Release 19 November 2013 for publication included in Chapter 5 and presentation at the Australasian Fetal Alcohol Spectrum Disorders Conference, Brisbane, QLD
- News coverage: News.com.au, The Telegraph Lifestyle, Health News (healthcanal.com), Newcastle Herald
- Radio coverage: 2NUR (103.7)

Related to Chapter 6:

- HMRI Press Release 30 Jan 2014
- Press coverage: Sydney Morning Herald, The Age, WA Today, 6 Minutes, Essential Baby, Naomi Valley Independent, Roxby Downs Sun, Brisbane Times, Forensic & Science Services

- Radio/TV coverage: Channel 7 News Melbourne, Sunrise, 3AW Melbourne, BBC UK

Related to broadly to alcohol use in pregnancy:

- HMRI Press Release 03 Jul 2014 for the HMRI Open Day
- Radio/TV coverage: ABC, KOFM, NBN News, International News

Policy and impact

The research on risky alcohol consumption in pregnancy presented in Chapter 6 was used by the Honourable Sonia Hornery, MP for Wallsend, NSW to present a Notice of Motion to the Parliament of New South Wales, 25 March 2013, which urged the Minister of Health to fund prenatal services in relation to alcohol consumption during pregnancy.(Appendix D)

Loxton D. *Policy Makers' Seminar*, Canberra, ACT, Australia, 14 February 2013. My work was presented by Prof Deborah Loxton to approximately 150 government representatives from the Australian Government Department of Health and Ageing (DoHA). The work presented was focused on the 2012 ALSWH report on adherence to health guidelines (see Government Report listed above), as well as drawing from my 2012 BMC Public Health publication (Chapter 4). The findings from this collaborative work were presented to inform policy makers about the alcohol consumption and alcohol guideline adherence of pregnant Australian women.

Dedication

To my family, both near and far, you are the foundation that keeps me grounded and supports me as I continue to grow. I dedicate this thesis to all of you. I hope I have made you proud.

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LIST OF ABBREVIATIONS

ALSWH: Australian Longitudinal Study on Women's Health

ANOVA: Analysis of Variance

AOR: Adjusted Odds Ratio

AQUA: Asking QUestions about Alcohol in pregnancy

AUDIT: Alcohol Use Disorders Identification Test

AUDIT-C: Alcohol Use Disorders Identification Test - Consumption

CES-D: Center for Epidemiologic Studies Depression Scale

CI: Confidence Interval

FARE: Foundation of Research and Education

GP: General Practitioner

HMRI: Hunter Medical Research Institute

M: Mean

MeSH: Medical Subject Heading

NDSHS: National Drug Strategy Household Survey

NHMRC: National Health and Medical Research Council

FAS: Fetal Alcohol Syndrome

FASD: Fetal Alcohol Spectrum Disorder
(previously Fetal Alcohol Spectrum Disorders)

IGCD: Intergovernmental Committee on Drugs

IQ: Intelligence Quotient

OR: Odds Ratio

PHQ-9: Patient Health Questionnaire

SCOPE: Screening for Pregnancy Endpoints

SD: Standard Deviation

STROBE: Strengthening the Reporting of Observational Studies in Epidemiology

UK: United Kingdom

US(A): United States (of America)

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ABSTRACT

Population health guidelines aim to reduce the burden of disease by providing evidence-based recommendations that can inform health behaviours. Such guidelines are used internationally, as well as in Australia, to assist in preventing the burden associated with alcohol use during pregnancy. Consuming alcohol during pregnancy at high levels may lead to severe outcomes such as Fetal Alcohol Spectrum Disorder, stillbirth, miscarriage and growth restriction. The impact of low level alcohol use during pregnancy is unclear and complex, leading to an inability to define a specific threshold at which harm occurs. The lack of clarity has led to inconsistent alcohol guidelines for pregnant women, particularly in Australia. The Australian alcohol guidelines in 1992 initially recommended abstinence, before revising the recommendation in 2001 to condone low intake, and then reverting back to abstinence in 2009. At the time of commencing this thesis, no study had assessed the population-based prevalence and predictors of alcohol use during pregnancy in respect to the change of guidelines in 2009. This thesis used a mixed methods approach applied to the Australian Longitudinal Study on Women's Health, a prospective cohort, to investigate predictors of alcohol use during pregnancy, within the context of the changing Australian alcohol guidelines. The two specific thesis aims were to identify: (i) the prevalence of alcohol use during pregnancy since the introduction of the 2009 alcohol guidelines; and (ii) the factors contributing to alcohol use among pregnant women within Australia. The results suggest that more than 70% of women consume alcohol during pregnancy, even with the message of abstinence; although such a message did correspond with a lower prevalence compared to the prevalence under the low intake guidelines. The most consistent indicator of alcohol use during pregnancy was pre-pregnancy alcohol patterns, particularly weekly and binge drinking. These behaviours were often continued into pregnancy, putting both the woman and fetus at an increased risk of potential adverse outcomes. Qualitative interviews with women who were pregnant after 2009 suggest that the message of "not drinking is the safest option" has not filtered down in a clear and consistent manner. Such communication was desired by the women, particularly via healthcare professionals, to enable them to make informed choices about alcohol use during pregnancy. These findings taken together suggest that the change of population alcohol guidelines to an abstinence message for pregnant women requires systematic dissemination via policy and practice to ensure that women are provided with information and support to reduce and abstain from alcohol use during pregnancy.

1 INTRODUCTION

Heavy alcohol use during pregnancy can have potentially serious consequences, so guidelines have been developed to assist pregnant women in making informed decisions about their alcohol intake. Unfortunately, due to the inability to define a safe level of alcohol consumption during pregnancy, Australian alcohol guidelines in relation to pregnancy have been inconsistent over time. Within the context of changing guidelines, this thesis examines alcohol use during pregnancy in Australia from a public health perspective, including factors that predict and explain this phenomenon. The current chapter includes an introduction to public health guidelines for alcohol use, a brief description of the evidence base that informs guidelines for alcohol use during pregnancy, international and Australian guidelines for alcohol use during pregnancy and a summary of the thesis chapters that follow.

1.1 Public health guidelines

Public health guidelines play an important role in helping to combat the burden of disease and injury. Guidelines should be a synthesis of the best available evidence that provide recommendations at a population level to assist people in maintaining good health and avoiding negative health outcomes. Such guidelines are beneficial to society, as their purpose is to reduce costs to the healthcare system and increase workforce participation, by reducing the amount of time lost to ill health or injury. Guidelines can also benefit individuals by providing them with the information they need to make informed decisions about their health and behaviour.

When generating public health guidelines, it is essential that all relevant and methodologically sound literature be objectively assessed to provide recommendations that align with the most current scientific evidence. Not only does the volume of evidence need to be considered, but more importantly the quality, consistency, and clinical implications of the research.[1] The National Health and Medical Research Council (NHMRC) highlight the need to utilise the best available level of evidence when developing guidelines.[1] They describe a hierarchy of evidence, which varies according to the specific research question. For example, when gathering evidence about the effectiveness of interventions a systematic review of randomised controlled trials is the highest level of evidence followed by individual high quality randomised controlled trials.[1] However, when investigating aetiology, systematic reviews of prospective cohort studies are best to use followed by individual prospective cohort studies.[1]

Unfortunately, in most cases the best available evidence is not as clear as a simplified public health message may suggest. Differences of scientific opinion can reflect legitimate debate over data quantity, quality and interpretation. Furthermore, advances in knowledge lead to changes in practice over time. This can lead to discrepancies in the public health recommendations adopted by countries around the world, in addition to countries changing their own recommendations over time. One area that has attracted the attention of policy makers worldwide and prompted the creation of public health guidelines is alcohol use.

1.2 Alcohol use in Australia

Alcohol use has been reported to account for approximately 5.9% of deaths and 5.1% of disability adjusted life years worldwide.[2] The burden of alcohol impacts not only on the individual, but also on society. It has been estimated that in high income countries, the economic cost attributable to alcohol consumption is about 2.5% of a country's gross domestic product.[3] Alcohol misuse puts a strain on healthcare systems and law enforcement, and leads to more socially inappropriate behaviours and loss of productivity.[2, 3] Alcohol-related problems exist in both developing and more developed countries, and are prevalent in Australia.

The average per capita consumption of pure alcohol for Australians 15 years or older is estimated to be 12.2 litres per year,[4] nearly twice that of the worldwide average of 6.2 litres per year.[2] Such consumption has led to over 5,500 deaths and 4.1% of disability

adjusted life years being attributed to alcohol each year.[5] The misuse of alcohol (i.e. consuming greater than the recommended intake) costs Australia over $14.4 billion dollars a year, due to lost productivity, criminal justice costs, healthcare costs, and alcohol-related traffic accidents.[6] It has been suggested that about half of the social burden is avoidable through public policy interventions.[7] Despite the high social costs of alcohol, Australians maintain their long-standing drinking culture, which has existed since colonisation.[8]

Australian public health guidelines to reduce the harms associated with alcohol use were introduced in 1987 with a second edition in 1992,[9] followed by revised guidelines in 2001[10] and 2009.[11] When updating the guidelines, an evaluation of the most recent scientific literature was undertaken in order to create evidence-based recommendations about responsible levels of alcohol consumption. The literature suggested that a number of sub-populations within the greater population of Australia required their own specific recommendations about alcohol use, such as pregnant women and women of childbearing age. These specific recommendations were made based on the large body of evidence examining the associations between alcohol use during pregnancy and negative outcomes for the mother and child. This evidence is vast and often inconsistent, making it necessary to review before discussing the recommendations that have been made regarding alcohol use during pregnancy.

1.3 Outcomes related to alcohol use during pregnancy

There are a number of difficulties in examining the evidence regarding the relationship between alcohol use and pregnancy in humans. Potential confounding factors, such as maternal and fetal genetics,[12-15] blood alcohol concentrations,[16] and the dose, pattern and timing of drinking[17-21] are not always taken into account. Therefore, it becomes difficult to identify an exact level of alcohol use at which harm may occur. Additionally, there is inconsistency in how countries quantify a standard drink. What constitutes heavy, moderate or light drinking is often left to individual researchers, resulting in variability across studies. Despite these limitations, it is widely acknowledged in the literature that alcohol is a teratogen and heavy use during pregnancy is associated with detrimental effects.

1.3.1 High intake

A number of adverse outcomes are associated with prenatal alcohol use, particularly from heavy use. The most well-known negative outcome related to alcohol exposure *in utero* is Fetal Alcohol Syndrome (FAS), which was first described by Frenchman Paul Lemoine and his colleagues[22] in 1968, before being officially named by Jones and Smith[23] in 1973. Children born with FAS exhibit a number of abnormalities including: prenatal and postnatal growth retardation, small head circumference, developmental delay, mental retardation, fine motor dysfunction, inner epicanthic folds, midfacial hypoplasia (i.e. underdevelopment of facial structures), and short palpebral fissures (i.e. small-set eyes).[24] It has been noted that these symptoms range in severity and with degree of fetal exposure to alcohol. Therefore, FAS has been incorporated into a group of disorders referred to as Fetal Alcohol Spectrum Disorders (FASD).[25, 26] The neurobehavioural deficits seen in children with FASD are most likely explained by alterations to the brain. Multiple brain imaging studies have shown a reduction in volume of the brain as a whole, as well as specific areas of the brain being malformed or smaller in volume in relation to alcohol exposure *in utero*.[27] Additionally, functional neuroimaging studies have shown that individuals exposed to alcohol use during pregnancy have a number of functional deficiencies within particular brain regions.[28]

FAS and FASD are well-documented associations with prenatal alcohol consumption. However, a number of other problems are also related to high alcohol intake during pregnancy. Potential pregnancy complications linked with consistent heavy alcohol use or binge drinking include: preterm delivery,[19, 29] sleep disturbance,[30] stillbirth,[21, 31] and miscarriage.[21] Within Australia, women who have had at least one alcohol-related diagnosis were more likely to have unplanned caesarean sections[32] which increases costs through the use of anaesthetics and an increased length of stay in hospital.[33]

Research has reported that babies that were exposed to high levels of alcohol *in utero* were at higher risk for: post-neonatal mortality,[34] lower Apgar scores,[32] increased admission to the special care nursery,[32] fetal growth restrictions,[32, 35-37] low birth weight,[38, 39] infections,[40] sepsis,[41] and congenital anomalies such as a cleft palate.[42] Such birth outcomes are devastating for the families who are affected, but they also create additional costs to the health system.[43] Within a universal healthcare system, such as Australia's, these costs translate into increased pressure on society's tax system, making it a national issue, rather than just a personal issue.

Prenatal alcohol exposure is also related to diseases that develop after birth and in childhood, such as iron-deficiency anaemia[38] and leukaemia,[44-46] which have been found to be more common among children who were exposed to alcohol *in utero*. Neuro-behavioural problems are commonly reported throughout the literature.[47] For example, verbal IQ,[48] information processing skills,[49] delinquency and aggression,[48, 50] emotional problems,[51] anxiety and depression,[20, 50] somatic complaints,[20] and attention problems and hyperactivity[52] have all been associated with heavy prenatal alcohol use. A meta-analysis[53] looking at the association of fetal alcohol exposure with infant mental development found that, after adjusting for covariates, heavy use (i.e. two or more drinks per day, as defined by the authors) was associated with about a half a standard deviation decrease in scores on the Mental Development Index. Fetal exposure to alcohol has also been linked to the development of alcohol use disorders in early adulthood.[54, 55] It is possible that there is a direct effect of fetal alcohol exposure *in utero* on the subsequent development of alcohol use disorders. However, it may not be possible to disentangle the effects from other contributing factors like genetic predisposition and exposure to parental drinking behaviours throughout childhood.

1.3.2 Light to moderate intake

The evidence regarding the relationship between light to moderate prenatal alcohol use and adverse outcomes is not clear. A dose-response association has not been consistently observed in human trials,[50, 56] [57] where randomised controlled trials of different doses of alcohol are not ethically possible and residual confounding must always be considered. There is, however, evidence to suggest a threshold (i.e. 30-40 grams of alcohol per occasion or no more than 70 grams per week) at which fetal harm occurs.[58]

In 2006, Gray and Henderson[59] submitted a report to the Department of Health in England, which contained a systematic review assessing the outcomes associated with light to moderate prenatal alcohol use. They found some evidence to support the link between light to moderate alcohol use during pregnancy and spontaneous abortion (i.e. miscarriage).[59, 60] Gray and Henderson's findings were similar to those reported in a meta-analysis by Makarechian et al[61] with only one overlapping paper; however, both were limited by methodological shortcomings. For example, Makarechian et al[61] explained that the studies they used in their meta-analysis to examine spontaneous

abortion were statistically heterogeneous; therefore, making the pooled odds ratios unreliable. The evidence of the association between alcohol use and spontaneous abortion that was reported by Gray and Henderson[59] was based on five studies that had found significant results. These results were inconsistent with the three studies that did not find significant results. The results of the five studies were overshadowed by a range of methodological flaws such as recall bias, not adjusting for confounders (e.g. smoking status), and not defining the timeframe for the measurement for pre-pregnancy drinking.[59, 60] These methodological flaws, as well as the inconsistent nature of the eight studies examining spontaneous abortion, limit the conclusions that can be drawn from the literature.

More recently, a prospective study utilising data from over 91,000 women from the Danish National Birth Cohort, found that alcohol use during pregnancy at certain levels (i.e. 2-3.5 drinks/week or 4 or more drinks/week) had one of the largest associations with spontaneous abortion when examining modifiable factors associated with the adverse event.[57] However, it is unclear whether the average weekly consumption was spread out over time or consumed on a single occasion. The latter would have resulted in a higher blood alcohol concentration, making negative outcomes more likely.

Gray and Henderson also noted in their report that the evidence for drinking at low to moderate levels showed inconsistent relationships with other birth outcomes such as stillbirth, intrauterine growth retardation, birth weight and preterm birth.[59, 60] The majority of studies found no significant association between low to moderate levels of prenatal alcohol use and the negative birth outcome of interest, with some studies reporting an inverse relationship.[59, 60] These findings of nil or inverse relationships have since been reiterated by other studies, including a systematic review and meta-analysis, in relation to growth, birthweight, preterm birth and preeclampsia.[56, 62-64] However, some studies have found low levels of drinking are associated with positive birth outcomes, with Gray and Henderson reporting that at least one study for each adverse outcome in their review had reported a significant positive association.[59, 60] These positive relationships have also been supported by more recent studies. [65-67] One must also consider the potential for publication bias in such a topical field of research.

Gray and Henderson[59, 60] concluded that the literature regarding the association between light to moderate alcohol exposure and birth outcomes was inconclusive, and therefore no safe level of alcohol consumption during pregnancy could be determined.

Such inconclusive evidence may reflect a lack of methodologically sound studies, or alternatively (or additionally), that there is no, or perhaps very minimal, effect. A comprehensive synthesis of the body of evidence is currently hindered by extreme variability in the operational definition of light to moderate alcohol consumption, and the regularly unmeasured potential confounders such as genetics, timing, dose and pattern of drinking. It has been suggested that more rigorous studies should be conducted to assess the relationship between low to moderate levels of prenatal alcohol use and birth outcomes.[59, 68] Until more robust studies are conducted, a safe level of alcohol consumption cannot be determined.

1.4 Guidelines for alcohol use during pregnancy

The guidelines relating to alcohol use and pregnancy rely on the available research literature. Therefore, the paucity of evidence relating to a safe level of drinking during pregnancy is of particular importance to policy makers. To ensure the public is not harmed by policies based on false or weak research findings, policy makers need to ensure that the recommendations they make rely on solid evidence. The inconclusive nature of the research literature is reflected in the variations found between international and regional alcohol guidelines for pregnant women.[68]

1.4.1 International guidelines

Some countries, such as the United States,[69] Canada,[70] Denmark,[71] and South Africa,[72] have taken a conservative approach and recommend abstaining from alcohol use during pregnancy. Until recently the United Kingdom[73] was less strict with the recommendation, suggesting abstinence was safest but providing guidelines around frequency and quantity for women who still chose to drink alcohol during pregnancy. However, the United Kingdom Department of Health revised their alcohol guidelines in 2015-2016, which previously allowed for one to two units of alcohol once or twice a week, to be in accordance with other international guidelines that recommend not drinking as the safest option.[74]

1.4.2 Australian guidelines

Australia’s approach to alcohol guidelines for pregnant women has been inconsistent over the last two decades. The 1992 National Health and Medical Research Council (NHMRC) guidelines suggested that women abstain from alcohol during pregnancy.[9] However, in 2001 the guidelines were revised as a result of the limited information

available about low to moderate alcohol intake and pregnancy outcomes.[10] The 2001 guidelines stated that pregnant women, or women who may become pregnant soon:

- "may consider not drinking at all;
- most importantly should never become intoxicated;
- if they choose to drink, over a week, should have less than 7 standard drinks, AND, on any one day, no more than 2 standard drinks (spread over at least two hours);
- should note that the risk is highest in the earlier stages of pregnancy, including the times from conception to the first missed period."[10]

In 2009, the NHMRC guidelines were again changed to state that "not drinking is the safest option."[11] This change back to a conservative approach was based on an acknowledgement that the evidence regarding low to moderate prenatal alcohol intake was inconclusive and unable to determine a safe drinking level.[11] At the time of commencing this thesis, no studies had investigated the prevalence of alcohol use during pregnancy since the introduction of the 2009 NHMRC alcohol guidelines.

1.5 Thesis overview

The overall objective of this thesis was to identify the multiple components that contribute to alcohol use during pregnancy among Australian women within the context of the national alcohol guidelines for pregnancy. Chapter 2 provides a review of the literature on the prevalence and predictors of alcohol use during pregnancy in light of the alcohol guidelines. A methodology chapter (Chapter 3) then outlines the research design for the overall body of work presented in this thesis, which uses a mixed methods approach. Chapter 3 also includes a description of the Australian Longitudinal Study on Women's Health (ALSWH), the prospective cohort study, which was used for the analyses presented in this thesis.

The results chapters (Chapters 4-7) are a series of published papers from reputable, peer-reviewed scientific journals. Corresponding conference presentations and published abstracts are listed on the relevant chapter title page. Each chapter is stand-alone providing a brief review of the literature of relevance to the distinct research question, the methods used, the findings, and a general discussion placing the work in the broader context of other research. However, as a whole these four studies build on

one another to provide a comprehensive population-based examination of the components contributing to alcohol use during pregnancy within Australia.

The first results chapter (Chapter 4) describes the prevalence of alcohol use during pregnancy after the change in guidelines from a low-intake to abstinence message from 2009.[11] Chapter 4 also examines the maternal characteristics associated with drinking behaviour that complies with the new guidelines. Based on results from Chapter 4, in addition to other studies reporting a high prevalence of alcohol consumption among pregnant Australian women, Chapter 5 provides a comprehensive assessment of the predictors of alcohol use in pregnancy among previous drinkers. Due to the longitudinal nature of the data, the association between prenatal alcohol consumption and the alcohol guidelines, which have varied over time, is examined alongside a large range of potential predictors.

Chapter 6 then builds on the major findings from Chapters 4 and 5. Specifically, it looks at whether prenatal drinking patterns, which put women at risk of alcohol consumption during pregnancy, are being modified once pregnancy occurs. Characteristics of women who continue risky drinking patterns are presented, helping to identify those that may need more targeted interventions aimed at changing drinking behaviour prior to, or early in, pregnancy.

The final results chapter (Chapter 7) presents findings from a qualitative study that was designed and implemented to complement the quantitative components of this thesis. It provides the narratives of women to gain a deeper understanding of the broader findings that were presented in Chapters 4 through 6. By exploring women's perceptions of the information provided to them about alcohol use during pregnancy, this chapter provides valuable insights on the information pathways for guideline dissemination, with the information coming straight from the end-user.

A general discussion of the overall findings, and strengths and limitations of this thesis is presented in Chapter 8. To conclude, the practical implications of these findings are discussed, along with suggestions for future research.

2 LITERATURE REVIEW

This chapter provides a review of the literature about alcohol use during pregnancy. Specifically, it covers the prevalence of alcohol consumption during pregnancy, followed by an examination of the potential predictors of alcohol consumption during pregnancy. Quantitative and then qualitative research is discussed to shed light on the potential reasons women consume alcohol during pregnancy.

2.1 Search strategy

The review was originally conducted in late 2010, updated as needed for each results chapter and then finalised in November 2016. A broad search strategy was first employed, beginning with the Medline database, to get an idea of what the bulk of research focussed on in relation to pregnancy (i.e. MeSH term: Pregnancy) and alcohol consumption (i.e. MeSH term: Alcohol Drinking). The majority of studies examined the associations between prenatal alcohol use and birth or child outcomes. A brief summary of those results was included in Chapter 1 of this thesis when describing the evidence base available to policy makers. This literature review instead focuses on the prevalence and predictors of prenatal alcohol use, as the overall objective of this thesis is to identify targets that can be addressed to align prenatal alcohol consumption among Australian women with the national alcohol guidelines that are intended to minimise harm.

After the Medline search, an additional search was conducted in PsycInfo to gather information that may have been missed in the public health and medical research. Google and Google Scholar were used in order to obtain more information from non-peer-reviewed sources such as government or other organisations' reports. The websites

of health and other government departments in a number of countries were searched for information on guidelines during pregnancy, which was covered in Chapter 1, and prevalence rates of drinking during pregnancy. Information about global statistics was sought from the World Health Organization's website and any reports or peer-reviewed literature containing international comparison data. References of significant papers were often sought out, as was the work of well-known researchers in the field.

A systematic review examining the predictors of pregnancy was originally planned for this thesis, however, at the time of initiating the search strategy a systematic review of these predictors was published by Skagerström et al. (2011).[75] Hence, this review is presented as a narrative review, covering a broader range of published literature. This review attempts to capture the context in which this thesis was conducted. A key theme for global public health has been *'a healthy start to life'*, through improving maternal-child health. Reducing alcohol use during pregnancy fits neatly within this theme, but many of the details remain controversial and topical for researchers, policy makers, ethicists, health professionals, and the general public.

2.2 International prevalence of prenatal alcohol use

Although the majority of women living in developed countries consume alcohol,[2] empirical studies have reported a vast range of prevalence rates for prenatal alcohol use. A cross-sectional, multicentre study in Sweden found only 6% of women reported alcohol use during pregnancy, whereas 84% of the women had consumed alcohol in the year prior to pregnancy.[76] In Japan, where around 60% of women consume alcohol,[2] studies assessing prenatal alcohol consumption have found prevalence rates ranging from 5% to 13%.[77-79] Canada is similar in that the majority of women (70%) in the population consume alcohol,[80] however, Canadian statistics gathered through telephone interviews for the 2003 to 2011/12 Canadian Community Health Surveys suggest the prevalence of alcohol use during pregnancy is around 10%.[81] Using a different methodology (i.e. self-report written questionnaires),[82] the All Our Babies prospective cohort in Alberta, Canada found that 46% of women who drank prior to pregnancy reported drinking after pregnancy recognition.[83] The most recent United States national data from 2011-13 telephone surveys found a 10% prevalence of alcohol use in the past 30 days among pregnant women, in contrast to the 54% prevalence rate for non-pregnant women.[84] Taken together these prevalence data suggest that many

women do cease drinking in pregnancy, but a prevalence rate of around 10% is common in many developed countries.

There are some countries where the prevalence of drinking alcohol during pregnancy is estimated to be higher than 10%. According to the New Zealand Health Survey 2012-13, more than three-quarters of women consume alcohol, with 19% of the 565 women that had been pregnant in the last year reporting alcohol consumption during their last pregnancy when interviewed face-to-face.[85] However, a New Zealand study, using self-administered surveys to collect data from 723 postpartum women in antenatal hospitals across the country, reported a prevalence rate twice as high (38%).[86] In Norway, prospective data from the Norwegian Mother and Child Cohort Study indicate prenatal alcohol consumption prevalence rates of 32%, 10% and 16% in the first, second, and third trimesters respectively.[87] A small (n=110) Spanish study utilising early detection markers (fatty acid ethyl esters) analysed in meconium found that 35% of infants had been exposed to alcohol *in utero*, but only 4.5% of the mothers in the study self-reported any alcohol intake in pregnancy.[88]

There are some countries where the estimated prevalence of drinking alcohol during pregnancy varies widely and may be extremely high. The prevalence of prenatal alcohol consumption among more than 92,000 participants from the Danish National Birth Cohort was around 45%.[89] National data from England, suggest a prenatal alcohol consumption rate of around 28% to 52%.[90] A review of studies reporting consumption rates of pregnant French women found a range of between 12% and 63%.[91] Around half of pregnant women in the Ukraine have be found to drink during pregnancy.[92] A review of the literature on Russian prevalence of alcohol use during pregnancy found a huge range, between 3% and 83%, noting geographical and methodological differences between studies as potential reasons for the large variation.[93] Three different cohort studies, using different methods of data collection, reported rates of 20%, 46% and 82% of Irish women consuming any alcohol during pregnancy.[94] An international, multicentre cohort study found an overall prevalence of 63% among pregnant women, ranging from 40% to 82% for the four individual countries (i.e. Ireland, United Kingdom, Australia and New Zealand).[94]

The large variance among prevalence rates may be partially due to different cultural norms and practices; however, considering reported prevalence rates vary even within the same country, it would be reasonable to assume that a large proportion of the variance is due to differences in study methodology. Such differences are seen in: the

timing of data collection in relation to pregnancy; the methods of data collection; sample size; and the operational definition of alcohol use during pregnancy (e.g. the past 30 days[84] versus any time during pregnancy [85]). Variance in estimated prevalence rates of alcohol consumption during pregnancy also exists among Australian studies.

2.2.1 Australian prevalence of prenatal alcohol consumption

The prevalence of drinking alcohol during pregnancy in Australia is generally high by international standard, regardless of which guidelines were in place at the time of measurement. A number of Australian studies examined the prevalence of prenatal drinking prior to the release of the 2009 NHMRC alcohol guidelines.[11] The estimates from these studies ranged from 12% to around 80%.[95-100] As is the case for the international literature, the methodological variation among the Australian studies is likely the largest contributor to the variance in reported prevalence rates of alcohol use during pregnancy. For example, a few of the studies were based on limited samples from different regions within Australia, and the findings will not be as generalisable as those from nationally representative population-based data. Additionally, there were differences in sampling techniques, methods of data collection, timing in relation to pregnancy and the time the studies were conducted in relation to the changing NHMRC alcohol guidelines of 1992, 2001 and 2009.[9-11]

The lowest prevalence estimate comes from a South Australian study that recruited 748 women in 2005-06 at their first antenatal appointment via antenatal clinic staff to fill in a self-administered, anonymous questionnaire at that time and found that only 12% of women reported alcohol use during pregnancy in the month prior to that appointment.[97] However, this figure is likely to have been significantly biased towards a lower prevalence, as a result of a poor response rate, since only one-third of the potentially eligible sample completed the questionnaire.[97] Additionally, over half of women were in their first trimester, reflecting only one month of drinking in early pregnancy.[97] The authors did not report on the data they gathered on the maximum amount of alcohol consumed per day and how many days alcohol was consumed in the previous month, providing no insight into the patterns of alcohol use. Giglia and Binns' (2007) study in Western Australia recruited women immediately postpartum in 2002-03 and found a prevalence of 35% through using a self-administered baseline questionnaire to assess alcohol use during pregnancy.[95] The majority of women who did consume

alcohol (96%) were drinking less than seven drinks per week, with 92% of them women drinking no more than two drinks a day.[95] However, consumption was limited to the previous two weeks, limiting its generalisability for drinking throughout pregnancy.[95]

Based on population data gathered from personal interviews for the 1995 and 2001 National Health Surveys, 40% and 27% of pregnant women, respectively, who had consumed alcohol in the last 12 months reported drinking in the week prior to the interview.[96] Additionally, of those women pregnant at the time of the 2001 NHMRC alcohol guidelines, which allowed low level consumption during pregnancy, 99% of women who had consumed alcohol in the past week did so within the recommended limits.[96] The 2007 National Drug Strategy Household Survey found that 29% of women who were pregnant only in the last 12 months and 36% of women who were pregnant and breastfeeding in the past 12 months reported consuming alcohol during that time.[101] This 2007 survey did not measure amount or frequency of alcohol consumption, only reporting a reduction in the usual quantity of alcohol consumption by 95% of women who were pregnant in the past 12 months.[101] Population-based data from two cohorts (i.e. 0-1 years and 4-5 years in 2004) of the Longitudinal Study of Australian Children assessed retrospectively reported alcohol use during pregnancy, finding 28% of mothers with children born 1999-2001 reported consuming alcohol during pregnancy compared to 38% of mothers with children born 2003-04. [102, 103] The majority (96%) of women in both cohorts reported an average of one alcohol drink per occasion, with most drinking less than weekly.[103] Although it appears that more pregnant women consumed alcohol under the guidelines condoning low alcohol use, these findings should be interpreted cautiously as the prenatal alcohol use among mothers with children born 1999-2001 was based on 4-5 year retrospective recall of the behaviour.

A number of Australian studies have found that the majority of women consumed alcohol during pregnancy. Using self-administered postal questionnaires in 1995-97, a study from Western Australia found a prevalence of 59% in women self-reporting at 12 weeks postpartum, with 10-14% of women drinking above the levels that had been condoned under the 2001 NHMRC alcohol guideline for pregnant women.[100] The same overall prevalence (59%) was found in a recent population-based prospective cohort of pregnant women recruited from antenatal clinics reporting consumption at any stage of pregnancy.[104] A total of 31% of women reported drinking after realising they were pregnant.[104] Of those who binge drank prior to pregnancy, 44% reported binge

drinking prior to pregnancy recognition.[104] The women who drank throughout the entire pregnancy did so at low (≤7 drinks/week and ≤2 drinks/occasion) to moderate levels (≤7 drinks/week and >2 to <5 drinks/occasion).[104] In Victoria, pregnant women were recruited via multiple pregnancy-related sources to take part in a study with a baseline postal questionnaire around 17-20 weeks gestation, followed by a fortnightly calendar assessment (postal or online) of daily alcohol consumption up to 36 weeks gestation. [99] The study, which collected data in the midst of the change from low (2001) to no (2009) drinking guidelines, found 77% of women consumed alcohol at some stage during pregnancy, 72% of women consumed after pregnancy recognition, and of those drinking post-recognition, 75% consumed within levels compliant with the 2001 NHMRC alcohol guideline for pregnant women.[99] Such a high prevalence of approximately 80% was also found using population-based data from the Australian Longitudinal Study on Women's Health (ALSWH).[98] This previous analysis of ALSWH data included the first four surveys (i.e. 1996, 2001, 2003 and 2006) spanning an age range of 18 to 33 years (i.e. women in the cohort born 1973-78), which were conducted prior to the introduction of the 2009 NHMRC guidelines promoting abstinence. Similar to the findings of other studies, the majority (~80%) of the women from the ALSWH study were drinking at levels that complied with the 2001 guidelines condoning low alcohol consumption.[96, 98, 103] Additionally, Powers et al. (2010) found that women were much more likely to comply with the low level alcohol guidelines of 2001 compared to the previous abstinence guidelines of 1992.[98] Limited qualitative evidence suggests, that Australian women generally believe in abstaining during pregnancy, but that the occasional drink is harmless, which could contribute to this substantial proportion of women drinking at low levels during pregnancy.[105, 106]

At the outset of this thesis, no study had yet assessed the level of prenatal alcohol consumption in Australia since the change of the national alcohol guidelines in 2009. More work was needed to determine whether consumption rates had dropped since introducing an abstinence recommendation. Coinciding with the work conducted in this thesis, a number of other studies have been published that shed light on Australian prevalence rates of alcohol use during pregnancy since the introduction of the 2009 alcohol guidelines. Based on the 2010 and 2013 National Drug Strategy Household Surveys, 51% and 47% of women who had been pregnant at some point in the previous 12 months reported consuming alcohol during pregnancy respectively, with the majority of those women drink less than they did pre-pregnancy.[107, 108] A total of 40% of

pregnant women recruited in Adelaide between 2004 and 2011 for an international prospective cohort study (i.e. Screening for Pregnancy Endpoints [SCOPE] study) reported consuming alcohol during pregnancy; most of those women consumed no more than seven units of alcohol per week.[94] The SCOPE study had midwives interview women at 15 weeks and 20 weeks gestation, with second trimester average drinking per week being calculated based on the week preceding the 15 week visit and the week preceding 20 week visit. Such short timeframes of consumption limits the applicability of any prevalence rates to overall prevalence of consumption in pregnancy. A Queensland prospective cohort study recruited women from 2007 to 2011 and found an overall prevalence rate of 44% for prenatal alcohol use, which decreased over time from 53% in 2007 to 35% in 2011; however the rate of binge drinking at any stage of pregnancy remained stable over time.[109] These national surveys and prospective cohort studies provide evidence that suggests prenatal alcohol use has decreased since the 2009 NHMRC alcohol guidelines have come into place. However, even with such a reduction, it is unknown why such a relatively high proportion of Australian women still consume alcohol during pregnancy within the context of alcohol guidelines recommending abstinence.

2.3 Predictors of alcohol use during pregnancy

In order to understand why Australian women drink during pregnancy, it is important to determine the factors that predict such behaviour. Identifying the factors that are associated with prenatal alcohol use will help to define the multiple components that need to be considered when developing interventions to address this issue. Determining predictors of prenatal alcohol use will also help to identify which women might be at an increased risk of drinking during pregnancy. Australian research in this area was quite limited at the time of commencing this thesis. A large body of work internationally has identified a number of factors associated with prenatal alcohol use summarised in Table 2.1 and further described below. It is important to note that while each factor is considered separately, many will cluster together.

Table 2.1 An overview of predictors of prenatal alcohol use

Category	Predictors
Socio-demographics	Age, education, income, employment/occupation, ethnicity/race/Indigenous status, partner status

Social factors	Social support, physical or sexual abuse
Reproductive characteristics	Reproductive history, stage of pregnancy
Physical and mental health	Physical health, mental health, life satisfaction
Health promoting behaviours	Adherence to guidelines (preventive health), healthcare utilisation
Health risk behaviours	Illicit drug use, smoking, alcohol use history
Access to healthcare	Rurality, health insurance status

2.3.1 Socio-demographics

2.3.1.1 Age

The majority of studies in this area have found that older women are more likely to consume alcohol during pregnancy compared with younger women.[84, 110-124] Within Australia, Giglia and Binns (2007) found that women from Perth, Western Australia who were over the age of 30 years were more likely to drink alcohol during pregnancy compared to their younger counterparts.[95] Two Australian studies utilising population-based data measured age as a continuous variable, rather than categorically, and found increased maternal age to be associated with alcohol consumption in pregnancy in multivariate analyses.[101, 103]

A more complex relationship between age and alcohol use during pregnancy was noted in a few studies. For instance, women aged 25 to 29 years in the Danish National Birth Cohort were more likely to binge drink during the pre-recognition phase of pregnancy compared with women in older or younger age groups.[125] However, binge drinking after pregnancy recognition did not significantly vary with age.[125] Yamamoto et al. (2008) described a varied effect in their Japanese study, whereby women aged 30 to 39 years were more likely to consume alcohol during pregnancy compared to women aged 20 to 29 years, but women who were 40 years or older were more likely to abstain from alcohol after pregnancy confirmation compared to women in their 20's.[79] The characteristics (e.g. education, ethnicity, body mass index, smoking) of high-risk alcohol subgroups among pregnant women has been found to vary according to age.[114] These findings suggest that age may be a non-linear predictor and that there could be potential interactions with other factors, such as education.

Still other research has not found evidence of age being a predictive factor of alcohol use in pregnancy.[97, 126, 127] Such inconsistency between study findings about the

significance of a positive relationship between older age and alcohol consumption during pregnancy was also reported in a systematic review of the predictors of alcohol use during pregnancy.[75] Although the vast majority of studies do suggest that increased age is a predictor of prenatal alcohol use, there are methodological issues which limit these findings. For example, some studies used a reference group that was below the legal drinking age.[112, 113, 122] It is not surprising therefore, that women who were not legally allowed to purchase or consume alcohol were less likely to do so during pregnancy compared to women who were of legal age.

2.3.1.2 Education

There are mixed findings among studies investigating the relationship between education and alcohol use during pregnancy. For example, cross-sectional studies in Japan and Norway found pregnant women with a higher education were more likely to drink any alcohol during pregnancy.[79, 115] Whereas, the opposite findings were reported by other studies. Less educated women from a Canadian prospective cohort were more likely to binge drink prior to pregnancy recognition; however, there was no significant relationship between education and low to moderate levels of consumption after pregnancy recognition.[83] A cross-sectional study from the Ukraine found an inverse association between lower education and a higher number of drinks per day, as well as per drinking day, in the past month of pregnancy.[92] Similarly, in the United States a cohort study reported lower education to be associated with moderate or heavy alcohol use during pregnancy among African-American women.[128] However, the study findings may be a result of the urban, African-American sample that was included (n=393) rather than generalisable to the broader population. A larger cohort study in the United States (n=4185) found the correlation between education and alcohol varied according to race, with significance only being detected for African-American women.[122, 128] The latter study reported a more complex (non-linear) relationship between education and consuming alcohol in pregnancy, with the least and most educated women more likely to drink any alcohol compared to those with a high school education.[122]

Analysis of population-based data from the United States also suggests that the relationship between level of education and prenatal alcohol use may vary according to age.[114] Due to the variations that occur between subgroups within a population and potential correlation between variables, it is essential that any analysis conducted to identify predictors of alcohol use during pregnancy is applied in a way that accounts for

a comprehensive set of other possible predictors. A number of studies have not found education to be predictive of prenatal alcohol consumption once controlling for these other variables.[110, 111, 113, 121, 123, 126, 127, 129, 130] Skagerström et al.'s (2011) systematic review reported that education, although investigated by a number of studies, was rarely found to be a significant predictor of alcohol use in pregnancy, and when it was significant, the results were inconsistent between studies.[75]

Within Australia, a Western Australian study did not find education to be predictive of prenatal alcohol use.[95] The results from this Australian study were limited by the potential of recall bias as a result of measuring prenatal alcohol consumption retrospectively, and by the use of bivariate analysis only, which leaves scope for residual confounding. Another Australian study, which similarly did not use multivariate analysis, reported that low-level alcohol use after the first trimester of pregnancy increased as education increased, whereas high-risk drinking was more common among those who did not complete high school.[109] Based on an analysis of maternal data from the 2005 Longitudinal Study of Australian Children infant cohort, retrospectively reported alcohol use during pregnancy was more likely among women with greater than ten years of education compared to their less educated counterparts.[103] There was no significant relationship between education and alcohol use during pregnancy among women who had been pregnant in the last 12 months that were sampled for the 2007 National Drug Strategy Household Survey.[101] Clarification on the role of education on drinking behaviour during pregnancy within the Australian context is needed.

2.3.1.3 Income

The majority of international studies examining the relationship between income and alcohol use during pregnancy have reported that pregnant women with higher incomes were more likely to consume alcohol than those with lower incomes. [75, 117, 124, 130] Four Australian studies also found higher income to be predictive to prenatal alcohol consumption.[95, 99, 103, 109] However, two of these studies did not account for confounders during the analysis,[95, 109] and one of the other studies reported that the predictive value of income was mitigated when intention to drink during pregnancy was accounted for.[99] Results from a 2007 national Australian survey did not support a significant relationship between income and alcohol use during pregnancy.[101] In the United States, Chang et al. (2006) found that women with higher incomes also drank more frequently than those with lower incomes.[131] Taken together, the findings

indicate the importance of taking income or financial status into account when assessing alcohol use during pregnancy. The relationship between education and income should also be considered.

2.3.1.4 Employment and occupation

Income, employment and occupation are factors that may cluster together. A null association between employment status and prenatal alcohol use has been supported by most international research.[75, 113, 116, 119] Such an association was based on questionable findings as one of the studies only conducted bivariate statistical analysis,[119] and another used a biased sample whereby unemployed women were potentially underrepresented because they were less likely to have complete data, which was considered necessary for inclusion in analysis.[116]

A few studies have found that employment and occupation significantly correlate with alcohol consumption during pregnancy. For example, in Japan women who worked part-time were more likely to drink during pregnancy compared to unemployed women.[79] In Denmark, higher grade professionals, skilled workers, unskilled workers and the unemployed were less likely to drink during the pre-recognition phase of planned pregnancies compared to lower grade professionals.[125] This trend reversed after pregnancy recognition with lower grade professionals becoming less likely to drink compared to other occupational groups.[125] Few Australian studies have examined how employment and occupation relate to alcohol use during pregnancy, but one study reported that pregnant women with higher occupational status were more likely to consume alcohol during pregnancy.[95] There seems to be a complex relationship between occupation and alcohol consumption that warrants further investigation, especially within an Australian context.

2.3.1.5 Ethnicity, race, and Indigenous status

International research in regards to race and ethnicity in relation to alcohol use during pregnancy is mixed, with some studies suggesting that differences exist[110, 113, 122, 124, 130] and others refuting any correlation.[111, 116, 117, 123, 126, 127, 131] However, potential differences in prenatal alcohol use prevalence rates between racial or ethnic groups is unlikely to be due to a genetic disposition, but rather to a difference in how race and ethnicity interact with a number of other sociodemographic factors.[122] Differences in alcohol consumption amongst different ethnic groups may

be a reflection of different cultures or religions, which can heavily impact what is considered socially acceptable level of consumption.[2]

Within the Australian context, there is a strong drinking culture which was introduced with colonisation.[8] Indigenous people face disproportionate socioeconomic disadvantage contributing to increased health risks and poorer health outcomes. In the general population, a lower proportion of Indigenous Australians compared to non-Indigenous Australians consume any alcohol, however those who do drink are more likely to do so at risky levels.[107] This is reflected in pregnancy, where Indigenous Australian women are more likely to have an alcohol-related diagnosis during pregnancy compared to non-Indigenous women.[32] Overall it has been reported that only 20% of Indigenous women consume any alcohol during pregnancy.[132]

2.3.1.6 Partner status

The relationship between marital status and prenatal drinking is also unclear; however, the majority of studies reported no significant association [75, 111-113, 121, 123] Where an association has been found, the evidence suggests that single pregnant women are more likely to consume alcohol during pregnancy compared to married women[110, 116, 117, 125, 130]. This finding may reflect a number of other factors; for example, partner support, household income, and/or a history of abuse.

Within Australia, it has been reported that unmarried women are more likely to have been given an alcohol-related diagnosis according to medical records compared to married women.[32] Univariate results from two different Australian birth cohorts contrasted one another, with one suggesting single parent status was associated with high risk alcohol consumption, [109] and the other suggesting that children from two parent households were more like to be exposed to alcohol use during pregnancy.[103] However, in the latter study, once other factors were taken into account the relationship was no longer statistically significant, which was consist with findings from the National Drug Strategy Household survey.[101] The association between partner status and prenatal alcohol use, like other demographic factors, is inconclusive and appears to be intertwined with other sociodemographic variables.

2.3.2 Social factors

2.3.2.1 Social Support

The majority of studies looking at social support and prenatal alcohol use have found no evidence to suggest that social support predicts alcohol use in pregnancy.[112, 113, 120, 127] These studies varied in how they defined social support or did not define it at all. Of the two studies defining social support, one defined it as support from family, friends or care providers supporting pregnant women to quit smoking for women concurrently smoking and drinking alcohol.[120] The other study utilised the Maternal Social Support Index, which is multi-faceted and measures social support across seven domains.[127] For women who have already experienced an alcohol exposed pregnancy, interventions which include a mentoring component, such as the Parent-Child Assistance Program (PCAP), resulted in an increase in abstinent rates and a decrease in the rate of subsequent pregnancies exposed to alcohol.[133] There is currently a lack of Australian studies which have examined the predictive value of social support in regards to prenatal alcohol use.

2.3.2.2 Physical or sexual abuse

One of the most consistent predictors of prenatal alcohol consumption reported in the Skagerström et al. (2011) systematic review was having experienced abuse or violence.[75] A United States study interviewing 80 women who had birthed a child with Fetal Alcohol Syndrome, found that 95% of the women had experienced sexual or physical abuse at some point in their lives.[134] Australian research is limited, with one study based on the 2004 National Drug Strategy Household Survey reporting that women of childbearing age experienced the same level of violence when inflicted by a perpetrator under the influence of alcohol or other drugs, regardless of pregnancy status or their own substance use.[135] Physical abuse has been found to be strongly related to both alcohol use and alcohol abuse among pregnant women in the United States.[113] This relationship may vary depending on the characteristics of the abuser and the abused. For instance, Harrison and Sidebottom (2009) reported that violence from a partner was not predictive of prenatal drinking, but non-partner physical or sexual abuse was predictive of an increased risk to drink during pregnancy.[112] Abuse and prenatal alcohol use also has been reported to vary by race.[122]

The relationship between abuse and alcohol use during pregnancy may actually be mediated by a woman's pre-pregnancy alcohol use. For example, when Meschke et al.

(2008) examined abuse and prenatal drinking within a model which contained alcohol related problems, physical abuse was no longer predictive of prenatal drinking.[116] Alvanzo and Svikis (2008) found that abused women consumed more alcohol in the 12 months prior to their first prenatal visit compared to non-abused women.[136] However, this pre-pregnancy drinking was not taken into account, nor were any other potential confounders, in the analysis that resulted in a positive association between abuse and drinking at the time the women first assumed they were pregnant.[136] Pre-pregnancy drinking has been found in a number of studies to be one of the largest predictors of prenatal alcohol use,[98, 99, 110, 112, 119, 126, 131] therefore it should be taken into account when assessing the relationship of other factors with prenatal drinking, as it may have a mediating effect. The role abuse plays in relation to prenatal alcohol consumption among Australian women requires further investigation.

2.3.3 Reproductive characteristics

2.3.3.1 Reproductive history

A number of previous reproductive factors may be associated with alcohol use during pregnancy. One such factor is parity, or the number of times a woman has given birth to a baby weighing at least 500 grams.[137] Although some studies have found that parity does not correlate with prenatal alcohol consumption,[110, 111, 120, 123] others have found that multiparous women are more likely to consume alcohol during pregnancy[79, 119] and are also more likely to binge drink after pregnancy recognition.[125] An Australian study by Giglia and Binns (2007) did not find parity to be significantly related to prenatal alcohol use.[95] However, in a larger study using linked medical records, Australian women with previous pregnancies of greater than 20 weeks were found to be more likely to have at least one alcohol-related diagnosis compared to those experiencing their first pregnancy.[32, 138] Gravidity, or a woman's total number of pregnancies, has also been inconsistently linked to prenatal drinking.[137]. Meschke et al. (2008) found that the odds of women drinking while pregnant were highest among United States women experiencing their first pregnancy.[116] Still others have reported no statistically significant relationship between gravidity and alcohol consumption during pregnancy.[127, 128]

Fertility issues, such as previous miscarriages or abortions,[124, 125] use of reproductive technology[124], and the length of time taken to fall pregnant[125] have also been found to relate to prenatal drinking status. For example, Hotham et al. (2008)

reported that pregnant women from two South Australia hospitals who had experienced previous pregnancy losses were more likely to drink compared to women pregnant for the first time.[97]

2.3.3.2 Stage of pregnancy

Some researchers have found that women who were earlier on in their pregnancies were more likely to consume heavier amounts of alcohol than those in later stages of pregnancy.[111, 121] One potential reason for studies reporting higher prevalence rates during early stages of pregnancy, is that women do not generally become aware of their pregnancies until around five weeks gestation or later. Recent Australian studies have reported a drop in prevalence of alcohol consumption after pregnancy recognition.[104, 107] Additionally, Australian women who did not drink during pregnancy were more likely to report a planned pregnancy than women who consumed alcohol during the first trimester only.[104]

An Australian study using the ALSWH data,[98] also reported that women in their third trimester were less likely to consume alcohol compared to women in their first trimester. Yamamoto et al. (2008) actually found that Japanese women in their first trimester were less likely to consume alcohol after pregnancy recognition compared to women in their second trimester.[79] Then there are other studies which have found not found a significant relationship between stage of pregnancy and alcohol use.[97, 116, 120] Contradictory findings in relation to the association between stage of pregnancy and alcohol use were also noted in an international systematic review.[75]

The stage at which women present for their first prenatal appointment has also been examined. Based on bivariate analysis, Australian women who were further along in their pregnancy at their first antenatal visit were more likely to have an alcohol-related diagnosis during pregnancy.[32] Similarly, Perreira and Cortes (2006) found that white women who were in their first trimester at the time of their first prenatal appointment were less likely to drink compared to those later on in their pregnancies.[122] No relationship was found for Hispanic and African-American women in that study.[122] The stage or timing of presenting for antenatal care may capture a wide variety of other socio-demographic variables but could also be an important independent contributor because of the information and support provided by the healthcare professional.

2.3.4 Physical and mental health

2.3.4.1 Physical health

Studies overseas have indicated that physical health and weight may be predictive of alcohol intake during pregnancy, but the relationships are not necessarily independent of other factors. For example, Haynes et al. (2003) found that women with incomes over US$10,000 a year who had subjective good health were less likely to consume any alcohol during pregnancy compared to women in the same income category with poor subjective health.[113] When assessed in multivariate analysis, subjective good health did not predict the use of any alcohol use during pregnancy, but it was predictive of alcohol abuse during pregnancy in some linear regressions.[139] During the post-recognition phase of pregnancy, women who were overweight or obese before pregnancy were more likely to binge drink compared to women who had been of normal weight.[125] Mothers of infants in the Longitudinal Study of Australian Children were less likely to consume alcohol during pregnancy if they reported physical health problems in pregnancy.[103] More work is needed to determine whether physical health issues modify prenatal alcohol use among Australian women and internationally.

2.3.4.2 Mental health

Prenatal alcohol use is more common among women with psychiatric conditions.[113, 125] Low self-esteem has also been found to predict moderate to heavy first trimester drinking[128] and binge drinking[124]. Depression has been linked to heavier alcohol consumption during pregnancy when assessed using the nine item Patient Health Questionnaire (PHQ-9)[112], a 1-item assessment[116], and the Center for Epidemiologic Studies Depression Scale (CES-D)[121, 128]. However, some researchers have used the latter and found no significant association between depression and alcohol use among pregnant women when accounting for confounding factors.[113, 128] Results may vary based on the differences in measures used, as well as the samples selected for the studies. The relationship between psychosocial factors, such as depression, and prenatal alcohol use has yet to be examined within an Australian context.

Strine et al. (2008) found that individuals who were dissatisfied with their lives were more likely to partake in heavy drinking compared to those with a higher level of life satisfaction.[140] They also found that life dissatisfaction was associated with chronic illness, physical inactivity, poorer mental health, obesity and smoking.[140] All of these

factors need to be examined together to gain a better understanding of the predictors of drinking during pregnancy.

2.3.5 Health promoting behaviours

2.3.5.1 Adherence to guidelines

When it comes to women adhering to preventive health guidelines a number of health behaviours have been found to be associated with guideline adherence. Results of a United States national survey suggests that women were more likely to adhere to mammography guidelines if they had also adhered to Pap test guidelines, had a previous clinical breast check, and usually saw the same doctor.[141] Blackwell et al. (2008) found that women who adhered to guidelines for Pap tests were also more likely to adhere to guidelines for mammograms and vice versa.[142] However, adherence to guidelines for medical tests such as for mammography or Pap tests may not relate to adherence to guidelines for safe levels of alcohol consumption.

Adherence to guidelines may rely on underlying traits. Such a view is supported by Bogg and Roberts' (2004) meta-analysis, which stated that individual's scoring higher on conscientiousness were more likely to partake in health promoting behaviours and abstain from risky health behaviours.[143] Therefore, it can be hypothesised that women who are more likely to adhere to beneficial health behaviours, such as regular pap smears, exercise, and sun safety, would also be more likely to adhere to the guidelines on alcohol consumption during pregnancy. Such a hypothesis has yet to be examined in an Australian context.

2.3.5.2 Healthcare utilisation

There may be differences between substance users and non-substance users in regards to healthcare utilisation. Qi et al. (2006) found that people who had a regular family physician were more likely to use preventive healthcare, and less likely to smoke.[144] Tsai et al. (2010) examined healthcare utilisation among women of childbearing age that were concurrent users of alcohol and cigarettes.[145] They found that of the women reporting that they had seen a health professional in the past 12 months, concurrent users were more likely than non-concurrent users to visit a clinic, health centre, hospital emergency room, outpatient department, or other place rather than visiting a doctor's office.[145]

It is worthwhile to see if differences exist among women who drink during pregnancy and those who abstain, and whether or not such differences in healthcare utilisation are able to predict prenatal alcohol use. With regards to the use of antenatal care, it has been found that Australian women presenting to antenatal care later on in their pregnancy were more likely to have an alcohol-related diagnosis than those seeking antenatal care earlier in pregnancy.[32, 138]

2.3.6 Health risk behaviours

2.3.6.1 Illicit drug use

Use of alcohol during pregnancy can be classified as a health risk behaviour, therefore, it is worth considering in the context of other risky behaviours. Haynes et al. (2003) found that illicit drug abuse was predictive of alcohol abuse during pregnancy, but it was not significantly related to the use of any alcohol during this time.[113] Rubio et al. (2008) also found a significant relationship between drug and alcohol use during pregnancy, whereby illicit drug use was predictive of co-occurring prenatal alcohol consumption and depression, but not predictive of alcohol use alone.[123] Still others have reported no such association between illicit drug use and alcohol consumption once adjusting for other factors, such as tobacco use and depression.[112, 128] All of these studies were based on United States samples that consisted of large proportions of unmarried, minority-group women within particular geographical regions. The lack of a population approach and the paucity of Australian research in this area impedes the generalisations that can be made from these findings.

2.3.6.2 Smoking

One of the least contested predictors of prenatal alcohol use is tobacco use. The majority of empirical research has found that smokers are much more likely to consume alcohol during pregnancy[79, 110, 112, 116, 117, 124] and at riskier levels.[111, 117, 124, 125, 128] The majority of the limited Australian studies that have examined smoking in relation to alcohol use during pregnancy have reported positive relationships,[32, 138] except for Giglia and Binns (2007).[95] However, the sample of pregnant women that smoked in the Giglia and Binns (2007) study were not representative of those from the population they drew upon.[95] Rubio et al. (2008) also did not find smoking status was predictive of alcohol use in later pregnancy, but their United States sample was biased in the fact that it only contained women that had consumed some degree of alcohol in the early stages of pregnancy.[123] Previous

qualitative research found that Australian women and service providers believed that consuming alcohol was more socially acceptable than smoking, with much clearer information about the harms of smoking during pregnancy.[146] Therefore, women who partake in the less socially acceptable behaviour, smoking, during pregnancy, may not be as adverse to also consuming alcohol compared to pregnant women who do not smoke.

2.3.6.3 History of alcohol use

Perhaps the most relevant health behaviour to consider is that of pre-pregnancy alcohol consumption. An early onset of alcohol use,[110] a history of binge drinking,[110] and pre-pregnancy alcohol use have all been identified as predictors of prenatal alcohol use.[110, 112, 119, 125-127, 131] Risky or problem drinking has also been linked to alcohol consumption during pregnancy.[111, 116, 121] Australian research has identified pre-pregnancy alcohol consumption as one of the largest predictors of alcohol use during pregnancy.[98, 99] A systematic review of international studies concluded that pre-pregnancy alcohol use was the most consistent predictor of alcohol consumption during pregnancy; however, the review only included studies that assessed problematic alcohol use (i.e. alcohol use indicative of alcohol abuse or dependence) prior to pregnancy as a predictor.[75] Clearly the evidence suggests that past behaviours are essential in predicting future behaviours. Using longitudinal data would be beneficial in determining these previous behaviours, as it would overcome the limitation of recall bias that is often found in cross-sectional studies.

2.3.7 Access to healthcare

2.3.7.1 Rurality

While the range of factors that predict alcohol use in pregnancy is large, one of the more obvious concerns access to healthcare. If women have limited access to healthcare then it seems reasonable to expect that exposure to health guidelines and advice may also be limited. In Australia, a major limitation to service access is rurality. Surprisingly little research has been conducted in regards to the effects of rurality on prenatal alcohol use. Burns et al. (2011) examined the association between alcohol-related hospital admissions for pregnant Australian women and their rural status.[138] They found that women from a rural or remote region were more likely to have a diagnosis for an alcohol-related admission than those from metropolitan areas.[138] Although this does

provide an association between rurality and prenatal alcohol use, it relies mainly on heavy alcohol use that requires a diagnosis rather than any alcohol use in general.

2.3.7.2 Health insurance

Studies from the United States have found links between private health coverage and prenatal alcohol use.[120, 147] However, differences between the United States (primarily privatised healthcare) and Australian health systems (primarily universal healthcare) prevents any generalisations from these findings. Within Australia, Burns et al. (2006) have reported that a lack of private health insurance was more common among pregnant women with at least one alcohol-related diagnosis compared to women with no such diagnosis.[32] Burns et al. (2006) only focussed on identifying predictors of women being diagnosed with an alcohol-related pregnancy admission, rather than predicting any alcohol use during pregnancy. This suggests that results may not be generalisable to the wider population of Australian women who drink during pregnancy. Further investigation is necessary to gain a better understanding of the relationship between alcohol use and health insurance status of pregnant women. Health insurance status may also be related to other factors like maternal age, education, income and others.

2.4 Perspectives on information about alcohol use in pregnancy

The previous section (2.3) describing the range of potential predictors of drinking alcohol during pregnancy provides a clear justification for the need for a qualitative component to this research. Human behaviour is complex, with interactions that may be missed, misrepresented, or oversimplified; for example, using ‘closed’ survey questions and bivariate analyses. Qualitative research on drinking during pregnancy is therefore needed, to explore this issue in greater detail at an individual level and with a view of understanding alcohol use during pregnancy within the context of changing public health guidelines. Research conducted after the release of the 2009 NHMRC alcohol guidelines suggests that a large proportion of Australians are unaware of the guidelines and tend to overestimate the amount of alcohol that can be consumed on an occasion without increasing risk of harm.[148] As a first step in making an informed decision in relation to drinking during pregnancy, the evidence-based recommendations and justification for those recommendations must first be communicated to pregnant women. Such communication is promoted by international and Australian best-practice guidelines for antenatal care for a range of healthcare providers. [149-151]

A number of studies have identified that pregnant women want and expect to have alcohol addressed by their healthcare providers.[152-155] However, there are also concerns about being judged negatively should they disclose they have consumed alcohol during their pregnancy due to the attached social stigma and guilt.[106, 146, 156] From the perspective of the healthcare provider, there may be barriers to systematically communicating information about drinking during pregnancy. Studies assessing the views of Australian healthcare providers indicate the following perceptions as barriers: alcohol use is not seen as a priority; there is not enough time during antenatal consults; pregnant women know the harms and know not to drink; and that an abstinence message is not supported by clear evidence suggesting harm at low levels of consumption.[106, 146, 153, 157-159] These views provide context around previously reported low levels (less than 50% of surveyed healthcare providers) of routine care provision for assessing alcohol use in pregnancy and providing information on the related harms.[160] Such low rates of care provision, suggest that clinical practice guidelines on addressing alcohol use during pregnancy have not been systematically implemented. Research examining the information provision from a pregnant woman's perspective conducted prior to the 2009 NHMRC alcohol guidelines suggests that Australian women found the information about alcohol use and pregnancy inconsistent and confusing, often with mixed messages from multiple sources, including healthcare providers.[146, 153, 161] Considering all of these contextual factors around information provision, it is not surprising that such high rates of alcohol consumption during pregnancy have been reported in Australia.

2.5 Gaps in the literature

The literature has been inconsistent with regards to the predictors of prenatal alcohol use. The majority of the research has been conducted in study populations within the United States, and most drew their samples from small geographical regions rather than obtaining a national sample (e.g. [97, 112, 128, 162]). Current findings are also limited by other methodological issues, including under-powered samples, cross-sectional study designs, inconsistencies in the timing and way alcohol use is measured, relying on bivariate analysis to identify factors related to prenatal alcohol use[32, 95, 97, 119], and using inappropriate comparison groups (e.g. women not of legal age to purchase or consume alcohol[112, 122]). Based on the international systematic review of predictors of alcohol use in pregnancy and limited evidence from previous Australian studies

presented above, it is possible that the most applicable predictors to the Australian context would be pre-pregnancy alcohol use, having experienced violence, increased age, higher income, later stage of pregnancy, poor mental health and being a smoker. The use of a population-based sample, such as that from the Australian Longitudinal Study on Women's Health (ALSWH), will help to ensure the predictors identified are relevant and generalisable to the Australian population of pregnant women. The use of prospectively collected longitudinal data has the advantage of repeated measures and minimises recall bias particularly for determining how women's past behaviours influence their prenatal drinking habits. Further investigation in the form of qualitative interviews with the ALSWH will also contribute to knowledge in this area, as at the time of commencing this thesis, no Australian studies had used the perspective of pregnant women to explore the information provision related to alcohol use and pregnancy after the national alcohol guidelines changed to an abstinence recommendation in 2009. Such information could provide insight into the communication of this new public health message to the Australian population of pregnant women.

2.6 Conclusion

In summary, internationally the prevalence of drinking during pregnancy varies considerably, with many countries reporting rates of greater than 10% and some as high as 80%. The body of literature available suggests that Australia is one of the countries with a high prevalence of consuming alcohol during pregnancy, which may, in part, be due to the Australian guidelines having accepted low-level from 2001 to 2009. Despite the high prevalence of prenatal alcohol use there is no comprehensive model of the factors that contribute to this behaviour. Information about potential predictors of alcohol consumption during pregnancy is limited by the fact that most studies have been conducted overseas and are of poor methodological quality. Within Australia, the majority of studies have focussed on geographically isolated samples rather than population-based samples when identifying the factors that contribute to the drinking habits of pregnant women.

It is essential to gauge the reasons why Australian women have such a high prevalence of drinking during pregnancy. At the outset of this thesis the impact of the changes in the NHMRC alcohol guidelines for pregnancy[11] had not been examined, and the understanding of what predicts the use of alcohol by pregnant women in Australia was

limited. The first step to addressing this population health issue by reducing prevalence of alcohol consumption in pregnancy is to identify high risk groups and the factors that would need to be addressed by future interventions. Results of such research can then be used to determine the best dissemination and implementation strategies to initiate change (e.g. policy, education, service provider training, and/or public health messages).

2.7 Thesis aims

The overall objective of this thesis was to identify the components that would need to be addressed to reduce alcohol use among pregnant Australian women to be in line with the current recommendation that 'not drinking is the safest option'. To do this, this thesis aimed to examine alcohol use among pregnant Australian women in relation to the alcohol guidelines for pregnancy. Specific major aims were to:

1. Assess the prevalence of alcohol use since the introduction of the 2009 NHMRC alcohol guidelines that concluded that "not drinking is the safest option" during pregnancy; and
2. Identify the factors that contribute to alcohol consumption during pregnancy within the Australian population.

3 METHODS

This chapter outlines the methodological approach and methods that were utilised for the overall thesis. It begins with an explanation of the mixed methods approach that was chosen, that being a sequential explanatory design. It then briefly describes the Australian Longitudinal Study on Women's Health, before going into more detail about the 1973-78 cohort from which participants were drawn. It concludes with a discussion of ethical approval for the work contained in this thesis.

3.1 A mixed methods approach

Mixed methods research provides an opportunity to utilise the strengths of multiple approaches, while counter balancing their weaknesses. The definitions and terminologies used by mixed methods researchers are numerous and varied, so it is critical that studies properly define the approach taken and the meaning used when referring to mixed methods.[163] The following definition of mixed methods research by Johnson, Onwuegbuzie and Turner (2007) was utilised for the body of work presented in this thesis:

> *Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration…. A mixed method program would involve mixing within a program of research and the mixing might occur across a closely related set of studies. (p. 123)[163]*

This thesis used a mixed methods approach to provide a more thorough understanding of the multiple components contributing to alcohol use during pregnancy within the context of the Australian alcohol guidelines. There was a need to use a study design (i.e. prospective longitudinal cohort) which would ensure a strong level of evidence and generalisability to enable appropriate translation of the results. Additionally, the findings needed to provide a deeper understanding of the factors contributing to alcohol use during pregnancy in light of the 2009 alcohol guidelines that recommend abstinence.[11] To better inform future research, policy and practice, it was important to not only determine the magnitude of alcohol use during pregnancy, but to consider why alcohol use continues into pregnancy. To answer the latter it was necessary to identify population level predictors, as well as derive an explanation through more in-depth exploration with women who had been pregnant after the 2009 alcohol guidelines were released. Therefore, a pragmatic stance was taken to answer the research question, with the decision that a mixed methods approach would work best to provide a practical, usable answer to the research question.[164, 165]

A mixed methods sequential explanatory design using parallel samples was chosen for this thesis project.[164-168] The design was sequential because the first component of the project consisted of a quantitative approach (i.e. three separate analyses of quantitative data; Chapters 4, 5 and 6), followed by a qualitative component (i.e. data collection and analysis of individual interviews; Chapter 7), which provided further explanation of the quantitative findings.[164, 168] The design was deemed explanatory because the quantitative component of the thesis was considered the dominant approach, which was then augmented by the later qualitative component.[164, 167, 168]

Ivankova, Creswell and Stick's (2006) instructions for presenting mixed methods sequential explanatory designs were used to create Figure 3.1: a diagram of the overall study design.[168] The quantitative and qualitative data collection and analyses are shown in rectangles, with the quantitative component capitalised to visually depict its dominance in this thesis.[168] The ovals depict the phases of the study where the two methods were integrated. The quantitative and qualitative approaches converged during three main stages of the thesis project: the overall study design, the sampling evaluation for the qualitative component, and in the final interpretation of the overall findings as shown in the ovals of Figure 3.1.

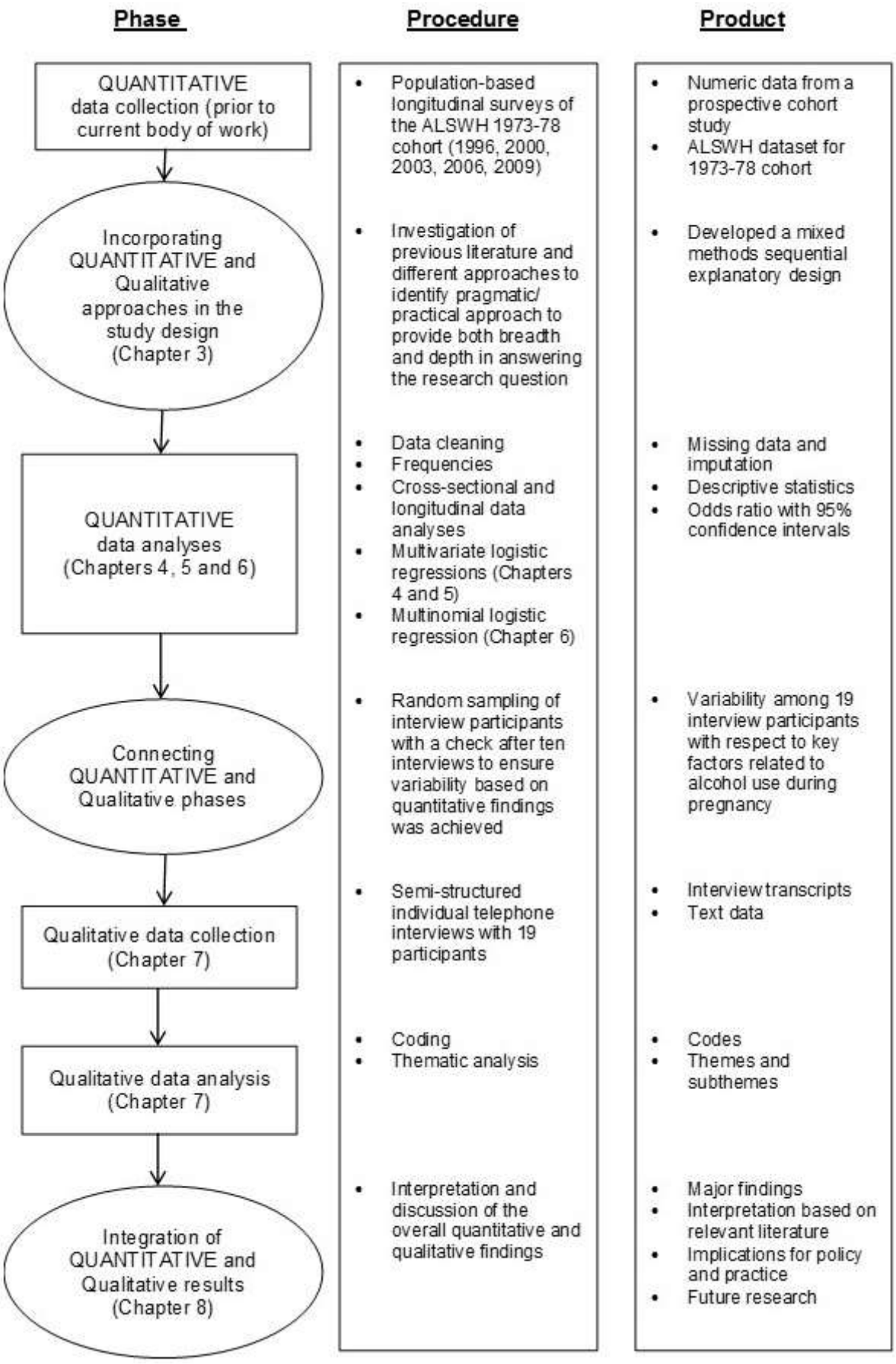

Figure 3.1 Mixed methods sequential explanatory study design for this thesis

The design also included using parallel samples, which have been defined as different samples drawn from the same population.[166] This sampling terminology was applied to this thesis, as the individual study samples were all drawn from the 1973-78 cohort of the ALSWH, which is described below in section 3.2.

One of the converging points of the quantitative and qualitative analyses in this thesis was the quantitative evaluation of the random sampling frame for the qualitative component (Chapter 7). Specifically, after ten individual interviews had been conducted, characteristics associated with alcohol use during pregnancy from the quantitative component (Chapters 4, 5 and 6) were investigated to ensure they were represented among the women. Variability among the women with regards to these characteristics, as well as other sociodemographic characteristics and alcohol use was found to be sufficient so the random sampling technique was maintained. If the random sampling technique had not been sufficient in attaining variability amongst the women with regards to these characteristics, then a more purposive sampling technique would have been employed.

Both quantitative and qualitative components of this mixed methods design used data collected from participants of the ALSWH 1973-78 cohort. The quantitative components utilised numerical data in the existing ALSWH databases. The data were chosen as they allowed generalised claims to be made about the population. However, the survey data were limited by the fact that the content and response formats were defined by researchers, which may not have adequately reflected the complete experiences of the participants. One such limitation of the surveys was that they did not investigate participant's awareness of the alcohol guidelines for pregnant women. For the qualitative component, selected participants of the ALSWH 1973-78 cohort were invited to take part in a qualitative substudy using in-depth individual interviews. This approach was taken to provide a better understanding of the components contributing to alcohol use during pregnancy within the context of the alcohol guidelines. Interviews were used to elicit additional information that could not be found from ALSWH survey data or the existing literature, particularly about the degree to which the 2009 alcohol guidelines had been disseminated. It was believed that the qualitative findings would add meaning to the quantitative findings relating to the prevalence and predictors of alcohol use during pregnancy. The following section provides a brief overview of the ALSWH and then describes the ALSWH 1973-78 cohort in more detail. Further sampling methods for each individual analysis can be found in their respective chapters.

3.2 The Australian Longitudinal Study on Women's Health (ALSWH)

The ALSWH is a population-based prospective cohort study, which recruited women in 1996 from three age groups (i.e.18-23, 45-50 and 70-75 years) in order to examine women's health and wellbeing across the life course. Women were recruited through the national health insurer of Australian citizens and permanent residents, Medicare Australia (formerly the Health Insurance Commission). Women were randomly sampled using the Medicare database, with the exception that women in rural and remote areas were intentionally oversampled to provide adequate participant numbers for geographic comparisons. Identified women were sent a baseline survey and information inviting them to participate in a longitudinal study. Over 40,000 women consented to take part in the ALSWH. The cohorts were named by the relative birth years of the three age groups: 1973-78 cohort (N=14,247), 1946-51 cohort (N=13,716) and 1921-26 cohort (N=12,432). After the 1996 baseline survey, surveys were alternatively sent out to the three cohorts at roughly three year intervals. Further details of the ALSWH can be found on the ALSWH website (www.alswh.org.au) and in previous publications.[169-172]

3.2.1 ALSWH 1973-78 cohort

The 1973-78 cohort was made up of a total of 14,247 women aged 18-23 in 1996 who consented to participation, provided contact details and completed the ALSWH baseline survey. An exact response rate was unable to be identified due to concerns with the potential inaccuracy of the Medicare database.[171, 172] However, an estimated response rate of approximately 41% has been reported.[170-172] When compared to data of similarly aged women from the 1996 Australian Census, the 1973-78 cohort had a slightly higher proportion of women with a tertiary education and lower proportions of women who were employed or born outside of Australia (www.alswh.org.au).[171] Overall, the cohort was considered to be reasonably representative of Australian women within the age range.[170, 171]

The 1973-78 cohort has completed six surveys to-date, with data from Surveys 1 through 5 available at the time the quantitative analyses for this thesis were conducted. Surveys have been conducted over the age span of 18-39 years, covering the prime childbearing years for women. Retention rates for the follow-up surveys of the cohort are contained in Table 3.1.

Table 3.1 Retention rates at follow-up surveys for the ALSWH 1973-78 cohort

Survey	Year	Age (years)	Total eligible	Total survey respondents	Retention rate
Survey 2	2000	22-27	14,116	9,688	67%
Survey 3	2003	25-30	13,887	9,081	65%
Survey 4	2006	28-33	13,557	9,145	68%
Survey 5	2009	31-36	13,337	8,199	62%
Survey 6	2012	34-39	13,131	8,010	61%

Over 20% of the attrition at Surveys 1 through 5, and 11% at Survey 6, was attributable to an inability to contact the women. This was partly explained by Lee and colleagues (2005), who noted that women from this cohort were of the age where they would move house, change their names due to marriage, not necessarily register to vote or list their telephone numbers and often travelled overseas.[172] Attrition at each survey time point included women who were completely lost to follow-up, as well as those who filled out some but not all surveys. Attrition within the cohort was found to relate to participant characteristics, such as smoking and poor health.[173] However, these biases were not found to significantly impact the associations between health and key characteristics, such as smoking and education, suggesting that attrition within this cohort has not led to any serious bias in the findings.[173]

Participants in the 1973-78 cohort were asked a range of questions about health and wellbeing at each survey relating to: physical and mental health; life events; health service use and satisfaction with health services; health behaviours and risk factors; social determinants of health, such as partner abuse; time use; and socio-demographics. Copies of the surveys can be found in Appendix E-I. The individual survey items used for each analysis will be described in their corresponding chapters.

3.2.2 Ethical approval and conduct

Ethical approval for the ALSWH was granted by the University of Newcastle (H0760795) and the University of Queensland (2004000224). A certificate of approval to conduct human research is contained in Appendix J. After receiving their invitation from Medicare Australia, all participants in the 1973-78 cohort provided written informed consent to participate in the longitudinal study. They were made aware that they could withdraw from the study at any time. All data were housed on secure

electronic servers at the Universities of Queensland and Newcastle. Participants' survey data were kept separately from their contact details. All participants were provided with an 'idalias' (i.e. personal, numerical identification code) for the survey datasets. Only the ALSWH data managers had access to the linked survey and personal data. Data were only reported in a de-identified, aggregated manner.

Although there is a clear need for research examining alcohol use during pregnancy among Indigenous Australian women, such research needs to adhere to strict ethical procedures where the work is conducted with Indigenous communities to ensure it is culturally safe and appropriate.[174] Due to the rules governing the nature of the data utilised for this thesis (http://www.alswh.org.au/for-researchers/indigenous-policy), Indigenous status was not able to be examined.

To gain access to the ALSWH data the investigators first outlined their research proposal via an expression of interest, which was assessed by the ALSWH's Publications, Substudies and Analyses Committee. Once the analysis proposal had been approved all investigators read and signed a memorandum of understanding for use of the de-identified data that was provided. Quantitative analyses in this thesis were approved by the ALSWH's Publications, Substudies and Analyses Committee. The qualitative substudy reported in this thesis attained approval from the ALSWH's Publications, Substudies and Analyses Committee and ethical clearance from the University of Newcastle (H-2012-0153). The ethical approval for the qualitative component (Chapter 7) of this thesis is contained in Appendix K. The data analyses contained within this thesis were outlined in proposals A312, A312A and W085 (www.alswh.org.au/substudies-and-analyses/analyses).

Data from the quantitative and qualitative components of this thesis were kept on a password protected computer. The consent forms for the qualitative study were kept in locked filing cabinets at the University of Newcastle. To assure participant anonymity for the qualitative component, the data was presented in a de-identified, aggregated manner with all identifiable information being removed from reported quotes. More information on the ethical procedures relating to the qualitative component can be found in Chapter 7.

To ensure ethical conduct in disseminating results, reporting guidelines were utilised when drafting the manuscripts for Chapters 4-7. For the quantitative studies (i.e. Chapters 4-6), results were reported in accordance with the *Strengthening the Reporting*

of Observational Studies in Epidemiology (STROBE) statement specific to cohort studies.[175] For the qualitative study (i.e. Chapter 7), the *RATS Guidelines* were used for quality reporting as required by *BMC Public Health*.[176]

4 DETERMINANTS OF PREGNANT WOMEN'S COMPLIANCE WITH ALCOHOL GUIDELINES: A PROSPECTIVE COHORT STUDY

A version of this chapter has been published with BMC Public Health:

Anderson A, Hure A, Powers J, Kay-Lambkin F, Loxton D: Determinants of pregnant women's compliance with alcohol guidelines: a prospective cohort study. *BMC Public Health* 2012, 12:777

ABSTRACT

Background

In 2009, Australian alcohol guidelines for pregnancy changed from low to no alcohol intake. Previous research found a high proportion of pregnant Australian women drank during pregnancy; however, there has been limited investigation of whether pregnant women comply with 2009 alcohol guidelines. The purpose of this study was to provide an assessment of pregnant women's compliance with 2009 Australian alcohol guidelines and identify predictors of such compliance, including previous drinking behaviour.

Methods

Cross-sectional analysis of prospective data from the 1973–1978 cohort of the Australian Longitudinal Study on Women's Health was conducted. Women aged 30–36 years who were pregnant at the 2009 survey and had data on alcohol use were included (n = 837). Compliance with 2009 alcohol guidelines for pregnancy was defined as no alcohol intake. Predictors of compliance were analysed using multivariate logistic regression, controlling for area of residence, in three separate models to account for multicollinearity between measures of previous alcohol intake (compliance with 2001 guidelines; frequency and quantity; bingeing). Private health insurance, household income, and illicit drug use were entered into all models and retained if significant.

Results

Seventy-two percent of pregnant women did not comply with the 2009 alcohol guidelines and 82% of these women drank less than seven drinks per week, with no more than one or two drinks per drinking day. The odds of complying with abstinence increased by a factor of 3.48 (95% CI 2.39-5.05) for women who previously complied with the 2001 alcohol guidelines and decreased by a factor of 0.19 (95% CI 0.08-0.66) if household incomes were $36,400 or more. In other models the odds of complying were lower for women who consumed alcohol before pregnancy at least weekly (OR = 0.40, 95% CI 0.25-0.63) or binged (OR ≥ 0.18, 95% CI 0.10-0.31) and were higher for those who abstained (OR = 45.09; 95% CI 8.63-235.49) prior to pregnancy.

Conclusion

Most pregnant women did not comply with alcohol guidelines promoting abstinence. Prior alcohol behaviour was the strongest predictor of compliance during pregnancy, suggesting alcohol use should be addressed in women of child-bearing age. The study is limited by the relatively short timeframe between the official introduction of the 2009 guidelines and the date the surveys were sent out. Widespread dissemination of the guidelines may be necessary to help increase guideline compliance by pregnant women.

Keywords

Alcohol drinking, Guidelines, Health behaviour, Patient compliance, Pregnancy, Prenatal care, Prevalence, Women's health

4.1 Background

Public health guidelines are intervention strategies aimed at bringing about health behaviour change at a population level.[177] They synthesize the best available evidence to assist healthcare providers and individuals to make informed decisions. The constant nature of research means that public health guidelines change over time and may vary by country, depending on culture and healthcare priorities. Change over time and international discrepancy is very prominently demonstrated by the guidelines on drinking alcohol during pregnancy. In Australia the 1992 alcohol guidelines suggested women abstain from alcohol during pregnancy.[9] In 2001, these guidelines were revised to condone low levels of drinking.[10]

The 2001 guidelines contained the following recommendations for pregnant women, or those that may soon become pregnant:

- may consider not drinking at all;
- most importantly should never become intoxicated;
- if they choose to drink, over a week, should have less than 7 standard drinks, AND, on any one day, no more than 2 standard drinks (spread over at least two hours);
- should note that the risk is highest in the earlier stages of pregnancy, including the times from conception to the first missed period.[10]

In February 2009, the Australian guidelines were again changed to state that "not drinking is the safest option".[11] A draft of these 2009 guidelines was made available for public consultation back in 2007 and was advertised in major newspapers, through media coverage, and on the National Health and Medical Research Council's website.[11] Australia's current guideline on abstinence during pregnancy is similar to those in the US, Canada and Denmark,[69, 71, 178] but differs to the guidelines promoted in the UK.[179]

Research assessing alcohol use under the previous guidelines found the vast majority (around 80%) of Australian women did consume alcohol during pregnancy.[98-100] Analysis from the Australian Longitudinal Study on Women's Health (ALSWH) data collected from 1996 to 2006 found that drinking during pregnancy occurred regardless of a guideline change from abstinence (1992 to 2001) to low-level drinking (2001 to 2009).[98] Similarly, Danish research found no significant change in consumption among pregnant women when guidelines changed in 1999 from abstinence to no more than one drink per day.[180] Factors such as pre-pregnancy alcohol intake, smoking during pregnancy and stage of pregnancy were found to be significant predictors of compliance with alcohol guidelines.[98] Although previous alcohol consumption has been found to be a consistent contributing factor to drinking during pregnancy[75] its measurement in studies has not been consistent. Frequency,[112, 119, 126, 131] quantity,[119, 125, 131] and binge episodes[110, 126] have all been used as measures of previous drinking behaviour. However, previous compliance to alcohol guidelines has not been independently assessed. A recent report investigated drinking behaviour of Australian women in 2010, but did not account for alcohol consumption prior to pregnancy.[181] To date, no studies have investigated whether pregnant Australian women comply with the 2009 guideline to not drink during pregnancy, accounting for previous alcohol intake.

The purpose of this project was to assess pregnant women's compliance with 2009 Australian alcohol guidelines[11] and to identify determinants of compliance. Of particular interest, we examined whether previous guideline compliance predicted subsequent compliance to alcohol guidelines during pregnancy.

4.2 Methods

Population-based prospective data from women born between 1973 and 1978 (the 1973–1978 cohort) from the ALSWH were analysed cross-sectionally in 2011. Ethical

clearance for the ALSWH was obtained from the Universities of Newcastle and Queensland (Ethics approvals H0760795 and 2004000224). Women were originally randomly sampled, with intentional oversampling from rural areas, through the national health insurer (Medicare Australia) database in 1996 and invited to participate in a 20 year longitudinal study. The women were aged 18–23 years at the time of recruitment and were broadly representative of women of the same age in the Australian population.[170, 182] The cohort completed self-report surveys in 1996, 2000, 2003, 2006, and 2009. Further details of sampling and recruitment methods have been reported elsewhere.[170, 182]

Cross-sectional analysis of data from survey five in 2009 was conducted for this project, with survey four (2006) data utilized to identify previous behaviour. Women were included in descriptive analyses if they had reported a pregnancy and completed alcohol items at survey five (2009). Only women with self-reported pregnancies were included in order to analyse women's behaviour in the context of their knowledge of the pregnancy. Further analyses that included measures of previous behaviours, such as smoking and alcohol consumption, was limited to women that completed survey four (2006).

The 2009 surveys were mailed out on the 31 March 2009 and on average were returned within three months (range 0–14 months). About 58% of the original sample from the baseline survey completed the 2009 survey. At the baseline survey, women who completed the 2009 survey were more likely than non-responders to have never smoked (54% vs. 45%) and had ≥12 years education (70% vs. 65%) [23]. However, there were no differences between women who completed the 2009 survey and non-responders with regards to age, marital status, or area of residence at baseline.[183] Based on previous analyses of potential attrition bias within the ALSWH, it is highly unlikely that attrition rates would have led to any significant bias in the relationships among the variables.[173]

Health-related and sociodemographic factors were investigated in relation to alcohol guideline compliance. Pre-pregnancy behaviours were only calculated for women who were not pregnant or breastfeeding at survey four. Pre-pregnancy behaviours included: frequency and quantity of alcohol use, and binge drinking status. Previous smoking status and compliance with alcohol guidelines were also assessed for women that completed survey four. Previous compliance for women who were not pregnant or

breastfeeding at survey four was defined as those who had drank on average two or less drinks per day, no more than 14 drinks per week, never more than four drinks on one day, and had at least one alcohol free day a week.[10] Women who were pregnant or breastfeeding at survey four were classified as compliant with alcohol guidelines if they drank less than two drinks per day, had less than seven drinks per week, and had at least one alcohol free day per week.[10] Abstainers were included in the assessment of previous alcohol use as the national alcohol guidelines are intended for the population as a whole.

Health-related characteristics from survey five that were investigated as potential predictors of guideline compliance included: stage of pregnancy, parity, gravidity, smoking status during pregnancy, and illicit drug use. Sociodemographic variables included: highest educational attainment, marital status, employment status, household income, rurality, and private health insurance. The quantity of alcohol use was not a primary outcome for this analysis, but it was used to describe the non-compliant sample of women. Quantity of alcohol use was measured by the item "On a day when you drink alcohol, how many standard drinks do you usually have?" (1 or 2 drinks per day, 3 or 4 drinks per day, 5 to 8 drinks per day, 9 or more drinks per day). The latter three categories were combined, and a category of "does not drink" was imputed for participants who had answered "I never drink alcohol" on the alcohol frequency item.

4.2.1 Primary outcome

Pregnant women's compliance with the 2009 Australian alcohol guidelines was the primary outcome measure. As mentioned above, the 2009 guidelines had been made available in draft form and were widely advertised in 2007.[11] Upon their release in February 2009, the guidelines were disseminated to state and territory health departments.[11] Compliance was defined as not drinking any alcohol while pregnant. Participants were categorized as pregnant if they selected any of the following responses to the question "Are you currently pregnant?": less than 3 months, 3 to 6 months, or more than 6 months. Alcohol consumption was measured with the frequency item "How often do you usually drink alcohol?" (I never drink, less than once a month, less than once a week, on 1 or 2 days a week, on 3 or 4 days a week, every day). Pregnant women were dichotomized, with only those answering "I never drink" classified as "compliant" with 2009 guidelines;[11] all others were non-compliant.

4.2.2 Statistical analysis

Analyses were conducted using SPSS (version 19.0). For all univariate analyses, data were weighted by area of residence at survey one to account for purposeful oversampling from non-urban areas. Pearson Chi-square tests were used to examine the associations between compliance to alcohol guidelines and each sociodemographic and health-related characteristic. Factors significantly related ($p < 0.05$) to compliance were entered into multivariate logistic regression models using a backward stepwise approach with a cut-point of 0.05. All models were adjusted for area of residence at baseline by forcing it into the model at step one. Three models were run to account for multicollinearity between measures of previous alcohol intake. The first model (Model A) included women regardless of pregnancy or breastfeeding status at survey four. The second and third models (Models B and C) pertain only to women who were not pregnant or breastfeeding during survey four to enable measurement of pre-pregnancy factors. Women with and without missing data were compared with regards to the dependent variable, and potential bias in the dependent variable was investigated for women purposefully excluded from models B and C compared with those included in the models. These analyses of bias yielded no significant differences (results shown in Appendix L).

4.3 Results

Figure 4.1 shows the selection process for the sample. The majority of pregnant women (72%; n = 601) consumed alcohol and therefore were considered non-compliant. The majority (82%; n = 491) of pregnant women that consumed alcohol had drank less than seven drinks per week, with no more than one or two drinks per drinking day.

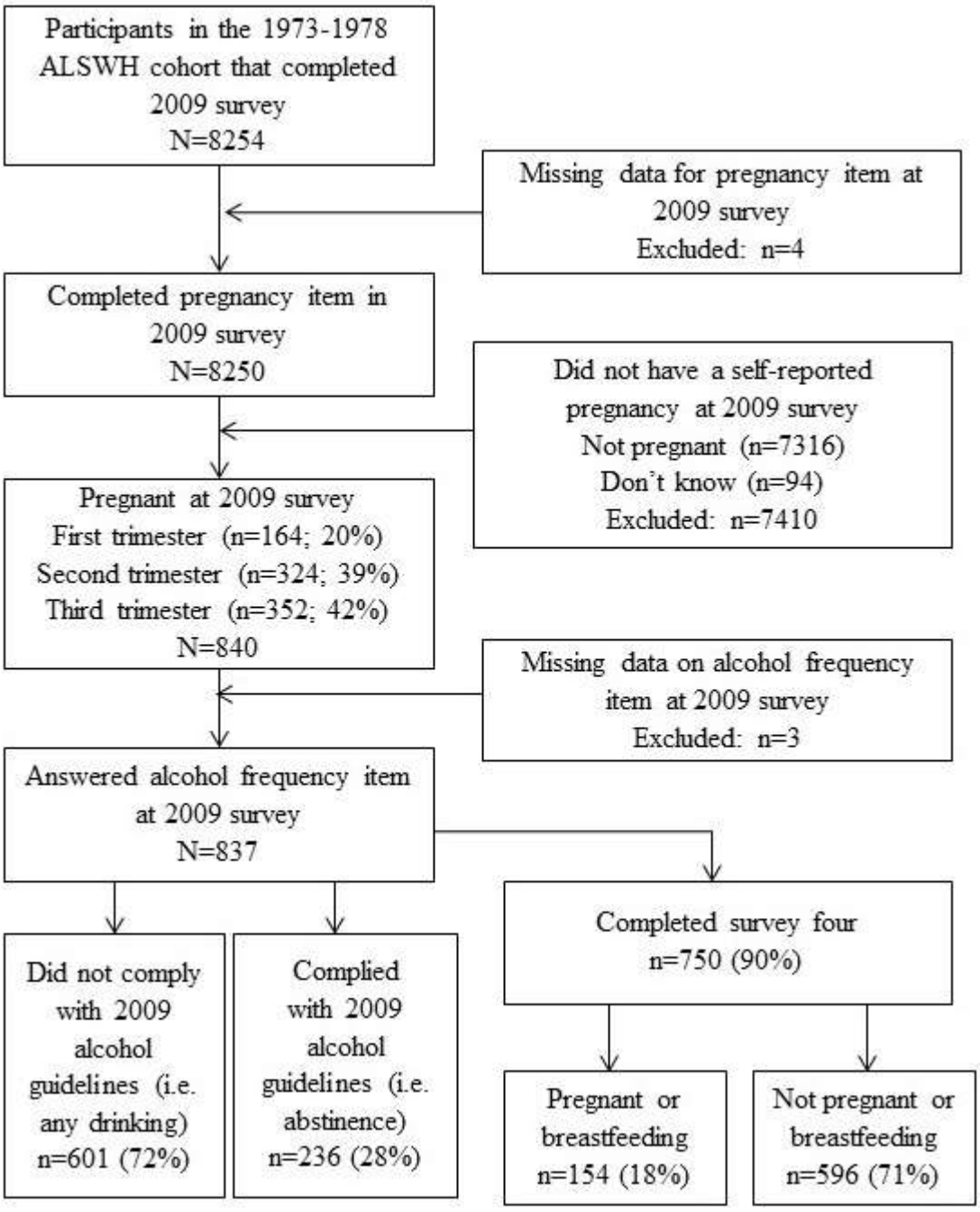

Figure 4.1 Flowchart of sample selection from the Australian Longitudinal Study on Women's Health (ALSWH)

Table 4.1 contains the characteristics of pregnant women categorized by compliance with alcohol guidelines. Compliant women were more likely to have lower household incomes and were slightly less likely to be privately insured. Other sociodemographic characteristics were similar between the two groups. Compliant women were more likely to have never used illicit drugs, never binged on alcohol prior to pregnancy, been non-drinkers before pregnancy, and previously complied with alcohol guidelines.

Compliant women were less likely to have consumed alcohol at least once a week before pregnancy.

Table 4.1 Sociodemographic and health-related characteristics[a] of pregnant women (N=837) by compliance with 2009 alcohol guidelines[11]

	Compliant	Non-compliant	Total	p-value
Previous compliance with 2001 alcohol guidelines (n=736)[b]				<0.01
Non-compliant	76 (36%)	355 (68%)	431 (59%)	
Compliant	136 (64%)	169 (32%)	305 (41%)	
Frequency of pre-pregnancy alcohol use (n=589)[c]				<0.01
Less than weekly or did not drink	123 (70%)	176 (43%)	299 (51%)	
At least once a week	52 (30%)	238 (58%)	290 (49%)	
Quantity of pre-pregnancy alcohol use (n=582)[c]				<0.01
Does not drink	40 (23%)	2 (<1%)	42 (7%)	
1 to 2 drinks per drinking day	88 (51%)	268 (65%)	356 (61%)	
3 or more drinks per drinking day	44 (26%)	140 (34%)	184 (32%)	
Pre-pregnancy binge status (n=583)[c]				<0.01
Never binged or did not drink	101 (58%)	87 (21%)	188 (32%)	
Binged less than once a month	45 (26%)	185 (45%)	230 (40%)	
Binged once a month or more often	27 (16%)	138 (34%)	165 (28%)	
Education - highest qualification achieved (n=817)				0.61
Year 10 or lower	10 (4%)	19 (3%)	29 (4%)	
Year 12/trade/apprenticeship/ certificate/diploma	70 (31%)	169 (29%)	239 (30%)	
University degree	149 (65%)	400 (68%)	549 (68%)	
Marital status (n=829)				0.68

	Compliant	Non-compliant	Total	p-value
Married	198 (85%)	498 (83%)	696 (84%)	
De facto	32 (14%)	90 (15%)	122 (15%)	
Never married/separated/ divorced/widowed	2 (1%)	9 (2%)	11 (1%)	
Employment status (n=821)				0.25
No paid work	64 (28%)	139 (24%)	203 (25%)	
Paid work	169 (73%)	449 (76%)	618 (75%)	
Household income (n=766)				<0.01
$0 - $36,399	17 (8%)	12 (2%)	29 (4%)	
$36,400 - $77,999	44 (20%)	103 (19%)	147 (19%)	
$78,000 - $155,999	115 (53%)	288 (52%)	403 (53%)	
$156,000 or more	40 (19%)	147 (26%)	187 (24%)	
Rurality (ARIA+; n=794)				0.17
Major cities	119(54%)	332 (61%)	451 (59%)	
Inner regional	60 (27%)	133 (25%)	193 (25%)	
Outer regional	37 (17%)	63 (12%)	100 (13%)	
Remote or very remote	6 (3%)	14 (3%)	20 (3%)	
Private health insurance (n=836)				0.03
No	62 (26%)	118 (20%)	180 (22%)	
Yes	173 (74%)	483 (80%)	656 (79%)	
Trimester (n=836)				0.18
First	37 (16%)	125 (21%)	162 (19%)	
Second	91 (39%)	232 (39%)	323 (39%)	
Third	108 (46%)	243 (41%)	351 (42%)	
Parity (number of live births; n=743)				0.42
No previous live births	67 (31%)	150 (28%)	217 (29%)	
One or more previous live births	147 (69%)	379 (72%)	526 (71%)	
First pregnancy (Gravidity; n=823)				0.88
Primigravida (First pregnancy)	55 (24%)	144 (24%)	199 (24%)	

	Compliant	Non-compliant	Total	p-value
Multigravida (Previous pregnancies)	176 (76%)	448 (76%)	624 (76%)	
Smoking status (n=836)				0.88
Non-smoker	229 (97%)	581 (97%)	810 (97%)	
Smoker	7 (3%)	19 (3%)	26 (3%)	
Previous smoking status (n=748)				0.55
Non-smoker	187 (87%)	472 (89%)	659 (88%)	
Smoker	28 (13%)	61 (11%)	89 (12%)	
Illicit drug use (n=836)				<0.01
Never used	113 (48%)	191 (32%)	304 (36%)	
Ever used	123 (52%)	409 (68%)	532 (64%)	

[a] All variables, except rurality, were weighted by area of residence to account for oversampling from rural areas.

[b] Compliance to 2001 NHMRC alcohol guidelines regardless of pregnancy status.[10]

[c] Only for women who were not pregnant or breastfeeding at survey 4 (N=596).

Table 4.2 contains the factors entered into multivariate models (Models A, B, and C) of guideline compliance. After controlling for area of residence in Model A, pregnant women were less likely to comply with alcohol guidelines if they had household incomes of $36,400 or more. The odds of complying with guidelines during pregnancy increased by a factor of 3.48 (95% CI 2.39- 5.05) for women who previously complied with the 2001 alcohol guidelines.

In Model B (Table 4.2), only frequency and quantity of pre-pregnancy alcohol use remained in the model. Pregnant women who had consumed alcohol at least once a week before pregnancy were 56% less likely to comply with alcohol guidelines during pregnancy relative to those drinking less than weekly. Quantity of pre-pregnancy alcohol use was only significant when comparing abstainers to drinkers. Compared with women who drank 1 to 2 drinks per drinking day, women who abstained prior to pregnancy were 45 times more likely to comply with alcohol guidelines during pregnancy. There was no significant difference in compliance between the two drinking groups (1 to 2 drinks versus 3 or more drinks per drinking day).

For Model C (Table 4.2), pregnant women who had previously binged before pregnancy had a decreased odds of complying with alcohol guidelines. The decrease in odds was

significant regardless of the frequency of the binge behaviour (monthly or less than monthly). The contributions of other factors to the model were not significant.

Table 4.2 Multivariate logistic regressions[a] of previous drinking behaviour on pregnant women's compliance with 2009 alcohol guidelines

Model A (n=611 out of 750 potential participants)[b]	(Adjusted OR with 95% CI)
Previous compliance with 2001 alcohol guidelines	
Non-compliant	Reference
Compliant	3.48 (2.39-5.05)
Household income	
$0 - $36,399	Reference
$36,400 - $77,999	0.26 (0.11-0.66)
$78,000 - $155,999	0.26 (0.11-0.62)
$156,000 or more	0.19 (0.08-0.50)
Model B (n=479 out of 596 potential participants)[c]	**(Adjusted OR with 95% CI)**
Frequency of pre-pregnancy alcohol use	
Less than weekly or did not drink	Reference
At least once a week	0.44 (0.29-0.69)
Quantity of pre-pregnancy alcohol use	
Did not drink	45.09 (8.63-235.49)
1 to 2 drinks per drinking day	Reference
3 or more drinks per drinking day	0.90 (0.57-1.42)
Model C (n=480 out of 596 potential participants)[c]	**(Adjusted OR with 95% CI)**
Pre-pregnancy binge status	
Never binge or did not drink	Reference
Binge less than once a month	0.21 (0.13-0.34)
Binge once a month or more often	0.18 (0.10-0.31)

[a] All models were adjusted for area of residence to account for oversampling from rural areas. Illicit drug use, private health insurance, and household income were entered into all models. Illicit drug use and private health insurance were not significant in any of the models and household income was not significant in Models B and C.

[b] All women that also completed 2006 survey regardless of pregnancy/breastfeeding status.

[c] Only women who were not pregnant or breastfeeding at the 2006 survey.

4.4 Discussion

Most Australian women continue to drink during pregnancy despite a national guideline that recommends abstinence. Measures of previous alcohol use were the strongest predictors of compliance. Weekly or binge drinking and previously drinking more than recommended predicted non-compliance with guidelines during pregnancy. Women's previous compliance with alcohol guidelines, regardless of pregnancy or breastfeeding status at that time, meant they were three and a half times more likely to comply during pregnancy. Contrary to previous research which found pre-pregnancy drinks per drinking day to be a strong predictor of consumption during pregnancy,[131] this study found the predictive value of quantity of alcohol consumed on a drinking day prior to pregnancy was only applicable when comparing women who drank versus abstainers. An increased quantity of alcohol per drinking day among those who did drink was not itself predictive of guideline compliance in pregnancy. Frequency of pre-pregnancy alcohol use, however, was strongly predictive of such compliance. This supports previous research which found that the frequency, rather than the quantity, of pre-pregnancy alcohol consumption is more useful in predicting alcohol use during pregnancy.[112, 184] These findings may help to simplify the assessment of women of childbearing age who may be at risk of consuming alcohol if they become pregnant by focusing on how often they drink, rather than how much they usually drink.

By using prospective data before and during pregnancy, this population-based study provided a broadly representative prevalence of pregnant women's compliance with alcohol guidelines. This is one of the first studies to assess whether the abstinence recommendation in the 2009 guidelines has been adopted by pregnant women. It is reasonable to assume that there may be some bias in this study's estimates as only women with a recognised pregnancy were included. Considering a larger proportion of women drink during the pre-recognition phase of pregnancy,[78, 125, 129, 181] it is likely that this exclusion criteria may have led to an overestimation of compliance. In contrast to the 72% of women reporting drinking during pregnancy in this study, a report based on the 2010 National Drug Strategy Household Survey (NDSHS) found only 28% of Australian women over 31 reported drinking after pregnancy recognition, while 57% drank during some stage of pregnancy.[181] It is possible that a proportion of the 72% of non-compliant women in our study were consuming alcohol due to a lack

of awareness of the revised alcohol recommendations due to the timing of the survey. However, discrepancy between the current study and the findings from the NDSHS may be partially attributed to a difference in measurement techniques. The ALSWH obtained information at the time of pregnancy, whereas NDSHS used a retrospective recall of the drinking behaviour that occurred in pregnancies within the past 12 months.[181] The ALSWH utilised a larger sample of pregnant women (N = 837) in a more defined age group (30– 36 years) compared with the sample of women in the NDSHS (n = 434) that were relatively comparable in age (31 years or over).

Prior research found that 80% of Australian women were compliant with the 2001 alcohol guidelines which condoned low alcohol intake,[98] yet this study only found a 28% compliance rate with current guidelines. Given the majority (82%) of drinkers drank at low levels, a higher proportion of this study's sample would have been classified as compliant with the 2001 alcohol guidelines. Similarly in the UK, where pregnant women are told to avoid alcohol in the first trimester and then limit alcohol to one to two drinks once or twice a week,[179] only 29% of women in their first trimester complied with the recommendations of early abstinence, whereas 94% of women in later pregnancy adhered to the low alcohol intake recommendation.[185] It appears that in Australia and the UK pregnant women are far less likely to comply with recommendations for no alcohol intake. In contrast, the US and Canada have maintained strong consistent messages of alcohol abstinence for pregnant women and have found that about 89% and 86% of pregnant women, respectively, complied with alcohol guidelines.[186, 187] The high proportion of Australian women that continue drinking during pregnancy suggests that there has not been a large scale uptake of the evidence-based recommendation to abstain from alcohol. Previous research supports the notion that guidelines do not necessarily impact drinking behaviour,[98, 180] emphasizing that the creation of guidelines alone is not sufficient in altering population behaviour.

This study confirmed findings that previous alcohol consumption is one of the best predictors of prenatal use of alcohol.[75, 98] Similarly, a recent Swedish study found that higher pre-pregnancy scores on the Alcohol Use Disorders Identification Test (AUDIT) were predictive of alcohol use during pregnancy.[188] In addition to the usual forms of alcohol assessment found in the literature (i.e. frequency,[112, 119, 126, 131] quantity,[119, 125, 131] and binge status[110, 126]) this study has taken a novel approach by examining previous compliance to alcohol guidelines. By doing so, the current study was able to show a pattern of non-compliant behaviour.

4.4.1 Limitations

This study is limited by the age range (30-36 years) of participants. Considering the mean age of Australian mothers is 30 years and there is a national trend of an increase in the age of mothers,[189] the results are likely to be generalisable to a large proportion of pregnant Australian women. There were missing data in some analyses; however, analyses of bias yielded no significant difference in the outcome of interest due to missing or excluded cases. Self-report may have led to response bias in the under-reporting of alcohol use. However, self-report has been found to be more accurate than physicians' medical records in identifying prenatal alcohol use.[190] Furthermore, the confidential nature in using a unique identifying code, as was done in this study, has been found to be equally effective in obtaining a high rate of self-reported alcohol use by pregnant women compared with using a purely anonymous technique.[191]

This study was within the confines of a large longitudinal study which led to one of the major limitations. There was a relatively short timeframe between when the 2009 guidelines were introduced and when the surveys were sent out. However, draft guidelines were available and widely publicised as early as 2007. Previous research conducted in late 2008 to early 2009 has shown that health professionals were passing on an abstinence message to pregnant clients, consistent with the 2009 guidelines.[153] Additionally, participants on average took about three months to return their surveys, with some taking up to 14 months. Seeing as how women were asked about their alcohol use when they were pregnant, rather than asking them to recall their entire pregnancy, it is believed that this study has gathered an accurate measure of drinking during pregnancy at the time the surveys were completed, which occurred under the 2009 guidelines. Whether the guidelines were properly disseminated is a topic for further research but does not limit the fact that the 2009 guidelines were in place when the women were surveyed about their behaviour.

4.4.2 Practice implications

Alcohol behaviours should be assessed before women become pregnant because pre-pregnancy alcohol use and previous compliance with guidelines predict whether Australian women will comply with guidelines during pregnancy. General practitioners (GPs) are ideally suited to assess alcohol intake in women of childbearing age. GPs are the gatekeepers to the Australian healthcare system; 19% of their clients are women of childbearing age (15-45 years) and average consultation times range from 14-15

minutes.[192] Best practice clinical guidelines suggest that pregnant women, or those who may become pregnant, should be provided with information about potential consequences of prenatal alcohol use in order to make an informed decision.[179, 193] However, a random sample of Australian health professionals found that only a quarter of providers routinely provided such information.[159] Awareness and familiarity of, and attitudes towards clinical guidelines have been found to affect health professionals' adherence to them.[194]

It may be necessary for policy makers to implement strategies to effectively disseminate the alcohol guidelines for pregnant women to ensure they are both implemented by the healthcare system and adopted by the general population. Such strategies may include the use of local opinion leaders to address barriers and encourage best practice among health professionals.[195] Additionally, mass media campaigns could be developed as they have been found to be effective in other public health initiatives such as reducing alcohol-related crashes[196] and increasing initiation of and positive attitudes towards breastfeeding.[197] US authorities have suggested that in addition to mass media campaigns other universal prevention strategies, such as policy-driven warning labels on alcoholic beverages and other strategies to reduce overall consumption for the population, may be useful in helping to prevent alcohol-exposed pregnancies.[198] Studies from Scandinavian countries have reported that mass media is the number one information source regarding alcohol use in pregnancy for pregnant women.[119, 199] It has also been found that pregnant women believe a health professional could best communicate this information[199] and women are comfortable discussing alcohol use with healthcare providers.[153] Currently, no mass media campaign or other universal prevention strategies exist in Australia to promote the most recent alcohol guidelines for pregnant women, stressing not only a need for public health promotion but also the importance of healthcare professionals in disseminating this public health message.

Based on the results of this study, GPs may find it useful to initiate a conversation about alcohol use by asking women about their usual alcohol consumption (e.g. when not pregnant) as a lead in to assessing their current alcohol use. If women report usually drinking more than the recommended guidelines or usually drink on a weekly basis, then the GP can use that context to provide them with information about the potential consequences of alcohol use during pregnancy and the national recommendation for abstinence. For women of childbearing age, healthcare providers could offer brief motivational interviewing which has been found to reduce the risk of alcohol exposed

pregnancies.[200] GPs may consider using educational and psychological interventions for their pregnant clients, which have been found to assist pregnant women in abstaining from alcohol.[201]

4.5 Conclusion

Proper dissemination of guidelines and recommendation uptake by pregnant women are needed to ensure guideline compliance. However, more information is needed to determine why so many pregnant women are not complying with the current alcohol guidelines. It is not known whether women are aware of these guidelines and if so whether compliance is due to a purposeful adherence to the guidelines or a result of choosing to abstain for other reasons. Other countries with less conservative alcohol guidelines may wish to confirm whether a pattern of non-compliance also exists among pregnant women in their region. Additionally, dissemination, adoption, and promotion of current alcohol guidelines are most likely inadequate given the present findings. Further research is needed to understand the pathway that exists between policymakers and pregnant women to determine why there is such a low rate of compliance with alcohol guidelines.

Abbreviations

ALSWH: Australian Longitudinal Study on Women's Health; GP: General practitioner; NDSHS: National Drug Strategy Household Survey.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

AA, DL, JP, AH and FK-L all made substantial contributions to the conception and design of the study. AA conducted the analysis under guided supervision by JP and DL. AA, DL, JP and AH made substantial contributions to the interpretation of the data. AA drafted the manuscript. All authors contributed to the revision of the manuscript. All authors read and have given approval for the final manuscript.

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5 PREDICTORS OF ANTENATAL ALCOHOL USE AMONG AUSTRALIAN WOMEN: A PROSPECTIVE COHORT STUDY

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ABSTRACT

Objective

To identify predictors of antenatal alcohol consumption among women who usually consume alcohol.

Design

Prospective cohort study.

Setting

Australian Longitudinal Study on Women's Health (ALSWH).

Population or Sample

A total of 1969 women sampled from the ALSWH 1973–78 cohort.

Methods

Women were included if they were pregnant in 2000, 2003, 2006 or 2009. The relationship between antenatal alcohol consumption and sociodemographics, reproductive health, mental health, physical health, health behaviours, alcohol guidelines and healthcare factors was investigated using a multivariate logistic regression model.

Main outcome measures

Alcohol use during pregnancy.

Results

Most (82.0%) women continued to drink alcohol during pregnancy. Women were more likely to drink alcohol during pregnancy if they had consumed alcohol on a weekly basis before pregnancy (odds ratio [OR] 1.47; 95% confidence interval [95% CI] 1.13–1.90), binge drank before pregnancy (OR 2.28; 95% CI 1.76–2.94), or if they were pregnant while alcohol guidelines recommended low alcohol versus abstinence (OR 1.60; 95% CI 1.26–2.03). Drinking during pregnancy was less likely if women had a Health Care Card (OR 0.63; 95% CI 0.45–0.88) or if they had ever had fertility problems (OR 0.64; 95% CI 0.48–0.86).

Conclusions

Most Australian women who drank alcohol continued to do so during pregnancy. Pre-pregnancy alcohol consumption was one of the main predictors of antenatal alcohol use. Alcohol guidelines, fertility problems and Health Care Card status also impacted antenatal alcohol consumption.

Keywords

Alcohol drinking, health behaviour, pregnancy, women's health.

5.1 Introduction

A large proportion of pregnant women in Australia,[98, 202] France[203] and the UK,[185] have been found to consume alcohol during pregnancy. Heavy antenatal alcohol use can cause a number of adverse birth outcomes.[31, 32, 34, 56] The effects of low to moderate alcohol use are less clear.[58] Although a number of studies have shown no harm,[56, 204] recent systematic reviews and meta-analyses reported that 30–40 g of alcohol on one occasion, or 70 g/week, increases the risk of neurodevelopmental problems and preterm birth.[58] Adding to the confusion, genetic factors appear to vary the outcomes of antenatal alcohol use.[14, 205] To identify women at risk of alcohol-exposed pregnancy and potential negative outcomes, there is a need to first determine what factors predict alcohol consumption by pregnant women.

The literature has been inconsistent in identifying the predictors of antenatal alcohol use. Studies have been limited by reliance on non-population-based samples,[95, 97, 112] univariate analysis,[32, 95, 97] retrospective measures[181] and inappropriate comparison groups (e.g. women not of legal age to purchase or consume alcohol).[112] To overcome individual study limitations, Skagerstrom et al.[75] conducted a systematic review. Pre-pregnancy alcohol consumption and experience of abuse were the only consistent predictors of antenatal alcohol use.[75] Unfortunately these findings may not apply to all pregnant women because the included studies only sampled from antenatal care populations. Australian studies suggest that factors such as older age,[95, 181] higher income,[95, 181] pre-pregnancy alcohol consumption,[98, 202] previous pregnancy losses[97] and having a partner[95] increased a pregnant woman's likelihood of alcohol consumption.

There has yet to be an examination of a comprehensive set of multiple predictors in one analysis using a population-based sample. Population-based studies have been

conducted in Norway,[129] the USA,[110] Denmark[125] and Australia.[181] Their results supported previous findings that previous alcohol consumption is a consistent predictor of alcohol use during pregnancy;[75] however, previous consumption was not measured in the Australian study. The Danish study examined a number of predictors of binge drinking. None of the above studies examined a wide range of factors together such as sociodemographics, reproductive health, mental health, physical health, health behaviours, alcohol guidelines and healthcare factors to predict any alcohol use during pregnancy. The purpose of this study was to identify the predictors of antenatal alcohol consumption from a large range of potential variables among Australian women using prospective data from a population-based cohort study.

5.2 Methods

5.2.1 Sample

This study used data from the Australian Longitudinal Study on Women's Health (ALSWH). The longitudinal study began in 1996 with the recruitment of three age cohorts (women born between 1973 and 1978, 1946 and 1951, and 1921 and 1926). Women were recruited via the national Australian health insurer, Medicare. Women were randomly sampled, with the exception that women from rural and remote areas were sampled at twice the rate. Informed consent was provided by all participants. Surveys were mailed to the different cohorts on an interval basis every 3 years. Detailed methods of the ALSWH have been previously published.[170, 172]

The sample for this study was drawn from the 1973–78 cohort. This cohort was aged 18–23 years when recruited in 1996 and were broadly representative of the population of similarly aged Australian women at that time.[170] Participants completed surveys in 1996, 2000, 2003, 2006 and 2009, which have been referred to as surveys one, two, three, four and five, respectively. Women were eligible for the current analysis if they indicated that they were pregnant at survey two, three, four or five. The target survey was defined as the first survey from surveys two to five in which the participant reported being pregnant and the respective pregnancy was referred to as the target pregnancy. This approach was taken to enable examination of pre-pregnancy behaviours (such as alcohol use) based on previously completed surveys before the target survey. Exclusion criteria for the current analysis are presented in Figure 5.1.

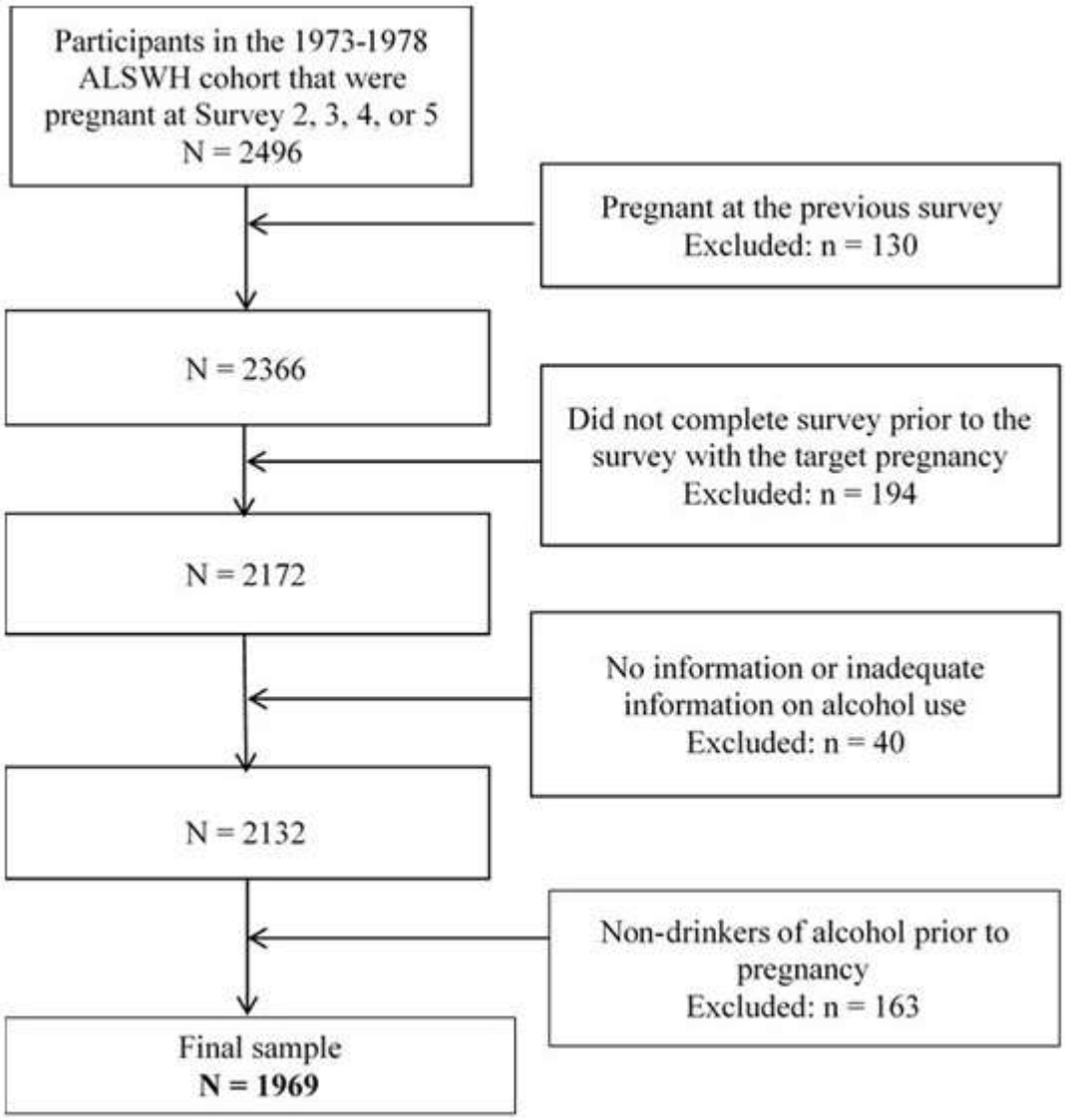

Figure 5.1 Flowchart of the sample obtained from the ALSWH 1973–78 cohort

5.2.2 Measures

Thirty-six variables were investigated as potential predictors of antenatal alcohol use. The types of variables that were included in the analysis included sociodemographics, reproductive health, mental health, physical health, health behaviours, alcohol guidelines and healthcare variables. The variables and their response categories are presented in Table 5.1 and in Supplementary material, Table S5.1 (Appendix M). As some variables had slightly different wording or response formats in the different surveys, it was necessary to harmonise the data by reformatting these variables. For categorical variables, some categories were collapsed to prevent problems resulting from small cell sizes. General practitioner (GP) use in the last 12 months was categorised into tertiles at the different surveys and labelled as low, moderate or high

use. A number of original items were reduced using exploratory factor analysis to create composite scores for health symptoms (Appendix N) and perceived access to health care (Appendix O). Fourteen symptoms comprised five factors representing; (i) menstrual health (four symptoms); (ii) bowel health (three symptoms); (iii) head and back issues (two symptoms); (iv) vaginal and urinary health (two symptoms); and (v) mental health (three symptoms). The two variables about perceived access to health care were created from six original access items. Access to general medical care included four items, whereas access to after-hours or hospital care included two items. Possessing a Health Care Card was considered an indicator of socio-economic status, as this card provided additional government assistance for healthcare costs for recipients of other government concessions.

Alcohol guidelines during the time of pregnancy were based on the Australian National Health and Medical Research Council guidelines. The 1992[9] and 2009[11] guidelines promoted abstinence, whereas the 2001[10] guidelines condoned light drinking. The 2001 guidelines recommended that pregnant women or those who may become pregnant:

- 'may consider not drinking at all;
- most importantly, should never become intoxicated;
- if they choose to drink, over a week, should have <7 standard drinks, AND, on any 1 day, no more than two standard drinks (spread over at least 2 hour);
- should note that the risk is highest in the earlier stages of pregnancy, including the time from conception to the first missed period.'[10]

Women who completed survey two (2000) or survey five (2009) were classified under the 'no alcohol' guidelines, whereas women who filled out surveys three (2003) and four (2006) were pregnant during the 'low alcohol' guidelines. Pre-pregnancy alcohol consumption was measured with regards to frequency ('How often do you usually drink alcohol?'), quantity ('On a day when you drink alcohol, how many standard drinks do you usually have?'), and binge drinking ('How often do you have five or more standard drinks of alcohol on one occasion?'). Other pre-pregnancy measures included previous mental health, physical health and smoking status.

5.2.3 Primary outcome

The main outcome was alcohol use during pregnancy. For all women who reported a pregnancy at the target survey, their alcohol consumption at that time was coded as either 'no alcohol intake' or 'some alcohol intake'. This was determined by using the alcohol frequency item, which had the following response format: I never drink alcohol, less than once a month, less than once a week, on 1 or 2 days a week, on 3 or 4 days a week, on 5 or 6 days a week, everyday. Responses were dichotomised into 'I never drink alcohol' versus all other responses. The frequency and quantity of alcohol use were identified for descriptive purposes for participants that reported some alcohol intake during pregnancy. The item used to identify the quantity of alcohol use had the following response format originally: 1 or 2 drinks per day, 3 or 4 drinks per day, 5 to 8 drinks per day, 9 or more drinks per day.

5.2.4 Statistical analysis

Analyses were conducted using SPSS (version 19, SPSS Inc., Armonk, NY, USA). Descriptive statistics were calculated for items in the target survey, except for pre-pregnancy measures, which were taken from the survey before the target survey. Univariate logistic regression was used to assess the relationships between alcohol use during pregnancy and the 36 variables. All variables that demonstrated a statistically significant ($P < 0.05$) association with the outcome variable were subsequently used in a multivariate logistic regression model using a backwards stepwise approach with an inclusion cut-off of $P < 0.01$. The prevalence of antenatal alcohol use was then calculated for the different levels of the final predictors to see how it varied for each predictor.

5.2.4.1 Missing data analysis

The majority (91.6%) of women did not have any missing observations on the 36 potential predictor variables, with approximately 1% of the sample having three or more missing variables. The Pearson's chi-square test that was run to examine the impact of missing data was not statistically significant ($v2 = 0.38$, $df = 1$, $P = 0.06$), suggesting that there was no bias in the outcome variable. Full Information Maximum Likelihood estimation was then used to impute missing data, as this has been found to be less biased and more efficient than other methods.[206]

5.3 Results

Of the 2496 women who indicated that they were pregnant at survey two, three, four or five, 1969 (78.9%) women were included in the analyses (see Figure 5.1). Of those 1969 participants, 388 (19.7%), 451 (22.9%), 612 (31.1%) and 518 (26.3%) were pregnant at survey two, three, four or five, respectively. The women's ages ranged from 22 to 37 years. Most participants had a tertiary education or higher (72.4%; n = 1426) and were in a relationship with a partner (96.1%; n = 1893). About half of the women lived in major cities (52.0%; n = 1024) and nearly two-thirds (64.1%; n = 1263) were not at all or only somewhat stressed about money. Table 5.1 and Table S5.1 (Appendix M) contain the descriptive characteristics of the 1969 participants.

Table 5.1 Significant univariate predictors of alcohol use during pregnancy for the Australian Longitudinal Study on Women's Health 1973-1978 cohort (N=1969)[a]

Univariate predictors	n (%)	OR (95% CI)	p-value
Highest education attained			
School certificate (year 10) or less	177 (9.0)	0.58 (0.39-0.87)	0.008*
Higher school certificate (year 12)	366 (18.6)	0.83 (0.59-1.17)	0.28
Trade/ apprenticeship/ certificate/ diploma	513 (26.1)	0.77 (0.57-1.04)	0.92
University degree	637 (32.4)	Ref	Ref
Higher university degree (e.g. Masters, PhD)	276 (14.0)	0.96 (0.65-1.40)	0.82
Violent relationship with a partner (ever)			
No	1770 (89.9)	Ref	Ref
Yes	199 (10.1)	0.68 (0.48-0.97)	0.031*
Area of residence			
Major cities	1024 (52.0)	Ref	Ref
Inner regional	570 (28.9)	0.83 (0.63-1.08)	0.16
Outer regional	305 (15.5)	0.70 (0.51-0.96)	0.029*
Remote/very remote	70 (3.6)	1.34 (0.65-2.75)	0.43
Age (mean ± SD):			
Years	29.6 ± 3.3	0.96 (0.93-1.00)	0.035*
General practitioner (GP) use			

Univariate predictors	n (%)	OR (95% CI)	p-value
Low	1004 (51.0)	Ref	Ref
Moderate	505 (25.6)	1.28 (0.96-1.73)	0.10
High	460 (23.4)	0.75 (0.57-0.99)	0.040*
Health Care Card			
No	1749 (88.8)	Ref	Ref
Yes	220 (11.2)	0.60 (0.44-0.84)	0.003*
Previous general health[b] (mean ± SD):			
Range 0-100; higher score is better rating of general health	73.1 ± 19.1	1.01 (1.00-1.01)	0.016*
Problems with fertility (ever)			
No	1636 (83.1)	Ref	Ref
Yes	333 (16.9)	0.61 (0.46-0.81)	0.001*
Illicit drug use (ever)			
No	814 (41.3)	Ref	Ref
Yes	1155 (58.7)	1.31 (1.04-1.65)	0.022*
Previous frequency of alcohol consumption			
Less than once a week	1116 (56.7)	Ref	Ref
Once a week or more	853 (43.3)	1.87 (1.46-2.39)	<0.001*
Previous binge alcohol use			
Never binged	491 (24.9)	Ref	Ref
Binged	1478 (75.1)	2.57 (2.02-3.28)	<0.001*
Alcohol guidelines during pregnancy			
No alcohol	906 (46.0)	Ref	Ref
Low alcohol	1063 (54.0)	1.64 (1.30-2.06)	<0.001*

* $p<0.05$

[a] Only includes women who consumed alcohol prior to pregnancy.

[b] From SF-36 subscales (General health).

A large proportion (82.0%; n = 1614) of the 1969 participants consumed some alcohol during pregnancy, whereas the remaining 355 (18.0%) women indicated abstinence. Of the women who were pregnant during the times that the alcohol guidelines promoted

abstinence, 22.0% did not drink during pregnancy, whereas 14.7% of women under the low-alcohol guidelines chose to abstain (P < 0.001).

The women who drank alcohol during pregnancy (n = 1614) reported low alcohol usage (Table 5.2). Most often drinking no more than 1–2 days per week (90.3%; n = 1457) and consuming one to two drinks per drinking day (76.9%; n = 1241).

Table 5.2 Alcohol consumption patterns during pregnancy (frequency by quantity) from the Australian Longitudinal Study on Women's Health 1973-1978 cohort[a] (n=1614)

Frequency	Quantity (drinks per drinking day)			
	1 or 2	3 or 4	5 or more	TOTAL
Less than once a month	538 (33.3%)	103 (6.4%)	45 (2.8%)	686 (42.5%)
Less than once a week	326 (20.2%)	72 (4.5%)	30 (1.9%)	428 (26.5%)
1 or 2 days/week	261 (16.2%)	57 (3.5%)	25 (1.5%)	343 (21.3%)
3 or 4 days/week	96 (5.9%)	26 (1.6%)	6 (0.4%)	128 (7.9%)
5 or 6 days/week	17 (1.1%)	8 (0.5%)	1 (0.1%)	26 (1.6%)
Everyday	3 (0.2%)	0 (0%)	0 (0%)	3 (0.2%)
Total	1241 (76.9%)	266 (16.5%)	107 (6.7%)	1614

[a] Includes women who indicated consumption of alcohol during pregnancy.

Univariate logistic regression revealed the following 12 of 36 potential predictor variables as significantly (P < 0.05) related to alcohol use during pregnancy (Table 5.1): age, previous general health, highest educational attainment, area of residence, GP use, possessing a Health Care Card, having had fertility problems, having ever been in a violent relationship with a partner, ever using illicit drugs, frequency of previous alcohol consumption, previous binge alcohol use and the alcohol guidelines that were in place during pregnancy. These variables were then examined together in a multivariate logistic regression model. Variables that were not found to be significantly related to antenatal alcohol use are contained in Table S5.1 (Appendix M).

Factors retained in the final model of predictors of alcohol use during pregnancy are shown in Figure 5.2. Prior drinking behaviour was found to have a significant impact on drinking during pregnancy, even after controlling for other influencing factors.

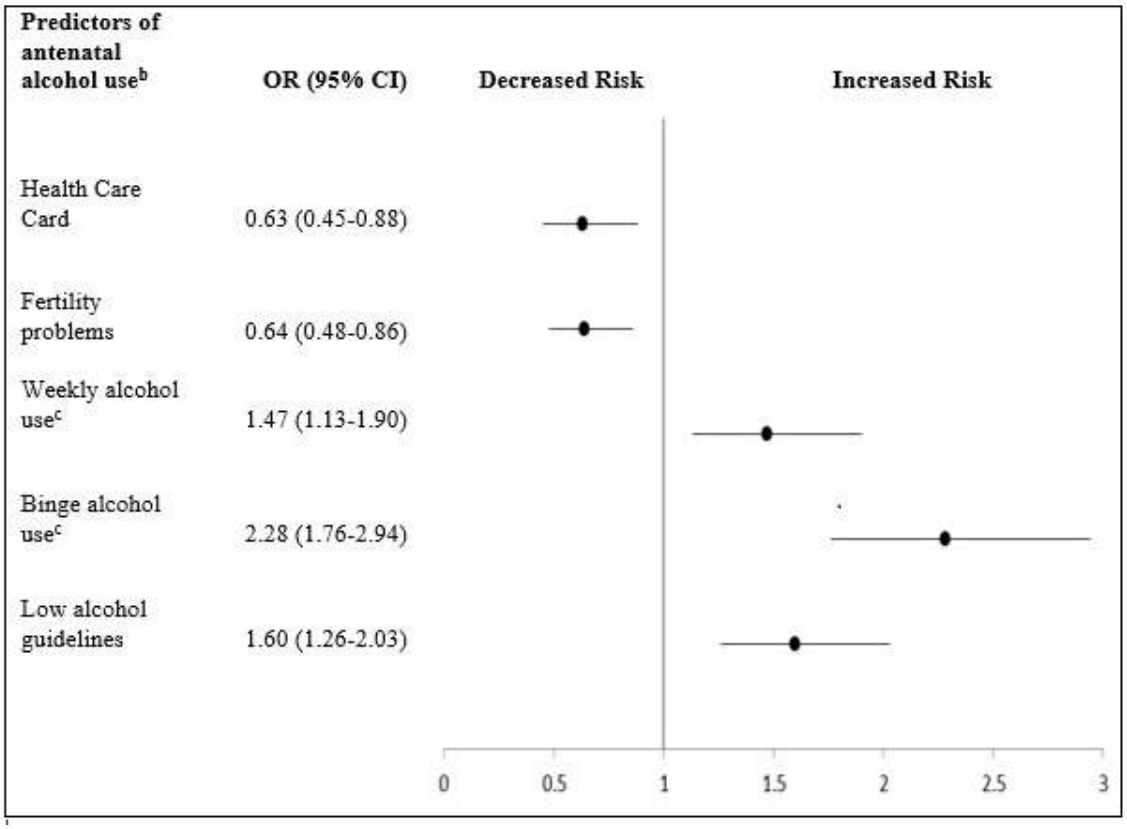

Figure 5.2 Predictors of alcohol use during pregnancy among women from the Australian Longitudinal Study on Women's Health 1973-1978 cohort (N = 1969)[a]

[a] Only includes women who consumed alcohol prior to pregnancy.

[b] Reference categories for categorical variables: Health Care Card = no card; Fertility problems (for 12 months or more) = no problems; Weekly alcohol use = less than once a week; Binge alcohol use = never binge; Low alcohol guidelines = no alcohol.

[c] Alcohol use prior to pregnancy.

Women who drank weekly before pregnancy were around 50% more likely to continue to drink during pregnancy than women who drank less than weekly (87.0% versus 78.1%, odds ratio [OR] 1.47, 95% confidence interval [95% CI] 1.13–1.90, P = 0.004). Participants who indicated binge drinking before pregnancy were more than twice as likely to consume alcohol during pregnancy compared with women who did not report a previous history of binge drinking (85.9% versus 70.3%, OR 2.28, 95% CI 1.76–2.94, P < 0.001). Women who were pregnant during the period of low-alcohol guidelines were 60% more likely to drink during pregnancy when compared with women who were pregnant during the period of no-alcohol guidelines (OR 1.60, 95% CI 1.26–2.03, P < 0.001).

In contrast, pregnant women who had reported fertility problems were 36% less likely to consume alcohol during pregnancy compared with women who did not report fertility

problems (75.4% versus 83.3%; OR 0.64; 95% CI 0.48–0.86, P = 0.003). Compared with women without a Health Care Card, women with a Health Care Card were 37% less likely to drink during pregnancy (OR 0.63, 95% CI 0.45–0.88, P = 0.008).

5.4 Discussion

5.4.1 Main findings

This study is the first to assess a wide range of predictors of drinking during pregnancy among Australian women by using a population-based sample with prospective measures of alcohol use and pregnancy. For women who drank alcohol before pregnancy, the majority (82%) continued to drink during pregnancy. The probability of women drinking during pregnancy increased if they had previously consumed alcohol on a weekly basis or through binge drinking, or if they were pregnant during the time of the low-alcohol guidelines. Possessing a Health Care Card or having reported fertility problems reduced the likelihood of drinking during pregnancy. However, regardless of the women's characteristics the prevalence of alcohol use during pregnancy remained high (over 70%).

The results suggest that conservative drinking guidelines may influence the behaviour of pregnant women. However, even under the abstinence guidelines, 78% of women continued to drink alcohol while pregnant. Considering this proportion appears to be only slightly lower than the 85% of pregnant women consuming alcohol under the low alcohol guidelines, it is understandable that previous studies have not detected a significant change in drinking behaviour as a result of a change in alcohol guidelines.[98, 180] Recent qualitative work by Holland et al. (2015) suggests that women may not be aware of the NHRMC alcohol guidelines for pregnant women.[105] More effective dissemination of guideline recommendations, such as mass media campaigns, may be useful in reducing the high prevalence of antenatal alcohol use in Australia that was observed under abstinence guidelines.

Similar to previous research,[125] this study found that women who had fertility problems were less likely to consume alcohol during pregnancy. Whether this was due to self-education, advice from a health professional, fear of potential negative outcomes, or is reflective of a general adoption of a healthy lifestyle, is unknown and more research is needed. There is some evidence to suggest that alcohol use may reduce a woman's chances of falling pregnant.[207, 208] Therefore, if a woman seeks help from

a healthcare professional when having problems falling pregnant, she might be more likely to be advised of the behavioural changes she can make to increase her chances of conceiving as recommended by evidence-based guidelines and protocols.[209, 210]

Socio-economic status also appears to influence the risk of antenatal alcohol consumption, as this study found that pregnant women with a Health Care Card (a marker for lower income) were less likely to drink alcohol. This is consistent with previous findings that some Australian healthcare professionals were more likely to address alcohol use with women they saw to be at higher risk, such as those from lower socio-economic backgrounds.[158] Additionally, previous research found that women from higher-income groups are more likely to consume alcohol during pregnancy.[95, 181] Healthcare professionals have been found to be the preferred source for receiving information about antenatal alcohol use.[199] Antenatal healthcare professionals should avoid assumptions of their client's knowledge, especially women of higher socio-economic status, informing all pregnant women about alcohol use. Educational and psychological interventions have been found to be effective strategies in reducing alcohol consumption among pregnant women,[201] and could therefore be delivered by healthcare professionals when warranted.

Risky and regular alcohol use by women of childbearing age who may become pregnant should be addressed, as this study found that weekly alcohol intake and a tendency to binge drink before pregnancy increased the likelihood of antenatal alcohol consumption. This is consistent with the literature to date, which has found that pre-pregnancy alcohol consumption is one of the best indicators of drinking during pregnancy.[75] Brief motivational interviewing aimed at increasing effective contraception use and reducing risky drinking could help to prevent alcohol-exposed pregnancies in this population.[200] Considering the prevalence of unplanned pregnancies may range from about 30 to 50%,[211, 212] such interventions would be ideal for primary prevention. Additionally, advice for those planning on becoming pregnant should focus on the fact that the first trimester is a particularly sensitive time, and teratogens such as alcohol should be avoided to prevent risks to crucial development during this stage.[213]

5.4.2 Strengths and weaknesses

Including only previous drinkers in this study helped to ensure that the effects of pre-pregnancy drinking were not inflated by the inclusion of non-drinkers. By using a large population-based cohort study, a multitude of potential predictors could be investigated

within one analysis, providing a comprehensive view of the determinants of alcohol intake among a broad range of pregnant Australian women. The use of longitudinal data meant that the impact that changing alcohol guidelines have had on women's antenatal alcohol use could be investigated. The results are strengthened by the fact that alcohol use was measured at the same time as the women reported being pregnant, thereby allowing us to identify those who drank during pregnancy without using a retrospective measure or a specific question about alcohol consumed during pregnancy.

This study is not without limitations. Due to variations in survey items across time and inconsistencies in the data, it was not possible to investigate certain variables that may be of interest such as gravidity and stage of pregnancy. These factors have been measured in previous studies with no consistent evidence to suggest that they would have had a significant impact on the outcome.[75] The study was limited by its reliance on self-report measures, which lends itself to bias. However, self-report has been found to be more effective than other methods of assessing antenatal alcohol use, such as medical reports.[190] Previous research has found self-report to be a reliable measure of smoking among pregnant women when validated using biological measures.[214] Considering the stigma about antenatal smoking, it is likely that women's self-report is also a good indicator of other behaviours. Observational cohort studies are often prone to attrition bias. Previous analyses of this longitudinal study found that the relationships between variables in the longitudinal study are unlikely to be significantly biased by attrition rates.[173]

5.4.3 Interpretation

This study has provided a strong level of evidence for the predictive value of pre-pregnancy drinking on antenatal alcohol use. The findings imply that women drinking alcohol on a weekly basis or through risky episodic drinking are more likely to continue drinking during pregnancy. Within the scope of the Hill's criteria,[215] this association is enhanced by the strength of the association (i.e. women who binged were over twice as likely to continue drinking), the temporal relationship ensured by longitudinal data, and the consistency with previous studies' findings. It is also plausible that an underlying biological component may be contributing to the association, as neuroimaging studies have found differences in brain region activation between people with different drinking behaviours.[216]

5.5 Conclusion

Healthcare professionals play a vital role in advising women on health behaviours before and during pregnancy to increase the likelihood of optimal outcomes. To ensure that women can make informed decisions about alcohol use during pregnancy, healthcare professionals should be providing all women with information about the potential harms of alcohol use and the reasons why abstinence is safest, as currently recommended by best-practice clinical guidelines.[179, 193] Further investigation should explore the advice and information that women receive from healthcare professionals, and the reasons why such a high proportion of Australian women continue to consume alcohol during pregnancy.

Disclosure of interests

The authors declare that they have no competing interests.

Contribution to authorship

All authors made substantial contributions to the conception and design of the study. AA conducted the analysis under guided supervision by PF, JP, AH and DL. AA, AH, PF, JP and DL made substantial contributions to the interpretation of the data. AA drafted the manuscript. All authors contributed to the revision of the manuscript. All authors

Details of ethics approval

The ALSWH has been granted ethics clearance by the Universities of Newcastle and Queensland (Ethics approvals H0760795 and 2004000224). Ethics for the longitudinal study was approved on the 26 July 1995.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

Table S5.1 (Appendix M) Nonsignificant univariate predictors of alcohol use during pregnancy for the Australian Longitudinal Study on Women's Health 1973–78 cohort (n = 1969).

6 RISKY DRINKING PATTERNS ARE BEING CONTINUED INTO PREGNANCY: A PROSPECTIVE COHORT STUDY

A version of this chapter has been published with PLoS ONE:

Anderson AE, Hure AJ, Forder PM, Powers J, Kay-Lambkin FJ, Loxton DJ: **Risky Drinking Patterns Are Being Continued into Pregnancy: A Prospective Cohort Study**. *PLoS ONE* 2014, **9**(1):e86171.

ABSTRACT

Background

Risky patterns of alcohol use prior to pregnancy increase the risk of alcohol-exposed pregnancies and subsequent adverse outcomes. It is important to understand how consumption changes once women become pregnant.

Objective

The aim of this study was to describe the characteristics of women that partake in risky drinking patterns before pregnancy and to examine how these patterns change once they become pregnant.

Methods

A sample of 1577 women from the 1973–78 cohort of the Australian Longitudinal Study on Women's Health were included if they first reported being pregnant in 2000, 2003, 2006, 2009 and reported risky drinking patterns prior to that pregnancy. Multinomial logistic regression was used to determine which risky drinking patterns were most likely to continue into pregnancy.

Results

When reporting risky drinking patterns prior to pregnancy only 6% of women reported weekly drinking only, whereas 46% reported binge drinking only and 48% reported both. Women in both binge categories were more likely to have experienced financial stress, not been partnered, smoked, used drugs, been nulliparous, experienced a violent relationship, and were less educated. Most women (46%) continued these risky drinking patterns into pregnancy, with 40% reducing these behaviors, and 14% completely ceasing alcohol consumption. Once pregnant, women who binged only prior to pregnancy were more likely to continue (55%) rather than reduce drinking (29%). Of the combined drinking group 61% continued to binge and 47% continued weekly drinking. Compared with the combined drinking group, binge only drinkers prior to pregnancy were less likely to reduce rather than continue their drinking once pregnant (OR = 0.37, 95% CI = 0.29, 0.47).

Conclusions

Over a third of women continued risky drinking into pregnancy, especially binge drinking, suggesting a need to address alcohol consumption prior to pregnancy.

6.1 Introduction

Heavy alcohol use during pregnancy can have detrimental effects, such as Fetal Alcohol Spectrum Disorders[26] and brain malformations.[217] However, the effects of low to moderate antenatal alcohol use are inconclusive, making it difficult to identify a safe level of use.[58-60] To complicate things further, it has been reported that the effects of alcohol vary based on the pattern of consumption,[20] such that binge drinking (i.e. four to five or more drinks per occasion) or drinking on a weekly basis (i.e. drinking at least one standard drink a day per week) should be investigated when assessing antenatal alcohol use.

Binge drinking episodes during pregnancy have been found to increase the risk of adverse outcomes such as poor neurodevelopment,[59] birth defects and growth restrictions,[213, 218, 219] mental health problems,[52] and fetal and infant mortality.[21, 34] Other studies have not found a significant association between binge drinking and certain child outcomes, such as intelligence, attention and executive function.[204, 220] Frequent (i.e. weekly) antenatal alcohol consumption may also lead to negative outcomes, as it has been found that as little as 70 grams of alcohol a week (one standard drink per day) can increase the risk of child behavioral problems.[20] Additionally, children's IQ may be negatively affected by genetic variations linked to moderate antenatal alcohol intake of just one to six drinks per week during pregnancy.[13]

Considering the complexity regarding the effects of alcohol consumption during pregnancy and the inability to define a safe level of alcohol use, a number of alcohol guidelines worldwide have recommended abstinence for pregnant women.[11, 69, 71, 178] One of the countries now recommending abstinence is Australia,[11] yet it is estimated that 72% of pregnant women consume alcohol.[202] Rates of alcohol use during pregnancy are also high in France[203] and the United Kingdom,[185, 221] but not in other countries such as the United States[186] and Canada.[222] Previous research has found that alcohol use prior to pregnancy, particularly binge and weekly drinking, increase the risk of alcohol use during pregnancy.[75, 202, 223, 224] Binge and weekly drinking before pregnancy can therefore be considered risky drinking

patterns, putting women at risk of experiencing an alcohol-exposed pregnancy and potential fetal harm.

It would be useful to establish if risky drinking patterns prior to pregnancy are modified once women become pregnant and if not, identify the characteristics of women engaging in these risky drinking patterns before pregnancy to enable early intervention. Some studies have reported the proportions of these drinking behaviors before and during pregnancy.[75, 129, 223] However, those studies did not clarify if women made an effort to reduce their alcohol consumption by only ceasing these risky drinking patterns while still consuming some alcohol or if they completely stopped drinking.[124, 129, 224] Given the move of many developed countries towards recommendations of abstinence during pregnancy, this is an important gap to fill. Further, these previous studies used retrospective measures of alcohol use prior to pregnancy, increasing the chances of recall bias.[124, 129, 224] No Australian studies have yet investigated changes in risky drinking patterns from before pregnancy to pregnancy. As a high proportion of Australian women continue to use alcohol during pregnancy, there is a need to use prospective longitudinal data to investigate how risky drinking patterns change once Australian women become pregnant.

The aims of this study were to: define the characteristics of women partaking in risky drinking patterns prior to pregnancy; investigate if women modify their risky drinking patterns once they become pregnant; and identify risky drinking patterns prior to pregnancy that increase a woman's risk of continuing the behavior into pregnancy.

6.2 Methods

6.2.1 Ethics Statement

Ethical clearance for the Australian Longitudinal Study on Women's Health (ALSWH) was obtained from the Universities of Newcastle and Queensland, Australia (ethics approvals H0760795 and 2004000224, Appendix J). Women provided written informed consent to participate in the study.

6.2.2 Sample

This study uses data from the ALSWH, which commenced in 1996. Using the national health insurance database which provides universal healthcare to all Australian citizens and permanent residents (Medicare), women were randomly sampled, with those from

rural and remote areas sampled at double the rate of women from urban areas. Born between 1973–78, 1946–51, and 1921–26, three age cohorts of women were sent mailed invitations to participate. After the baseline survey in 1996, each cohort was mailed a survey on an approximately three-year interval basis. More detailed methods can be found on the longitudinal study's website[182] or in previously published studies.[169, 170, 172]

The 1973–78 cohort data was used for this study. This cohort was broadly representative of similarly aged Australian women at the time of recruitment.[170] These women (aged 18–23 years in 1996) have completed five surveys to date – 1996, 2000, 2003, 2006, and 2009. Another survey was sent in 2012, but as data collection and quality checks occur over approximately 18 months, the dataset was still being finalized at the time of this study and could not be included in the analysis. Women who first reported a pregnancy at a survey time point after 1996 were eligible for inclusion into this study, with the survey prior to the index pregnancy being used to measure behaviors and characteristics of women before pregnancy. Only women that reported risky drinking patterns prior to pregnancy (i.e. weekly drinking, binge drinking, or both) were included in the analysis. Figure 6.1 presents the sampling strategy with exclusion criteria.

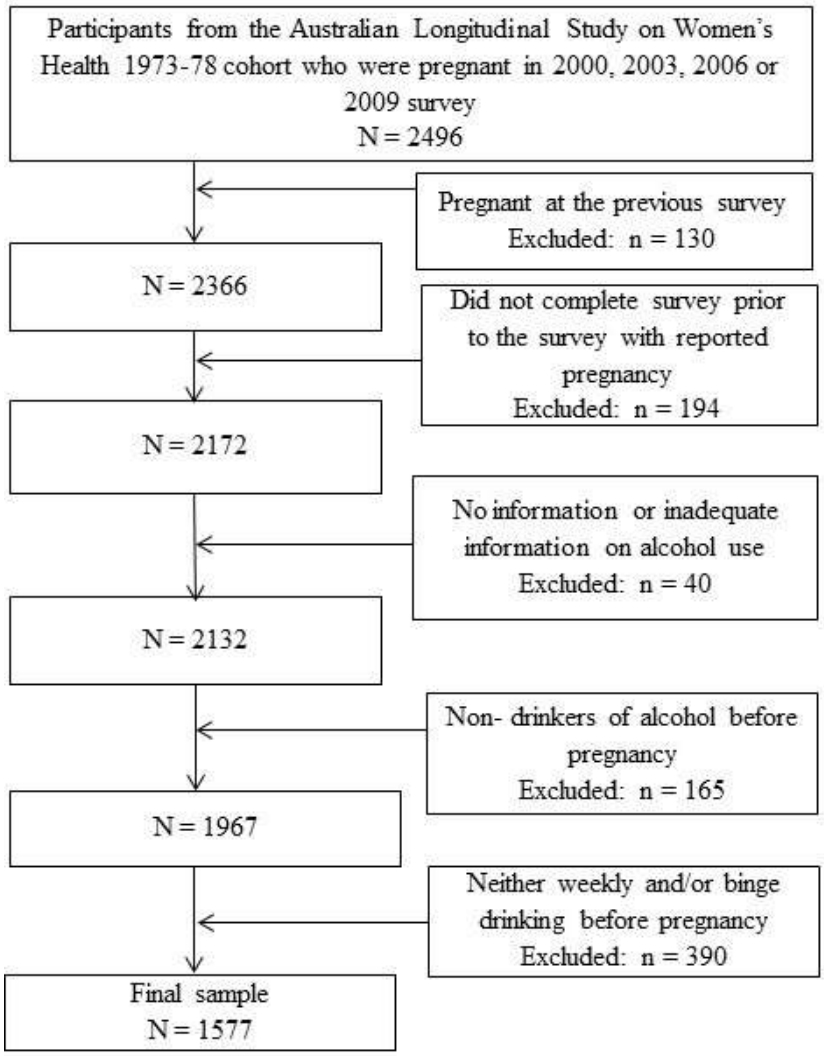

Figure 6.1 Flowchart of the sampling procedure

This includes the exclusion criteria used to draw the sample of women from the Australian Longitudinal Study on Women's Health 1973–78 cohort.

6.2.3 Measures

Pregnancy status was determined using a prospective measure at every survey which asked ''Are you currently pregnant?'' Participant characteristics prior to pregnancy (i.e. the survey before the index pregnancy) were examined in relation to risky drinking patterns at that time. The sociodemographic and health-related characteristics that were measured at the survey before pregnancy included: participant's age, partner status, highest educational attainment, area of residence, possession of private health insurance, level of stress about money to gauge income management, ever having experienced a violent relationship with a partner, having had a previous live birth, having had a Pap

test in the last two years, ever having smoked or ever having used illicit drugs. The final response categories for these characteristics can be seen in Table 6.1.

Table 6.1 Characteristics of women according to their risky drinking patterns prior to pregnancy (N=1577)

	Weekly only (n=99)		Binge only (n=725)		Weekly + Binge (n=753)		Total (N=1577)		P
Age (years, mean ± SD)	28.64 ± 2.74		25.60 ± 3.50		27.07 ± 3.37		26.49 ± 3.51		0.56
	n	(%)	n	(%)	n	(%)	n	(%)	P
Highest education attained									
Higher school certificate (year 12) or less	19	(19.2)	298	(41.1)	199	(26.4)	516	(32.7)	<0.001
Trade/apprenticeship/certificate/ diploma	16	(16.2)	199	(27.4)	164	(21.8)	379	(24.0)	
University or higher university degree	64	(64.6)	228	(31.4)	390	(51.8)	682	(43.2)	
Area of residence									
Major cities	64	(64.6)	328	(45.2)	418	(55.5)	810	(51.4)	<0.001
Inner regional	22	(22.2)	246	(33.9)	201	(26.7)	469	(29.7)	
Outer regional/remote/very remote	13	(13.1)	151	(20.8)	134	(17.8)	298	(18.9)	
Private health insurance									
No	44	(44.4)	460	(63.4)	381	(50.6)	895	(56.1)	<0.001
Yes	55	(55.6)	265	(36.6)	372	(49.4)	692	(43.9)	
Income management stress									
No stress or difficulty	85	(85.9)	562	(77.5)	602	(79.9)	1249	(79.2)	0.13
Stress and/or difficulty	14	(14.1)	163	(22.5)	151	(20.1)	328	(20.8)	
Partner status									
Not partnered	15	(15.2)	228	(31.4)	211	(28.0)	454	(28.8)	0.003
Partnered	84	(84.8)	497	(68.6)	542	(72.0)	1123	(71.2)	

	Weekly only (n=99)		Binge only (n=725)		Weekly + Binge (n=753)		Total (N=1577)		P
	n	(%)	n	(%)	n	(%)	n	(%)	
Violent relationship with a partner (ever)									
No	95	(96.0)	622	(85.8)	663	(88.0)	1380	(87.5)	0.013
Yes	4	(4.0)	103	(14.2)	90	(12.0)	197	(12.5)	
Pap test less than two years ago (n=1573*)									
No	21	(21.2)	162	(22.4)	157	(20.9)	340	(21.6)	0.79
Yes	78	(78.8)	562	(77.6)	593	(79.1)	1233	(78.4)	
Illicit drug use – ever (n=1575*)									
No	62	(62.6)	315	(43.6)	204	(27.1)	581	(36.9)	<0.001
Yes	37	(37.4)	408	(56.4)	549	(72.9)	994	(63.1)	
Smoking (ever)									
No	74	(74.7)	391	(53.9)	385	(51.1)	850	(53.9)	<0.001
Yes	25	(25.3)	334	(46.1)	368	(48.9)	727	(46.1)	
Previous live births									
None	71	(71.7)	560	(77.2)	666	(88.4)	1297	(82.2)	<0.001
One or more	28	(28.3)	165	(22.8)	87	(11.6)	280	(17.8)	

*Missing some cases.

Alcohol use items were measured at the survey when the woman was pregnant and at the survey prior to her pregnancy. Weekly drinking was measured by collapsing the answers to the question ‘‘How often do you usually drink alcohol?’’ into only two responses - ‘at least once a week’ versus ‘less than once a week’. The ‘less than once a week’ category was a combination of the response options ‘less than once a month’ and ‘less than once a week’. The ‘at least once a week’ category included response options ‘on 1 or 2 days a week’, ‘on 3 or 4 days a week’, ‘on 5 or 6 days a week’, and ‘every day’. Binge drinking was measured by the survey item ‘‘How often do you have five or more standard drinks of alcohol on one occasion?’’ with responses categorized into

'never' versus 'ever'. The latter included the responses: 'less than once a month', 'about once a month', 'about once a week', and 'more than once a week'. The usual quantity of alcohol consumption was measured by the item ''On a day when you drink alcohol, how many standard drinks do you usually have?'' Responses to this item were '1 or 2 drinks per day', '3 or 4 drinks per day', '5 to 8 drinks per day', and '9 or more drinks per day'.

6.2.4 Primary Outcome

The primary outcome was change in risky drinking patterns from before pregnancy to pregnancy. Risky drinking patterns before pregnancy were defined as drinking behaviors that had been found in previous studies to increase a woman's risk of consuming alcohol during pregnancy.[75, 202, 223, 224] Risky drinking patterns were: weekly drinking only (i.e. drinking at least once a week, no binge drinking); binge drinking only (i.e. binge drinking, drinking less than once a week); or both weekly and binge drinking (i.e. drinking at least once a week and binge drinking).

The three levels used to categorize the primary outcome of change in risky drinking patterns from before pregnancy to pregnancy were 'stopped', 'reduced', or 'continued'. A change to complete abstinence from alcohol during pregnancy was defined as 'stopped'. A 'reduced' change varied per risky drinking group. For those in the binge only group, a change of drinking pattern from bingeing to alcohol use without bingeing was classified as 'reduced'. A change from drinking at least once a week to drinking less than weekly was labeled as a 'reduced' change for the weekly drinking only group. For the combined drinking group (binge and weekly), the term 'reduced' referred to some alcohol use where either or both risky drinking patterns were ceased. Participants that continued their risky drinking patterns were used as the reference group in multivariate analyses. They were chosen as the reference group because they were considered to be most in need of intervention, as they did not report a change in risky alcohol consumption patterns once becoming pregnant.

6.2.5 Statistical Analysis

All statistical analyses were run using SPSS (SPSS, version 19). Descriptive statistics were reported for sociodemographic and health-related characteristics in relation to the three risky drinking patterns prior to pregnancy (e.g. weekly only, binge only, or both binge and weekly) and were assessed using chi-square tests and Analysis of Variance

(ANOVA), as appropriate. The distribution of usual quantity of alcohol use prior to pregnancy was calculated for each risky drinking pattern to examine drinking habits within groups. Characteristics that significantly differed between the three groups (p,0.05) were considered in the following multivariate analyses.

The association between risky drinking patterns prior to pregnancy and change in drinking behavior from before pregnancy to pregnancy was examined using multinomial logistic regression. The outcome for the regression was the change in drinking patterns, modeling the risk of stopping or reducing the risky drinking pattern versus continuing such behavior into pregnancy. Unadjusted odds ratios were initially calculated. Then the model was adjusted for participant characteristics, building the model by controlling for characteristics significantly related to risky drinking patterns prior to pregnancy. A final multinomial logistic regression model was conducted controlling for all significant characteristics. Although it was not a main focus of this analysis, the final model was adjusted to see if the change in Australian alcohol guidelines for pregnant women (i.e. 1992: no alcohol, 2001: low alcohol, 2009: no alcohol)[9-11] impacted the relationship between risky drinking patterns prior to pregnancy and the change of drinking patterns once becoming pregnant.

6.3 Results

Of the 1577 participants included in the analysis, 19% reported a pregnancy in 2000, 23% in 2003, 32% in 2006 and 26% in 2009. Ninety-nine (6%) reported that before pregnancy they consumed alcohol at least weekly without any binge drinking, 725 (46%) reported only binge drinking during this time, while 753 (48%) reported both weekly and binge drinking patterns prior to pregnancy. The majority (94%) of participants that were weekly drinking usually consumed no more than two drinks on a drinking day, with the remaining 6% reporting three to four drinks per drinking day. Of the participants in the binge only drinking group, on a drinking day 37% drank up to two drinks, 35% drank three to four drinks, while the remaining 28% drank five or more. The majority (51%) of participants in the combined drinking group reported drinking up to two drinks on a drinking day, with 36% drinking three to four and 13% drinking five or more drinks. Table 6.1 presents the participants' characteristics prior to pregnancy in relation to these drinking patterns. Overall the women were mostly highly educated (43%), married or in a de facto relationship (71%), nulliparous (no previous live birth; 82%), and lived in major cities (51%) prior to pregnancy. Compared to

women in the weekly drinking group, women in both binge groups (i.e. binge only and combined group) were more likely to have experienced a violent relationship, be nulliparous, have smoked and used illicit drugs, and were less likely to be highly educated, live in major cities, be partnered and have private health insurance.

Regardless of risky drinking patterns before pregnancy, fewer than 17% of the women completely stopped these behaviors once they became pregnant, with most women (46%) continuing these risky drinking patterns. Table 6.2 provides details of the changes in participants' risky drinking patterns from before pregnancy to pregnancy.

Table 6.2 Changes in risky drinking patterns from before pregnancy to pregnancy (N=1577)

Drinking patterns before pregnancy	Change in drinking patterns					
	Stopped		Reduced		Continued	
	n	(%)	n	(%)	n	(%)
Weekly drinking only (n=99)	16	(16.2)	39	(39.4)	44	(44.4)
Binge drinking only (n=725)	114	(15.7)	212	(29.2)	399	(55.0)
Both weekly and binge drinking (n=753)	95	(12.6)	377	(50.1)	281	(37.3)
Total	225	(14.3)	628	(39.8)	724	(45.9)

Most women (44%) who were only drinking weekly prior to pregnancy were likely to continue this behavior when pregnant, with 16% of this group completely abstaining from alcohol consumption while pregnant. The proportion of women who continued to binge drink only during pregnancy was higher (55%), with a similar proportion abstaining once pregnant (16%). Of the combined drinking group, 13% stopped consuming alcohol during pregnancy, with 41% reducing weekly drinking and 26% reducing binge drinking. Slightly less than half (47%) of the combined group continued weekly drinking, whereas 61% of this group continued binge drinking into pregnancy.

Table 6.3 contains the results for the multinomial logistic regression models assessing the association of risky drinking patterns prior to pregnancy and the change of such behaviors once women became pregnant.

Table 6.3 The association of risky drinking patterns prior to pregnancy with changes in these patterns during pregnancy

	Unadjusted		Model 1[a]		Model 2[b]		Model 3[c]		Model 4[d]		Final model[e]	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Reduced (versus continued)												
Weekly + Binge	1		1		1		1		1		1	
Weekly only	0.66	(0.42,1.04)	0.66	(0.42,1.04)	0.67	(0.42,1.06)	0.54	(0.34,0.87)	0.70	(0.44,1.12)	0.58	(0.36,0.94)
Binge only	0.40	(0.32,0.50)	0.40	(0.31,0.50)	0.39	(0.31,0.50)	0.36	(0.29,0.46)	0.41	0.33,0.52)	0.37	(0.29,0.47)
Stopped (versus continued)												
Weekly + Binge	1		1		1		1		1		1	
Weekly only	1.08	(0.58,2.00)	1.12	(0.60,2.07)	1.11	(0.60,2.07)	0.99	(0.53,1.85)	1.16	(0.62,2.15)	1.13	(0.60,2.14)
Binge only	0.85	(0.62,1.16)	0.80	(0.58,1.11)	0.84	(0.61,1.14)	0.82	(0.60,1.13)	0.88	(0.65,1.21)	0.81	(0.60,1.16)

[a] Adjusted for highest education attained, area of residence, private health insurance.

[b] Adjusted for partner status, violent relationship with a partner (ever).

[c] Adjusted for illicit drug use (ever), smoking (ever).

[d] Adjusted for previous live births.

[e] Adjusted for highest education attained, area of residence, private health insurance, partner status, violent relationship with a partner (ever), illicit drug use (ever), smoking (ever), and previous live births.

Compared to women that consumed alcohol through both weekly and binge drinking before pregnancy, those who binged only at that time were around 63% less likely to reduce rather than continue their risky drinking patterns when pregnant (AOR = 0.37, 95% CI = 0.29, 0.47). In other words, women who binged only were about two and a half times more likely to continue rather than reduce this behavior when compared to women in the combined drinking group. Women who were weekly drinking only rather than both binge and weekly drinking before pregnancy were found to be 42% less likely to reduce rather than continue (i.e. 1.7 times more likely to continue rather than reduce) their drinking behavior once illicit drug use and smoking status were taken into account (AOR = 0.58, 95% CI = 0.36, 0.94). There was no evidence of a difference between drinking pattern groups before pregnancy on the likelihood of stopping all alcohol consumption in pregnancy. The alcohol guidelines that were in place during the reported pregnancies did not significantly alter the relationship between risky drinking patterns before pregnancy and the change of these patterns once becoming pregnant [results not shown].

6.4 Discussion

By utilizing data from a population-based prospective cohort study, the results provide a strong level of evidence to suggest that Australian women who participate in risky drinking patterns before pregnancy are likely to continue these drinking patterns into pregnancy. There is only a small likelihood that these women will completely abstain from alcohol during pregnancy. Less than one in five women stopped consuming alcohol once becoming pregnant, with no difference in stopping between the three drinking categories. However, a substantial proportion of women made the move in the right direction by reducing these risky drinking patterns when pregnant. Interestingly, women partaking in both binge and weekly drinking were more likely to reduce their drinking compared to those who only did one or the other. This may be due to the fact that they had more opportunity to reduce as there were two behaviors they could change rather than just one. However, further investigation is needed to understand why this was the case.

Although some women took a positive step in reducing risky alcohol patterns once they were pregnant, women who participated in binge drinking prior to pregnancy were the least likely to do so. Even the women who partook in both risky drinking patterns (i.e. weekly and binge) prior to pregnancy were less likely to reduce their binge drinking

rather than their weekly drinking. These findings lend support to previous research from France which found that binge drinking was more common than weekly drinking in pregnant women,[203] perhaps due to limited change from binge drinking patterns prior to pregnancy. The current findings may be reflective of the reported permissive view of binge drinking among young women, particularly in the Australian context, which conceptualizes binge drinking as an enjoyable behavior that plays a meaningful role in socialization.[225] The documented ill effects of binge drinking are consistently being demonstrated[226] and this study adds to this list the increased risk of an alcohol-exposed pregnancy.

Women in the current study who binge drank prior to pregnancy appeared to be of a lower socioeconomic status as reflected by their lower education status and lack of private health insurance. Binge drinking in this group could be due to a difference in knowledge and views, as previous examination of women's perceptions of safe levels of alcohol consumption found that the mean number of alcoholic drinks believed to be acceptable on any one occasion seemed to reduce with higher socioeconomic advantage.[148] Additionally, it has been reported that Australian women with lower education levels are less knowledgeable about the negative impacts of alcohol use during pregnancy.[161] These women may therefore require a more targeted intervention aimed at increasing education and motivating change in alcohol use to achieve abstinence or at the very least a reduction of binge drinking in response to pregnancy. Previous research has found that motivational interviewing that focused on contraception and alcohol use was effective in reducing the risk of alcohol-exposed pregnancies among women of childbearing age.[200, 227] Considering that over 50% of Australian women have reported experiencing an unplanned pregnancy,[211] it is critical that prevention strategies be employed as early as possible either through clinical intervention or public health schemes.

Also of interest was the finding that women who consumed alcohol before pregnancy through weekly drinking only were found to be significantly less likely to reduce their drinking behavior only after illicit drug use and smoking status were taken into account. The findings from this group need to be interpreted with caution given the small sample size (n = 99). Previous research found that the chances of continuing concurrent alcohol use and smoking into pregnancy increased if women were heavier smokers prior to pregnancy.[228] This may be due to the fact that women who smoke have been found to have more tolerant attitudes towards drinking during pregnancy.[161] Therefore,

drinking behavior should not be assessed in isolation, but rather routinely within the context of other behaviors when trying to identify women at risk of continuing their risky drinking behavior into pregnancy. These findings also lend weight to healthcare professionals' previous suggestions that alcohol use be assessed along with other health behaviors.[158]

6.4.1 Limitations

The use of a self-report questionnaire lends itself to the potential for social desirability bias. However, a previous study found that pregnant women accurately reported their smoking, a behavior considered socially unacceptable, when compared to biological measurements.[214] Additionally, self-reported alcohol use by pregnant women has been found to be better than medical records for assessing antenatal alcohol consumption.[190] Another limitation is that a validated instrument was not utilized to assess alcohol use. The alcohol questions did assess frequency, quantity and binge drinking, which are similar to the Alcohol Use Disorders Identification Test consumption items (AUDIT-C),[229] which has been found to be effective in screening alcohol use among pregnant women.[230] The main difference was that this cohort study assessed alcohol in terms of the 'usual' amount that was consumed rather than in the previous year as assessed by the AUDIT-C, which may have been beneficial in reducing recall bias. The ALSWH utilized prospective measures of alcohol use and pregnancy, rather than retrospectively collecting data in between surveys. This limits recall bias, but also means that drinking behavior in between survey time points could not be assessed. Therefore, pregnancies were limited to those that occurred at the specified survey time points, where alcohol use during pregnancy could be measured. Alcohol use at the previous survey was considered as one indicator of the women's alcohol use prior to pregnancy regardless of whether this changed over time. Participants were not asked whether they had planned their pregnancies. However, previous studies have found that whether a pregnancy is planned or unplanned does not impact drinking behavior in the recognized phase of pregnancy,[124, 129] which is the phase examined by this study.

6.4.2 Practice Implications

The findings of this study highlight the need for a primary prevention strategy to reduce prenatal alcohol use by addressing risky drinking patterns, particularly binge drinking, prior to conception. This study provides further support to existing clinical guidelines

which promote alcohol consumption being addressed before pregnancy occurs.[193] There is a dearth of evidence when it comes to assessing interventions to reduce the risk of antenatal alcohol use before pregnancy.[231] However, using motivational interviewing to reduce risky alcohol consumption and increase contraception among women of childbearing age has been found effective in reducing the risk of alcohol-exposed pregnancies.[200, 227] More research is needed to identify which strategies would be most effective in reducing women's risky drinking patterns prior to pregnancy.

6.5 Conclusion

The majority of women with risky drinking patterns before pregnancy continued these behaviors once they became pregnant. Although a number of women modified their drinking habits by reducing risky drinking patterns, less than one in five women in this sample completely abstained from alcohol once becoming pregnant, as currently recommended by a number of guidelines worldwide.[11, 69, 71, 178] The substantial number of women that continued these behaviors into pregnancy, particularly those who binge drank, suggests that more needs to be done to address risky drinking behaviors in women of childbearing age in an effort to avoid alcohol use during pregnancy.

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Author Contributions

Conceived and designed the experiments: AA AH PF DL. Analyzed the data: AA. Wrote the paper: AA. Supervised AA during analysis: PF AH JP DL. Contributed to interpretation of results: AA AH PF JP FK-L DL. Critically revised manuscript for important intellectual content: AH PF JP FK-L DL. Provided approval for final manuscript: AA AH PF JP FK-L DL.

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Competing Interests

The authors have declared that no competing interests exist.

7 WOMEN'S PERCEPTIONS OF INFORMATION ABOUT ALCOHOL USE DURING PREGNANCY: A QUALITATIVE STUDY

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ABSTRACT

Background

A number of alcohol guidelines worldwide suggest that pregnant women should abstain from alcohol. However, high prevalence rates of alcohol consumption during pregnancy still exist. It is unknown whether there are problems with the dissemination of guideline information that is potentially contributing to such consumption. This qualitative study aimed to explore women's perceptions of information they received about alcohol use during pregnancy after the introduction of abstinence guidelines.

Methods

Nineteen women from the Australian Longitudinal Study on Women's Health (ALSWH) 1973–78 cohort that reported a pregnancy in 2009 were recruited for semi-structured telephone interviews. The interviews were conducted until data saturation was reached. Interviews were transcribed, then thematically analysed. ALSWH survey data was used to augment the findings. The main outcome measure was women's perceptions of information received about alcohol use during pregnancy after the introduction of the 2009 Australian guidelines promoting abstinence during pregnancy.

Results

Women reported a number of problems with the information about alcohol use during pregnancy and with its dissemination. There were inconsistencies in the information about alcohol use during pregnancy and in the advice provided. Mixed messages and confusion about identifying a safe level of consumption had implications on women's decisions to drink or abstain during pregnancy. Women expressed a need for a clear, consistent message to be provided to women as early as possible. They preferred that the message come from healthcare professionals or another reputable source.

Conclusions

To make an informed decision about alcohol use during pregnancy, women must first be provided with the latest evidence-based information. As this study found a number of limitations with information provision, it is suggested that a systematic approach be adopted by healthcare professionals, in line with best-practice guidelines, to ensure all women are made aware of the alcohol recommendations for pregnancy.

Keywords

Alcohol drinking, Pregnancy, Information dissemination, Qualitative research

7.1 Background

Alcohol guidelines for pregnancy vary across countries ranging from abstinence to light consumption.[68] Within Australia, these guidelines[9-11] have changed over the past few decades as shown in Table 7.1. In accordance with other international guidelines,[69, 71, 178] the current recommendation is alcohol should be avoided.[11] A similar change occurred in Denmark, when in 2007 guidelines changed from condoning low levels of alcohol use to abstinence.[232] Abstinence is promoted as alcohol is a known teratogen with detrimental effects such as Fetal Alcohol Spectrum Disorders.[23, 26] A safe level of consumption cannot be determined due to inconsistent evidence on the effects of low to moderate alcohol use during pregnancy.[58-60]

Table 7.1 Australian National Health and Medical Research Council alcohol guidelines for pregnancy (1992, 2001, and 2009)

Year	Guideline
1992	"that abstinence be promoted as desirable in pregnancy" (p. x)[9]
2001	"Women who are pregnant or who may soon become pregnant: may consider not drinking at all; most importantly should never become intoxicated; if they choose to drink, over a week, should have less than seven standard drinks, AND, on any one day, no more than two standard drinks (spread over at least two hours); should note that the risk is highest in the earlier stages of pregnancy, including the times from conception to the first missed period." (p. 16)[10]
2009	"For women who are pregnant or planning a pregnancy, not drinking is the safest option." (p. 5)[11]

Despite recommendations of abstinence, a high proportion of pregnant Australian women still consume alcohol.[202] Previous research found women who drank alcohol prior to pregnancy were more likely to consume alcohol when pregnant during low alcohol guidelines compared to those pregnant during abstinence guidelines.[223] The change in drinking behaviour could be attributable to a change in information pregnant

women received, as a Danish study found that after a change from low to no alcohol guidelines, there was an increased proportion (68% to 91%) of general practitioners (GPs) that reported advising all pregnant women about alcohol.[232] It is not clear whether this is the case in Australia.

Little research has examined the information about alcohol use provided to pregnant women. A UK study found that interviewed participants (N = 20) described a lack of clear information and conflicting messages about alcohol use during pregnancy, despite views that a clear recommendation was needed to make informed decisions.[154] They reported that minimal advice about alcohol was provided by their healthcare providers.[154] Limited and inconsistent information about alcohol during pregnancy provided by healthcare providers was also reported by 149 women from 20 focus groups in the US.[152] Australian studies found women were exposed to mixed messages and not always provided with information about the recommendations or potential risks of alcohol use during pregnancy.[106, 146, 153] Those studies were conducted prior to the 2009 Australian alcohol guidelines promoting abstinence, so there is a need to explore the in-formation women have received since the introduction of the abstinence recommendation. This can assist in identifying any potential issues with the dissemination of information about the alcohol guidelines for pregnancy. It is worth noting that although the guidelines were released in 2009, a draft version was available in 2007 for public consultation and was advertised by the media and the National Health and Medical Research Council's website.[11] The purpose of this study was to qualitatively explore Australian women's perceptions of the information they received about alcohol use during pregnancy after the re-lease of the 2009 abstinence guidelines.

7.2 Methods

7.2.1 Selection of participants

Participants were sampled from the Australian Longitudinal Study on Women's Health (ALSWH), which began in 1996 with the recruitment of three age cohorts (i.e. 1973–78, 1946–51 and 1921–26). Women were randomly sampled for the ALSWH from the national health insurance database, Medicare Australia, except women in rural areas were sampled at twice the rate of the representative population in the area. The initial sample for the ALSWH was broadly representative of similarly aged Australian

women.[170, 182] Detailed ALSWH recruitment procedures were published previously.[170, 182]

For this study, a subsample from the 1973–78 ALSWH cohort was recruited. Women were eligible if they reported being pregnant and had also completed alcohol items in the 2009 survey when the women were aged 31–36 years, or at the 2012 survey when the women were aged 34–39 years. These surveys coincided with the period that the 2009 alcohol recommendations for abstinence during pregnancy were in place. The 2009 survey was sent out on the 31st March 2009, after the abstinence guidelines had been introduced in February 2009. A total of 860 women were eligible for this substudy.

A blinded data manager randomly sampled groups of 10–30 women at a time using a random numbers generator. Five staggered mailouts, which included an invitation letter, information statement and consent form, were sent to 100 women between September 2012 and January 2013. Interested women either mailed back a signed consent form or contacted the researchers by telephone or email expressing a willingness to participate. Telephone calls to participants were made to schedule a date and time for the interview. Interviews were conducted intermittently between October 2012 and May 2013.

After the first 10 interviews had been conducted, sample characteristics were run to assess the sampling technique, which was found to be sufficient in achieving variability amongst participants (e.g. drinkers and abstainers). The random sampling of participants resulted in a sample with diverse characteristics, which allows for representativeness of a topic to be achieved within qualitative studies.[233] Only women who contacted the researchers and consented to participate were included in this substudy. Non-responders were considered to be non-consenters. All consenters had reported pregnancies in the 2009 survey only.

7.2.2 Data collection and instruments

Women were invited to participate in semi-structured, audio-recorded, telephone interviews. Telephone interviews allowed the researchers to interview women from across Australia, which would not have been possible if face-to-face interviews were chosen due to limited funding. Additionally, telephone interviews have been found to provide a comfortable environment to build rapport and facilitate the disclosure of personal information, resulting in high quality data.[234] Interviews were conducted until data saturation was reached.[235] As the interviews were semi-structured, a list of

questions (see the ‘List of questions used to guide the interviews’ section) was used to guide the interviews but was not strictly followed as participants’ experiences varied, which required a flexible approach to be taken during data collection. The length and time of interviews were adapted to accommodate the participants’ schedules.

7.2.3 List of questions used to guide the interviews

- Can you tell me about your last pregnancy? How was your last pregnancy?
- How did you feel? How was your health?
- What sort of advice or information were you given the last time you were pregnant?
- For example, what was the advice/info you were given about food or exercise?
- Who gave you the advice/info?
- Can you tell me about how was that conversation started?
- During your most recent pregnancy what were you told about alcohol use during pregnancy?
- Can you tell me about conversations you might have had with different people about drinking alcohol during pregnancy?
- (if no mention of health care providers) What information did you receive from: your GP? your midwife? your obstetrician?
- How else did you get information about recommended alcohol use for pregnant women?
- Where did you get information? (books, websites etc?)
- (If they didn’t get any information), Where do you think pregnant women find out about the recommendations for alcohol use during pregnancy?
- What sort of information/advice did you get/receive/find? What did you think about the information?
- How did the information affect your decision about what you would do during pregnancy?
- What sorts of other information or advice have you heard of other pregnant women receiving?

- And what do you think about that? How did they get that information?
- What other things would you like to say about drinking alcohol during pregnancy?
- Could you please tell me more about that? Or could you please elaborate on that?

To ensure consistency in data collection, only one researcher [AA] conducted all interviews, which were carried out in a specified telephone interview room. Notes were taken during the interviews, and a logbook was used after the interview to allow the interviewer to reflect on what was said. The female interviewer was a PhD student, who had been trained in qualitative techniques during her Bachelor of Psychology degree and through additional qualitative courses offered by the Australian Consortium for Social and Political Research.

Participant characteristics during their 2009 pregnancies were derived from the ALSWH 2009 survey. The items from the ALSWH survey that were used to describe participants included sociodemographic characteristics and health behaviours as seen in Table 7.2. To reduce the potential for bias, the interviewer was blinded to participants' survey data until after each interview. Interview data were linked with the survey data, which allowed the researcher to avoid asking about participants' alcohol consumption during pregnancy or questions that were repetitive.

Table 7.2 Interview participants' sociodemographic and health behaviour characteristics during pregnancy (N = 19)

Characteristics at time of pregnancy (2009)	n (%)
Marital status	
Married	17 (89.5)
De facto	2 (10.5)
Number of children	
0	8 (42.1)
1	8 (42.1)
2	3 (15.8)

Characteristics at time of pregnancy (2009)	n (%)
Rurality	
Major cities	10 (52.6)
Inner regional	4 (21.1)
Outer regional	3 (15.8)
Remote	2 (10.5)
Employment	
No paid work	2 (10.5)
Part-time work (1-24 hours/week)	8 (42.1)
Full-time work (35-49+ hours/week)	9 (47.4)
Highest level of education	
Year 12 or equivalent	2 (10.5)
Certificate / diploma	5 (26.3)
University degree	9 (47.4)
Higher university degree	3 (15.8)
Household annual income	
No income	1 (5.3)
$37,000 - $51,999	2 (10.5)
$78,000 - $103,999	5 (26.3)
$104,000 - $129,999	1 (5.3)
$130,000 - $159,999	3 (15.8)
$156,000 or more	7 (36.8)
Health Care Card (covers healthcare costs for government concession recipients)	
No	17 (89.5)
Yes	2 (10.5)
Private health insurance	
No	4 (21.1)
Yes	15 (78.9)

Characteristics at time of pregnancy (2009)	n (%)
Smoking status	
Never smoker	12 (63.2)
Ex-smoker	6 (31.6)
Smoker >= 20 per day	1 (5.3)
Illicit drug use (ever)	
Never used illicit drugs	8 (42.1)
Used illicit drugs	11 (57.9)
Change in alcohol intake from before pregnancy to during pregnancy	
Non drinker	3 (15.8)
Drinker to abstainer	4 (21.1)
Drinker decreased intake (i.e. decreased usual frequency and/or quantity)	10 (52.6)
Drinker same intake	1 (5.3)
Unknown due to missing data	1 (5.3)
Frequency of alcohol use during pregnancy	
Did not drink alcohol	7 (36.8)
Less than once a month	6 (31.6)
Less than once a week	2 (10.5)
1 or 2 days per week	3 (15.8)
3 or 4 days per week	1 (5.3)
Quantity of alcohol use during pregnancy	
Did not drink alcohol	7 (36.8)
1 or 2 drinks per day	12 (63.2)

7.2.4 Ethical considerations

The ALSWH was granted ethical clearance by the Universities of Newcastle and Queensland (Ethics approvals H0760795 and 2004000224 in Appendix J) on the 26th July 1995. Ethics clearance for this substudy including ALSWH participants was provided on the 2nd May 2012 by the ALSWH Publications, Substudies and Analyses Committee (project #W085) and on the 4th July 2012 by the University of Newcastle (Ethics approval H-2012-0153 in Appendix K). Participants provided written or verbal

informed consent, and were given an opportunity to ask questions at the beginning and end of the interview. They were informed that they could stop the interview or withdraw from the study at any time. It was made clear to participants that all data would be reported in a de-identified manner. Although it was not expected that the interviews would cause any distress, there were procedures in place to refer women to support services if they became distraught during the interviews.

7.2.5 Data analysis

Descriptive statistics were conducted in SPSS (version 19) using the 2009 survey reporting participant characteristics and alcohol intake during pregnancy. Data measuring the usual frequency and quantity of alcohol use from 2006 and 2009 were used to examine changes in drinking behaviour from before pregnancy to during pregnancy.

Coming from a realist perspective, the interviewer decided to take a pragmatic approach to analysing the data.[164, 165] Interviews were transcribed primarily by a transcription company and checked by the interviewer [AA]. Data were managed using NVivo 10.[236] Transcripts were thematically analysed by one coder [AA]. Thematic analysis was chosen as it has been described as a flexible and pragmatic analytic technique, rather than being strictly defined by a particular theory or epistemology.[237] A semantic level thematic analysis, focussing on the surface meanings of the data, was utilised to answer the research question.[237] Due to the variability in participant characteristics, particularly with respect to drinking behaviour during pregnancy, a wide range of views was gathered and led to data saturation. Data saturation was reached when the information from interviews became repetitive and no new relevant information emerged.[235]

The coder used Braun and Clarke's guide for thematic analysis, involving: familiarisation with the data; initial code generation; developing potential themes; reviewing themes with extracted data; clearly defining themes; and extracting data to utilise as thematic examples in the manuscript.[237] The coder familiarised herself with the data by having conducted the interviews, reviewing the transcripts after transcription, and reading the transcripts multiple times before and during coding. The coder read through transcripts sequentially and assigned codes to selections of text. The coder kept a logbook during the coding process to describe the creation of themes from grouping of the codes. Themes were generated inductively. As the analysis continued,

potential themes were refined. A thematic skeleton was created to assess the themes in relation to the relevant codes and quotes from the transcripts. Themes were defined, and quotes that reflected the varying experiences and meanings from the data were chosen for the manuscript. Throughout the analysis, the coder was supervised by the senior investigator [DL], which involved meeting multiple times to review and discuss the coding and thematic structures throughout the analytic process. Data were constantly reviewed to ensure themes reflected participants' narratives. The RATS guidelines were used to make sure the manuscript adhered to quality reporting of a qualitative study.[176]

7.3 Results

Nineteen women (19% of those approached) were interviewed. An additional two women mailed back signed consent forms, but were unable to be contacted for interviews after multiple attempts. None of the 81 non-participants (81% of those approached) explicitly opted out of the study by actively declining participation. Interviews lasted an average of 46 minutes, ranging from 20 to 78 minutes.

Sociodemographic and health behaviour characteristics for participants are included in Table 7.2. Participants were aged 31–36 years (M = 33.73, SD = 1.77) when pregnant in 2009. At the 2009 survey, around half of the women were from major cities, worked full time and had a university degree. During their 2009 pregnancies, 42% of the women were pregnant with their first child, whereas the remaining 58% already had at least one child. Most women altered their drinking behaviour from before pregnancy to during pregnancy. Twelve women reported drinking alcohol during pregnancy (63%) and seven abstained (37%). Of the twelve women who consumed alcohol during pregnancy, the majority (67%) drank less than once a week and none of them usually drank more than 1 or 2 drinks on a drinking day.

Themes

7.3.1 A faulty information delivery system

It was apparent from the outset of the analysis that no consistent message about alcohol use was systematically provided to pregnant women. On the contrary, there were multiple messages from a number of different information sources. This overarching theme encompassed a number of subthemes describing faults in the information pool

and pathways. Differences were seen between the amount of information obtained, the recommendations about alcohol use during pregnancy, and the interpretation of the recommendations.

7.3.1.1 Information overload versus no information

Most of the women described the amount of overall information provided during pregnancy as overwhelming, particularly with their first child. Being overwhelmed had consequences for women's ability to process the information, as one woman mentioned, *'I disregarded a lot of the advice because I felt overwhelmed' (Participant 11)*. The women were given a range of information (e.g. healthcare choices, healthy lifestyle factors) by a number of sources, such as books, media, formal education, healthcare providers, family, friends, websites, and antenatal classes. Those who found conflicting information between sources, would sometimes create a hierarchy, often relying on healthcare providers to explain the discrepancies and as one woman mentioned, to *'just steer me in the right direction' (Participant 15).*

Not all women were overwhelmed, with one woman feeling more comfortable with the more information she got. Other women described a lack of information, particularly on lifestyle factors such as alcohol use. Self-sourcing information in the absence of it being provided was common, as one woman put it, *'GP gave me nothing, obstetrician gave me nothing… it's all about the pregnant me sourcing it' (Participant 5).*

Women differed in the amount of information they received about alcohol use during pregnancy, with some getting recommendations from a number of sources and others not getting told anything. Some women were provided with information by healthcare providers, but generally not prior to or at pregnancy confirmation, but rather weeks later at their first antenatal appointment closer to their second trimester. Those who were not advised by a healthcare provider believed it was because they were non-drinkers or did not *'look like someone that would be swigging away at some alcohol every night' (Participant 6).* Many women did not receive as much information in subsequent pregnancies compared with their first. Not receiving information had implications for how they then made their decisions about whether or not to drink during pregnancy:

> *I don't remember getting any formal information, but I think I just had in my head that, you know, healthy lifestyle is important, so I sort of ate well and sort of didn't have three or four drinks if I went out for dinner or something. I'd only have one or two, sort of take a bit more care of my health. I couldn't*

> *say where I got the reasoning for that. I think that's just a build-up of information over my lifetime sort of thing. (Participant 9)*

> *It's [alcohol advice for pregnancy] not promoted anywhere. To me, that's a bit of a concern for me, that women perhaps just aren't getting the advice. At least, if… you've got the advice and you've got the information, you can make the decision. (Participant 10)*

7.3.1.2 What is the recommendation anyways? Depends who you ask

It was common knowledge that heavy alcohol use was not recommended during pregnancy, and that alcohol should be avoided during the first trimester. However, there were discrepancies in the recommendation that women received about a safe level of consumption, varying from abstinence to light consumption:

> *I have this really vivid image of, during my first pregnancy,… [the GP] saying that it's now recommended that you don't have any alcohol… in the second one I'm sure that was reiterated. (Participant 16)*

> *He [my obstetrician] did say that it's not ideal, but the odd glass here and there wouldn't hurt. (Participant 17)*

Some women were aware that recommendations had changed over time, believing this reduced the strength of the message. When faced with this inconsistency, women sometimes relied on personal experience or the experience of others to determine which message they chose to believe:

> *They'll say small amounts of alcohol are okay. Then we go back to saying no alcohol during the pregnancy. Women kind of think well hang on, I've got lots of friends that did drink small amounts of alcohol during their pregnancy and their kids seem fine. So they don't place as much importance on that. (Participant 4)*

Other messages regarding alcohol in general or other pregnancy issues often clouded the message about alcohol use in pregnancy. Some women heard alcohol, particularly wine, was beneficial because it contained antioxidants, promoted better sleep, and reduced stress. One participant believed stress was more hazardous during pregnancy than drinking alcohol, so she thought it was fine to have a glass of wine occasionally. Alternatively, another woman could not see any benefits in consuming alcohol during pregnancy.

7.3.1.3 Interpreting a grey area: 'no safe level' versus 'no harm shown'

A number of women discussed how information defining a safe level of alcohol use was mixed. Some women expressed confusion or frustration about this, with one woman stating, *'I just can't see why there is that grey area' (Participant 3).* She could not understand why the information was unclear because there was no reported benefit of drinking during pregnancy. Another woman believed a grey area meant the evidence was not strong enough to support a recommendation of abstinence:

> *If it was that it was absolutely detrimental and more than one glass could kill the baby… and you had scientific evidence to back that up, well then that's the message that should be communicated… But I think it's such a grey area. (Participant 17)*

Some of the women with science or health backgrounds understood the evidence for a safe level of consumption is inconclusive. This grey area led to two main interpretations. A number of women believed in a better safe than sorry approach, such as *'If you don't know what the result is, don't do it. It's as simple as that' (Participant 2).* Whereas, other women had a relaxed approach, reflected by one woman saying, *'There is no research to suggest that a couple of drinks is okay or not… to me that means that it's okay to have one or two now and then' (Participant 7).*

7.3.2 Improving the information delivery system

It became apparent during interviews that women had opinions on how to address faults in the information delivery system. This second overarching theme was therefore derived through further exploration of the first theme. Women believed a clear, consistent message needed to be delivered early on by a reliable source, as described in the three following subthemes.

7.3.2.1 Clear, consistent, and strong recommendation

Women believed the recommendation needed to remain consistent over time and be clearly delivered. Women who thought the recommendation should be abstinence and those thinking it should be low alcohol intake both believed that one message should be chosen and continued:

> *Stick with that message and keep that message going for years, not just, okay, this week it's that message and next week it's another. I think that's*

> *where people lose face… I think being consistent is really the only way to continually get a message across. (Participant 8)*

One woman did not think a single message was possible, believing recommendations should be based on the individual. Although other women believed individual differences were relevant, they still thought a clear message was needed. One reason for this was to avoid individual interpretations, such as if the message was abstinence then some women might decide one drink was safe, but if it was one drink was okay then they may decide two drinks was alright. A straightforward message of abstinence was suggested as a way of dealing with individual differences.

A number of women believed the message needed to be strong, with some suggesting scare tactics to make it more tangible. Women educated about Fetal Alcohol Spectrum Disorders thought visual depictions of children affected with these disorders could shock women into abstaining. Other women believed scaring pregnant women could cause undue stress, which could be harmful for the woman and fetus. Generally women thought the message would have more impact if reasons for the message were included:

> *People need to be made aware of the effects of drinking alcohol during pregnancy… People aren't just going to take it on face value. They need to know, well what's going to happen if I do have it. (Participant 4)*

7.3.2.2 A reliable source with a vast reach

The strength of the message was also thought to be influenced by the source of information. Women viewed healthcare providers as reliable sources with expert knowledge. A hierarchy among healthcare providers was described, but this varied depending on the type of care received. A number of women thought doctors, primarily obstetricians, were more knowledgeable then nurses and midwives, but other women thought midwives knew more than doctors. Despite these discrepancies, most women believed the alcohol message should be provided by healthcare providers:

> *The only cohesive factor in all that is the person that's giving you the [health]care while you're pregnant. Because not all women will read books, not all women have access to the internet… or use the internet. (Participant 5)*

Additionally, women mentioned a need to utilise sources such as television, printed media, social media and websites to raise awareness of the current recommendations,

since they have changed over time. Such an approach was said to help *'get rid of that old thinking' (Participant 9)* from previous pregnancies, which may be outdated. Some women expressed a need to target certain groups to ensure all women within Australian society are aware of the alcohol recommendations for pregnant women. One woman said information needed to be provided *'in a lot of different locations that people of all classes can access' (Participant 15).* Regardless of how they thought the message should be delivered, women believed it should come from a reputable source to have an impact. In addition to healthcare providers and healthcare bodies, the government and universities were considered valid sources for passing on alcohol recommendations to pregnant women.

7.3.2.3 Early information provision

Women believed advice about alcohol recommendations should be provided before the first antenatal appointment, which was often late in the first trimester or the beginning of the second trimester. They were aware that the first trimester is a crucial time for development, so information was wanted early:

> *Your first 12 weeks, as you know, it's the most critical… so you want to get it[information]… before that time. It's a bit late when you go to your doctor for your eight week, 10 week scan. (Participant 2)*

Women suggested information be provided when planning a pregnancy or at the GP when getting a pregnancy confirmed. The women acknowledged that not all pregnancies are planned, so they considered the GP visit for pregnancy confirmation a critical teachable moment:

> *That's [the GP visit for pregnancy confirmation] when you're taking in the most information… You're trying to learn everything. I think that's where you need to really nail it and get the message across. (Participant 6)*

Some women thought information about alcohol use in pregnancy should be part of education in schools. The women thought it may deter students from having unprotected sex while drinking alcohol, as well as making it common knowledge from a young age.

7.4 Discussion

7.4.1 Main findings

This is the first study to investigate women's perceptions of information they received about alcohol use during pregnancy after the Australian alcohol guidelines were changed from low drinking to abstinence in 2009. This bottom-up approach provided an understanding of how alcohol guidelines have filtered down to pregnant women. Gaps within the information pathways were identified, as were potential solutions to address these gaps. It was apparent that for these women a number of inconsistencies existed within the information delivery system in relation to alcohol use during pregnancy. There was a lack of clarity in the available evidence and the advice provided, which in turn impacted the ways in which women interpreted the recommendations about alcohol use during pregnancy. Women expressed that a clear message about alcohol use and pregnancy needed to be maintained over time and delivered early in pregnancy from a reputable source.

7.4.2 Interpretation

Healthcare providers were believed to be an ideal source of information. This finding coincides with an Australian survey that found over 90% of women believed healthcare providers should assess alcohol use in pregnancy, provide information about the harms of antenatal alcohol consumption and advise abstinence.[155] Internationally, studies have found most women want a clear message about alcohol use in pregnancy from healthcare providers.[152, 154, 199] Women in this study believed doctors should know the latest research and would advise accordingly. This is worrisome considering variations that have been reported in the levels of knowledge and behaviours of healthcare providers with regards to recommendations for alcohol consumption during pregnancy.[158, 159, 232, 238, 239] For example, within Australia less than half of healthcare providers routinely assessed alcohol use during pregnancy, and less than a third routinely provided information about the harms of antenatal alcohol use.[159, 160] It is not surprising than to find variation among the women in this study with regards to the information or advice they received from healthcare providers. Improved translational efforts between policy makers, researchers and healthcare providers need to occur, along with clarification about when alcohol use screening and recommendations should be provided and by whom.

Women in this study believed information about alcohol and pregnancy was needed early, however this did not occur for many of them. Early information provision is important because, although the teratogenic effects of alcohol can occur at any time, there is an increased risk during the first trimester.[20, 213] Even guidelines that condone light drinking in later pregnancy recommend abstinence in the first trimester.[240] To provide information early, the primary care sector needs to be involved. GPs are usually the first healthcare providers that pregnant women have contact with, either to discuss planning a pregnancy or confirming a pregnancy. However, around half of pregnancies are unplanned, potentially increasing the risk of alcohol exposure during a critical phase of development.[100, 241] Clinical guidelines recommend that GPs assess alcohol use and advise about potential adverse effects during pregnancy not only when treating pregnant women or those planning a pregnancy, but also when talking with women of child-bearing age who may become pregnant.[149, 150] Multifaceted strategies aimed at increasing GPs' adherence to these guidelines should be considered, as strategies targeting multiple levels (e.g. individuals, organisations, and society) are likely to be more effective than a single approach.[242]

To assist healthcare providers in advising women, and to satisfy women's requests for consistency expressed in this study and others,[152, 154] the recommendations about alcohol use in pregnancy should be maintained over time. Variations in recommendations caused confusion among women and were seen as lacking credibility. These findings coupled with previous research that found women were less likely to consume alcohol under abstinence guidelines[223] suggests that the current recommendations should be upheld. Mass media campaigns could help raise awareness of the official recommendations. These alternative strategies, particularly that target the broader population, are critical given that in the face of conflicting messages about alcohol, women in this study and others[154] relied on their previous pregnancy experiences or that of others to determine a safe level of consumption during pregnancy. This is problematic considering recommendations can change between pregnancies and a number of women received little or no information during subsequent pregnancies. Consistent information provision regardless of prior pregnancy experience is needed to ensure equal access to the latest evidence-based information.

7.4.3 Strengths and limitations

This study contained a small sample which may be considered as a limitation by some readers. However, not only was data saturation reached, but the random sampling technique ensured that a variety of women were represented in the study, particularly both drinkers and abstainers during pregnancy. Such variability ensured that a variety of perceptions was achieved. Consenters were not compared to non-consenters, as the latter did not provide consent for their survey data to be included in this substudy. Although the qualitative design of this study means that findings are not meant to be generalisable, a number of results from this study were consist with those of international qualitative[106, 146, 152-154] and quantitative studies.[155, 199] Consistencies with previous research combined with the diversity among study participants suggest conceptual generalisability was most likely achieved. In addition, trustworthiness was also demonstrated by creating transparency throughout each stage of the research process and keeping an 'audit trail' so that the study could be subject to external scrutiny. Women who frequently consume heavy amounts of alcohol during pregnancy were not represented in this study, as participants reported having no more than two drinks on a drinking day. Although no formal inter-rater reliability measure was applied, the coder discussed and reviewed the coding process and structure with the senior investigator. Additionally, the existing qualitative and quantitative literature on this topic was used to provide additional context when interpreting results. There was a short timeframe between the 2009 alcohol guidelines being introduced (February 2009) and the measurement of women's pregnancies through the ALSWH survey (mailed out 31st March 2009). However, the draft guidelines were available as early as 2007 and a media release promoting the new guidelines was sent out before the ALSWH survey had been mailed out. Regardless of how the guidelines were disseminated, they were the current guidelines at the time of the women's pregnancies.

7.5 Conclusion

The discord between women's expectations to receive information about alcohol use early in pregnancy from their healthcare providers and the lack of consistent information actually being provided could be addressed by introducing a multifaceted, systematic approach to information delivery. Such an approach, particularly within the primary care setting, could help ensure a clear and consistent message is sent through this information channel which women believe to be a reliable source. Alcohol

recommendations should be maintained over time to provide a stable platform for this information provision to occur. Providing women with evidence-based information will enable them to make informed decisions about drinking during pregnancy.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All authors made substantial contributions to the conception and design of the study. AA conducted the interviews and thematic analysis under guided supervision by AH and DL. AA and DL reviewed and discussed the coding structure and themes throughout analysis. All authors made substantial contributions to the interpretation of the data. AA drafted the manuscript. All authors contributed to the revision of the manuscript. All authors read and have given approval for the final manuscript.

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8 THESIS DISCUSSION

This thesis provided one of the first assessments of alcohol use during pregnancy among Australian women after the introduction of the 2009 NHMRC alcohol guidelines, which altered the evidence-based recommendation to abstinence during pregnancy.[11] The components contributing to alcohol consumption were examined using data from a prospective cohort, to gain a public health perspective that took into account the changes in Australian alcohol guidelines over time. The results of this mixed methods thesis provide a strong level of evidence about the nature of the behaviour at a population level, as well as first-hand information from women about the advice they received on drinking during pregnancy. This chapter summarises the main findings and contributions of this thesis, its strengths and limitations, and directions for future research, policy, and practice.

8.1 Main findings

This thesis specifically aimed to:

3. Assess the prevalence of alcohol use since the introduction of the 2009 NHMRC alcohol guidelines that concluded that “not drinking is the safest option” during pregnancy; and
4. Identify the factors that contribute to alcohol consumption during pregnancy within the Australian population.

In relation to these aims, the initial phase of this research involved a review of the literature about prevalence and predictors of alcohol use during pregnancy (Chapter 2) to identify gaps in the evidence-base prior to starting the primary research. First and

foremost, there had yet to be an examination of the prevalence of alcohol use during pregnancy since the change in Australian alcohol guidelines in 2009 from a low to no intake recommendation. It was noted that a number of previous Australian studies had reported a relatively high prevalence of alcohol consumption during pregnancy, although mainly at low levels of intake, compared to international prevalence rates. The factors contributing to such a prevalence were inconsistent both across and within countries, partly due to the large variation in study design, population groups and methodologies relating to how and when alcohol use was measured. Although one of the strongest pieces of evidence, a systematic review of population based studies with women during pregnancy, reported that the most consistent predictors of alcohol use during pregnancy were pre-pregnancy alcohol use and exposure to abuse or violence.[75] These factors, however, had not been comprehensively examined within the Australian context in combination with other predictors reported in the international literature. Another identified gap in the literature was the lack of detailed information about Australian women's perceptions and experiences of information and recommendations about alcohol use in pregnancy since the revised guidelines were released in 2009. Chapter 2 highlighted the need to provide population level evidence about alcohol use during pregnancy in relation to the change of national alcohol guidelines for pregnant women.

In light of the dearth of evidence, the first study (Chapter 4) primarily focussed on addressing the first thesis aim. This was done by analysing prospective cohort data from the ALSWH to determine the prevalence of alcohol use during pregnancy after 2009. The findings indicated that 72% of Australian women engaged in some level of prenatal alcohol use; although, it was found that the majority of women who consumed alcohol did so within the low levels recommended by the previous 2001 NHMRC alcohol guidelines.[10] This is consistent with the pre-2009 Australian prevalence rates reported by other Australian studies.[98-100] As summarised in the literature review (Chapter 2), Australian research based on national surveys and prospective cohort studies have examined prevalence in tandem with, or after, the research presented in this thesis. Those studies reported rates between 40-50% for alcohol consumption during pregnancy after the release of the 2009 NHRMC alcohol guidelines, with some of the studies suggesting that there has been a temporal reduction in the rates since then.[94, 107-109] As the data analysed in Chapter 4 was collected in the 2009 ALSWH survey, the higher rate of consumption reported in this thesis compared to more recent

Australian studies may be partially due to the time taken to disseminate the revised recommendation.[243] Nevertheless, this thesis, in combination with the other work conducted nationally, suggests that a substantial proportion of pregnant women in Australia are consuming alcohol despite the recommendation for abstinence.

Further analysis within Chapter 4 contributed to the second aim of this thesis by providing exploration of the determinants of compliance with the recommendation for abstinence. The main results were consistent with the international literature suggesting that pre-pregnancy alcohol consumption was the strongest predictor of drinking (i.e. non-compliance with 2009 NHRMC alcohol guidelines) during pregnancy.[75, 98] Additionally, the work presented in Chapter 4 provided a novel approach to examining the relationship between previous alcohol use and alcohol use during pregnancy by categorising alcohol use in relation to compliance with population guidelines aimed at reducing alcohol related harm (i.e. compliant vs non-compliant with 2001 alcohol guidelines versus 2009 alcohol guidelines). Previously gathered prospective data on compliance with the 2001 NHRMC guidelines, regardless of pregnancy status, showed that women who complied with guidelines previously were about three and a half times more likely to comply later with the 2009 NHMRC guidelines while pregnant. Chapter 4 also provided more detail on the specific pre-pregnancy alcohol use behaviours that put Australian women at an increased risk of prenatal alcohol consumption after the 2009 recommendations. The specific patterns of drinking included binge drinking (i.e. five or more drinks on one occasion) and frequent (i.e. usual weekly) alcohol consumption prior to pregnancy. These findings support those of Australian studies conducted before the release of the 2009 guidelines, as well as the international literature.[75, 98, 99, 224] In combination with previous findings, this suggests a need to address alcohol use and behaviours prior to pregnancy; however, as that may not always be possible (e.g. unplanned pregnancy), pre-pregnancy alcohol use should be assessed during pregnancy as an additional means of gauging possible alcohol consumption during pregnancy.

After identifying in Chapter 4 that previously reported high rates of alcohol use among pregnant Australian women still existed after the introduction of the abstinence recommendation, and that this was mainly determined by previous alcohol consumption, the investigation of the second thesis aim was expanded (Chapter 5). Further analysis was undertaken to clarify the predictors of alcohol use during pregnancy specific to the Australian environment, taking into account changes to

alcohol guidelines over time (i.e. abstinence in 1992, low intake in 2001, abstinence in 2009). This again was done via a comprehensive assessment of data from women from the ALSWH, this time focusing on women who had consumed alcohol prior to pregnancy. Within the scope of a range of variables that have inconsistently been found to relate to alcohol use in pregnancy, the findings in conjunction with those in Chapter 4, indicated that pre-pregnancy binge drinking and weekly drinking were key determinants of any alcohol intake in pregnancy. However, the most unique finding of the research presented in Chapter 5 was that women who were pregnant under Australian alcohol guidelines promoting abstinence were less likely to consume alcohol in pregnancy compared to those under guidelines that condoned low levels of consumption. These findings provide a strong level of evidence to support for behaviour change in response to public health messaging through guidelines.

It became clear after the first two studies (Chapter 4 and Chapter 5) that further investigation of the risky drinking patterns that contributed to alcohol consumption during pregnancy was warranted. Therefore, Chapter 6 examined whether binge drinking and weekly drinking patterns were continued into pregnancy, as research indicates that this level of intake may result in negative pregnancy and birth outcomes.[13, 20, 52, 59, 213, 218, 219] Less than 15% of women who reported weekly and/or binge drinking prior to pregnancy fully ceased drinking once becoming pregnant. Almost half (46%) of the women continued risky patterns of drinking alcohol into pregnancy. Binge drinking was more likely to continue into pregnancy compared to weekly drinking. Binge drinking prior to pregnancy was more prevalent among already socially vulnerable women (e.g. experienced violence, lower socio-economic status, smoked or used illicit drugs) compared to the women who reported weekly drinking only (i.e. no bingeing) prior to pregnancy. This is consistent with other recent Australian research, which found high risk drinking patterns more common among women with other socio-demographic vulnerabilities, whereas regular low level consumption was related to higher levels of education, income and age.[109, 138] These findings highlight the fact that alcohol use and misuse does not occur in isolation, and particular groups within the Australian population are at an increased risk of adverse pregnancy outcomes as a result of higher alcohol used in combination with other risk factors.

The quantitative results of this thesis provided a broad understanding of alcohol use during pregnancy within the context of changing Australian guidelines. However, there

was a need for further exploration to gain a deeper understanding of why such a high proportion of women were continuing to consume alcohol in pregnancy while abstinence was recommended. The qualitative interviews in Chapter 7 provided valuable insight into this disconnect between the population health guidelines and the population behaviour the guidelines aim to address. The key finding from Chapter 7 was obvious: there was a faulty information delivery system, with no clear, consistent message in relation to alcohol use in pregnancy. This provided a glimpse into the degree to which the 2009 NHRMC alcohol guidelines had filtered down to women who had reported a pregnancy in the 2009 ALSWH survey. These findings have since been supported by further qualitative research, which has reported a lack of awareness of the 2009 NHMRC guidelines and a lack of understanding of the specific harms of alcohol use during pregnancy.[105] The other main finding of Chapter 7 was that women wanted clear information from a reputable source to enable them to make informed decisions about alcohol use in pregnancy. Due to the qualitative nature of the findings, they are not generalisable to the larger population. However, these results in combination with other qualitative and quantitative work in the field, showing a lack of systematic information provision, particularly from healthcare providers, gives merit to the validity of these findings.[106, 146, 152-155, 199] These findings highlight the need to systematically inform women of childbearing age about the abstinence recommendation and provide them with clear, consistent information about the evidence supporting this recommendation.

To summarise the main findings of this thesis in relation to the two major aims:

1. This research found a large proportion of Australian women consumed alcohol during pregnancy after the introduction of the 2009 NHMRC alcohol guidelines promoting abstinence.
2. The strongest, most consistent determinant of continued alcohol use in pregnancy was the pattern of pre-pregnancy alcohol use, with almost half of women continuing their pre-pregnancy risky drinking behaviours (i.e. weekly and/or binge drinking) into pregnancy. Having a national recommendation for alcohol abstinence was conducive of lower rates of consumption. However, the confusion, inconsistency and lack of clarity surrounding the information provision in relation to alcohol use and pregnancy made it difficult for pregnant women to make a fully informed decision about alcohol use.

8.2 Contributions to the field

The work presented in this thesis was not conducted in isolation, but rather in a whirlwind of political, research, and health practice related activity aimed at better addressing alcohol use in pregnancy. This thesis coincided with work conducted by a number of other Australian and international researchers in the field. Internationally, the first International Conference on the Prevention of Fetal Alcohol Spectrum Disorder (FASD) was held in 2013, resulting in The International Charter on Prevention of Fetal Alcohol Spectrum Disorder for countries to take immediate action in efforts to prevent FASD.[244] Additionally, in 2014 the World Health Organization released guidelines for healthcare providers to promote evidence-based care provision in the assessment and treatment of substance use in pregnancy.[151] Within Australia, the change to NHMRC alcohol guidelines in 2009 to an abstinence message for pregnant women introduced a large cultural shift away from a more tolerant recommendation allowing for low levels of consumption. There has also been a push from the Australian government to address FASD, which included the establishment of the Intergovernmental Committee on Drugs (IGCD) Fetal Alcohol Spectrum Disorders (FASD) Working Party back in 2006, prior to the most recent alcohol guidelines.[245] Subsequently, the Australian Government Department of Health has introduced the Commonwealth FASD Action Plan to reduce the impact of FASD from 2013-14 to 2016-17.[246] Within this action plan a key aim was to increase the evidence-base and data on alcohol use in pregnancy, and to enable better monitoring over time.[246] The results published as part of this thesis have contributed to this needed evidence-base. The impact of this contribution is highlighted by a Notice of Motion that was put forth to the Parliament of New South Wales to fund prenatal services to better address alcohol use in pregnancy based on the findings reported in Chapter 6 that a substantial portion of women were continuing binge drinking patterns into pregnancy (Appendix D).

The Commonwealth also funded a campaign developed by the Foundation of Research and Education (FARE) in 2014 called “Women Want to Know” to provide resources to healthcare providers to assist them in routinely discussing alcohol use and pregnancy with women.[247, 248] The need for the campaign was prompted by research, similar to the findings presented in this thesis, which suggested the new message of abstaining from alcohol during pregnancy was not clearly reaching its target audience.[248] New antenatal care guidelines for addressing substance use in pregnancy at both the Commonwealth and State levels have also been introduced over the course of this

thesis.[149, 249, 250] These are just some of the major changes within the broader community to provide some context for the relevance of the work presented in this thesis.

There has been some exciting work conducted in Australia by other researchers in this field. Particularly, a lot of work has been conducted around FASD prevention, detection and clinical diagnosis, including that by the IGCD FASD.[245] In 2016, the Australian Guide to the Diagnosis of Fetal Alcohol Spectrum Disorder (FASD) was released.[251] Additionally, a number of researchers have focussed on subgroups within the population who may be at a higher risk of heavy prenatal alcohol consumption and its potential adverse effects.[156, 252-257] There is a definite need for attention to be given to population groups at higher risk of FASD from consuming higher quantities of alcohol, whether regularly or episodically. Appropriate, non-judgemental treatment and support can be provided at the individual level, but changes might also be needed around pricing and taxation, and regulation of sales to have the greatest impact on reducing alcohol consumption at a population level.[258]

Some Australian research has taken a population-based approach to assess prenatal alcohol use after the 2009 change in alcohol guidelines, similar to the approach presented within this thesis. This has included the analysis of national surveys, such as the 2010 and 2013 National Drug Strategy Household Surveys, the establishment of new prospective cohort studies of pregnant women, such as the Asking QUestions about Alcohol in pregnancy (AQUA) study, and analysis of cohort studies that began prior to and collected data beyond the introduction of the 2009 alcohol guidelines. [94, 104, 107-109, 259] A couple of these studies have provided extra detail around alcohol use in pregnancy, which was not able to be assessed using the ALSWH data, particularly around the dose and timing of consumption during pregnancy in relation to pregnancy awareness, with most pregnant women reducing their alcohol use after realising they were pregnant.[104, 107] In line with the findings of this thesis, other Australian research has also shown a reduced prevalence of prenatal alcohol consumption since the 2009 alcohol guidelines.[107-109] Taken together, there is a need for population-based approach to reduce alcohol intake and provide a supportive environment for more targeted interventions aimed at reducing the highest levels of individual burden from alcohol use during pregnancy. One point of difference for this thesis, compared to other Australian studies, is that prospectively gathered data were used to assess women's pre-

pregnancy behaviours, particularly previous alcohol consumption, in relation to their alcohol use in pregnancy.

8.3 Strengths and limitations

This thesis has a number of strengths and limitations, most of which were discussed in Chapters 4 through 7. Firstly, using a mixed methods approach for this body of work provided both a breadth and depth of understanding alcohol use in pregnancy within the context of changing Australian alcohol guidelines for pregnant women. Utilising both quantitative and qualitative methodologies provided both generalisability of the prevalence and predictors of alcohol use in pregnancy, as well as a more thorough explanation of why it might be occurring under a message of abstinence. The quantitative data analysis from a prospective population-based cohort provides a strong level of evidence (i.e. Level II evidence) according to the NHMRC, particularly since randomised controlled trials would be impossible to ethically justify.[1] Additionally, this study used repeated and consist measures of alcohol use and pregnancy over 13 years, creating an opportunity to examine the population behaviour when three different alcohol guidelines for pregnant women had been in place. The three alcohol questions that were asked in the ALSWH surveys were very similar to that in the AUDIT-C, a validated tool that has been recommended by guidelines and government-commissioned reports for use in pregnancy.[156, 229, 251, 260]. The longitudinal nature of the study also allowed pre-pregnancy behaviour to be examined prospectively, reducing the recall bias that is often inherent of studies assessing the impact of pre-pregnancy behaviours on alcohol use in pregnancy.

Although there are a number of strengths to using a prospective study design to investigate population-based behaviour, there are also limitations. A key limitation of this thesis was that the ages of the participants were confined to a six-year range at each survey. This meant that the post-2009 alcohol guideline prevalence reported in Chapter 4 only relates to women aged 30-36 years. However, as mentioned in Chapter 4, the age of Australian mothers has increased, with 30 years the estimated average in 2009, suggesting the results would be generalisable to a large proportion of Australian women.[189] The data in this thesis was self-reported, which may lead to response bias, particularly for behaviours seen as socially unacceptable (e.g. drinking during pregnancy). However, such self-report questionnaires are more acceptable to pregnant women than a face-to-face mode of data collection for alcohol use in pregnancy and are

more reliable than medical records.[190, 261] Although a fairly comprehensive set of potential predictors was examined in this thesis, the list was not exhaustive. Therefore, the significance of a number of other factors potentially contributing to alcohol use in pregnancy (e.g. specific attitudes, partner characteristics) could not be examined. Considering this thesis included all factors that were consistently found by an international systematic review of predictors of alcohol use in pregnancy, it is not believed that the inclusion of other variables would have significantly altered the results of this thesis.[75]

8.4 Future research

Although the scope of this study focusses on identifying what was happening at a population level in regards to alcohol use and pregnancy, future research should consider interactions between predictors of alcohol use in pregnancy. For example, one study from Ukraine found an interaction in heavy paternal drinking and low levels of satisfaction with the relationship, and maternal alcohol use.[262] There is also a need for future research that is ongoing and consistently monitors population data to allow tracking over time. This could reduce the limitations of comparing different studies that all use different methods and measures of alcohol consumption. Finally, there is a need to identify the best method for disseminating the national recommendation of abstinence. There has been some effort to communicate the message, particularly through providing information and resources to healthcare providers.[248, 251, 260, 263] Population health interventions may not be as effective, in terms of a large effect size, as interventions targeting high-risk groups; however, they provide the opportunity to reduce a substantial burden of disease through obtaining a smaller effect size over a larger span of individuals.[264] Whether such interventions, such as mass media interventions, would be effective with pregnant Australian women is hard to determine and warrants further investigation. A 2015 critical review found there is a lack of studies that have examined public health interventions aimed at reducing alcohol use by pregnant women or increasing women's knowledge of the implications of alcohol use in pregnancy.[265]

8.5 Policy and practice implications

Examining alcohol use in pregnancy using population-based studies provides valuable information for policy makers and healthcare organisations in regards to the scope of

the problem. By taking a mixed methods, bottom-up approach this thesis provides valuable information for policy makers about the prevalence of alcohol use in pregnancy in relation to the change in national alcohol guidelines, and the factors that are predictive of drinking behaviour. Not only does alcohol consumption during pregnancy appear to be widespread across society, but particular women are at increased risk of continuing risky drinking patterns into pregnancy, which could lead to complications or adverse events for the mother and fetus. This translates into additional costs for society as a whole. At a population level, where such a prevalent drinking culture exists in Australia, there cannot be an expectation of abstinence if pregnant women are not supported in making an informed decision, through both information provision and assistance in reducing alcohol consumption through political and environmental regulation and legislation.

The findings in this thesis suggest that policy makers should keep a clear, consistent recommendation over time regarding alcohol use in pregnancy. This provides a political context that, based on the results presented in this thesis, appears to have some influence on the population behaviour. However, taking into account the high prevalence rate of prenatal alcohol consumption post-2009 guidelines and the in-depth description of an ineffective information delivery system, the existence of guidelines alone appears to be of little use if not communicated and implemented systematically to address the behaviour. As this thesis found that risky drinking patterns, such as binge drinking, are often continued into pregnancy, there is a clear need for policy makers to address this issue to prevent alcohol-related harm during pregnancy. To do this, policy makers should ensure adequate resourcing of healthcare services to address alcohol use among women of childbearing age, especially for those drinking at risky levels.

Sparked by the growing body of evidence in this field of research, efforts have been made by policy makers in recent years to address the gap between alcohol policy and behaviour in pregnancy. The most apparent efforts include the Women Want to Know public health initiative,[247, 248] new Commonwealth and State level antenatal care clinical guidelines to address alcohol use,[149, 249, 250] and the Australian Guide to the Diagnosis of Fetal Alcohol Spectrum Disorder (FASD).[251] All of these population level strategies focus on disseminating the national recommendation for abstinence via healthcare providers as the main agents for information delivery and facilitators of behaviour change. The results of Chapter 7 not only provided contextual reasoning for why such an approach is needed, but also the findings highlighted that

from pregnant women's perspectives this was the most appropriate way to improve the information pathway.

In relation to practice, the results of this thesis support the need for systematically assessing alcohol use during pregnancy and providing appropriate treatment due to the prevalence of the behaviour at a population level. Such care is recommended by antenatal care guidelines, which instruct healthcare providers to assess alcohol use during pregnancy with a validated tool, provide brief advice about the potential harms of alcohol use, and the recommendation that no alcohol is best and refer to specialist services if necessary.[149, 249, 250] Taking into account the stigma associated with drinking during pregnancy and the strong predictive value of pre-pregnancy alcohol patterns as reported in this thesis, a pre-pregnancy history of alcohol consumption should be taken during antenatal consultations as it may provide an indication of exposure and potential underreporting of alcohol use in pregnancy.

There is also a need for primary prevention to prevent alcohol-exposed pregnancies due to the consistent finding in this thesis that risky pre-pregnancy alcohol consumption increases a woman's risk of drinking during pregnancy. As advised in the 2016 best-practice clinical guidelines for general practitioners, this includes providing women of childbearing age with contraception to avoid unplanned pregnancies and routinely assessing alcohol use and treating accordingly.[266] Detecting risky drinking patterns prior to pregnancy and providing assistance to reduce or cease such alcohol use are the ideal prevention mechanisms for FASD and other adverse outcomes associated with alcohol use in pregnancy. For women who have already had at least one alcohol-exposed pregnancy and at high risk of having another, additional investment could be made in community-based interventions such as the Parent-Child Assistant Programs (PCAP), which have been effective overseas in reducing alcohol consumption and decreasing the likelihood that subsequent pregnancies would be exposed to alcohol.[133, 267]

8.6 Conclusion

Alcohol use during pregnancy remains prevalent among Australian women, despite national alcohol guidelines promoting abstinence as the safest approach. This is not surprising given Australian's large drinking culture, the lack of consistency in official alcohol guidelines over time, the lack of evidence that low intakes during pregnancy is harmful, and inconsistencies in information provision. What is surprising is the large

proportion of women who continue risky drinking patterns into pregnancy, putting themselves and their babies at an increased risk of harm. However, pregnant women should not be made to feel guilt or shame, but rather supported and encouraged to make positive behaviour changes for a healthy pregnancy. In order to do this, women need to be provided with accurate, non-judgemental information about the potential harms of alcohol use during pregnancy and advised that not drinking is the safest option. Healthcare providers should have the resources and training available to assist them in having this sensitive conversation. Alcohol use should be addressed as part of standard antenatal care; however, an ideal time to increase awareness and address risky drinking patterns is *prior* to pregnancy. Addressing alcohol use prior to pregnancy will benefit both the woman, who, if binge drinking, is already risking her own health, as well as any future fetus from being exposed to alcohol in utero during a critical window of development. Although there is a need to address heavy alcohol use in vulnerable groups of women, an overarching population based approach is also warranted to culturally normalise abstinence from alcohol during pregnancy.

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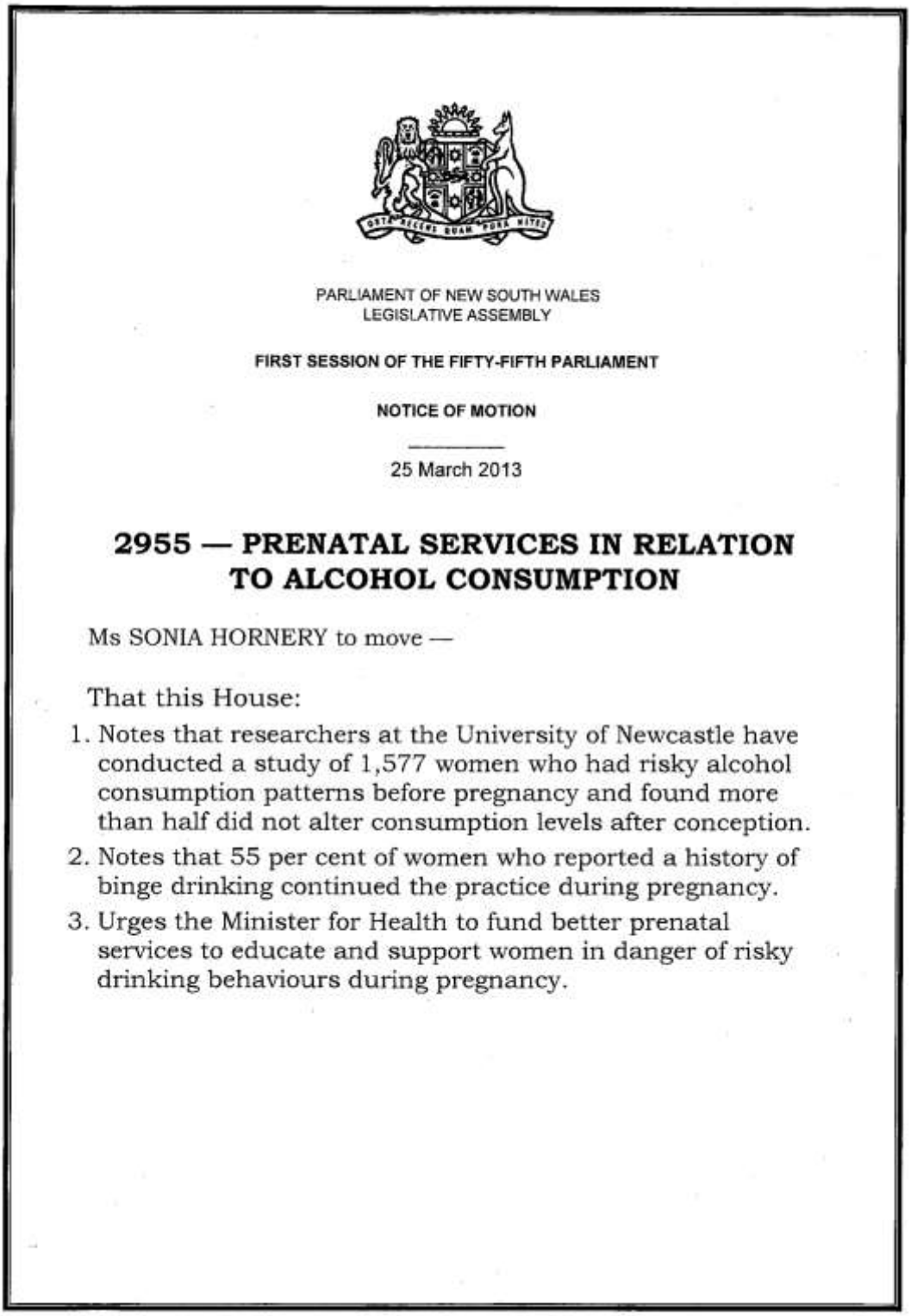


PARLIAMENT OF NEW SOUTH WALES
LEGISLATIVE ASSEMBLY

FIRST SESSION OF THE FIFTY-FIFTH PARLIAMENT

NOTICE OF MOTION

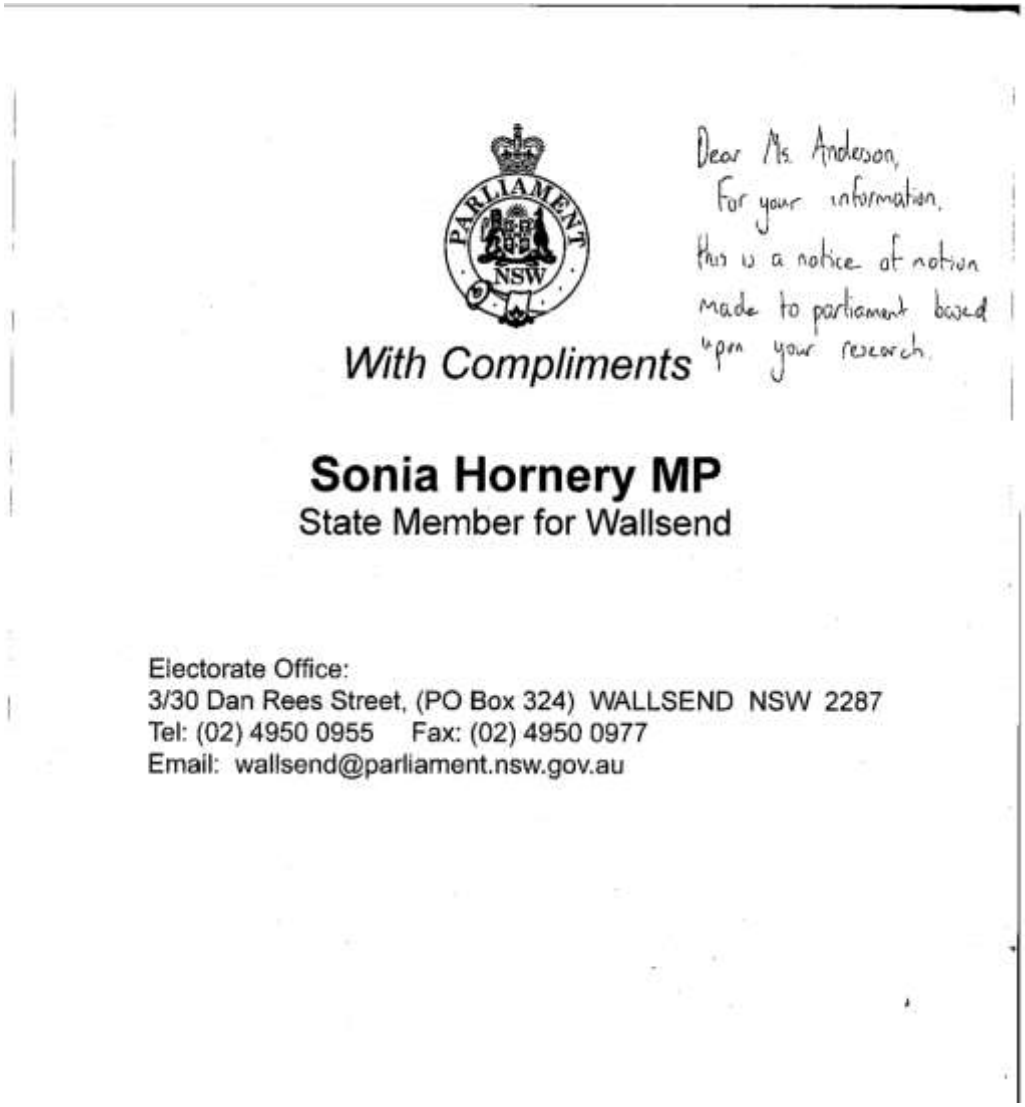
25 March 2013

2955 — PRENATAL SERVICES IN RELATION TO ALCOHOL CONSUMPTION

Ms SONIA HORNERY to move —

That this House:

1. Notes that researchers at the University of Newcastle have conducted a study of 1,577 women who had risky alcohol consumption patterns before pregnancy and found more than half did not alter consumption levels after conception.
2. Notes that 55 per cent of women who reported a history of binge drinking continued the practice during pregnancy.
3. Urges the Minister for Health to fund better prenatal services to educate and support women in danger of risky drinking behaviours during pregnancy.



Dear Ms. Anderson,
For your information.
This is a notice of motion made to parliament based upon your research.

With Compliments

Sonia Hornery MP
State Member for Wallsend

Electorate Office:
3/30 Dan Rees Street, (PO Box 324) WALLSEND NSW 2287
Tel: (02) 4950 0955 Fax: (02) 4950 0977
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APPENDIX E SURVEY 1 (1996) FOR THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH 1973-78 COHORT (18-23 YEARS)

women's health *is about how you are feeling*

Please answer every question by circling the appropriate number next to your answer. If you are unsure about how to answer a question, please give the closest answer to how you feel.

The questions on the first page ask only about NOW - how your health is NOW and about how your health limits certain activities NOW.

1 In general, would you say your health is *(Circle one number only)*

Excellent	1
Very good	2
Good	3
Fair	4
Poor	5

2 Compared to one year ago, how would you rate your health in general now? *(Circle one number only)*

Much better now than one year ago	1
Somewhat better now than one year ago	2
About the same as one year ago	3
Somewhat worse now than one year ago	4
Much worse now than one year ago	5

3 The following questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much? *(Circle one number on each line)*

		Yes limited a lot	Yes limited a little	No not limited at all
a	VIGOROUS activities such as running, lifting heavy objects, participating in strenuous sports	1	2	3
b	MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	1	2	3
c	Lifting or carrying groceries	1	2	3
d	Climbing SEVERAL flights of stairs	1	2	3
e	Climbing ONE flight of stairs	1	2	3
f	Bending, kneeling or stooping	1	2	3
g	Walking MORE THAN ONE kilometre	1	2	3
h	Walking HALF a kilometre	1	2	3
i	Walking 100 metres	1	2	3
j	Bathing or dressing yourself	1	2	3

4 **During THE PAST 4 WEEKS, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH?**
(Circle one number on each line)

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	1	2
b	Accomplished less than you would like	1	2
c	Were limited in the kind of work or other activities	1	2
d	Had difficulty performing the work or other activities (for example it took extra effort)	1	2

5 **During the PAST 4 WEEKS, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?**
(Circle one number on each line)

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	1	2
b	Accomplished less than you would like	1	2
c	Didn't do work or other activities as carefully as usual	1	2

6 **During the PAST 4 WEEKS, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?**
(Circle one number only)

Not at all	1
Slightly	2
Moderately	3
Quite a bit	4
Extremely	5

7 **How much BODILY pain have you had during the PAST 4 WEEKS?**
(Circle one number only)

No bodily pain	1
Very mild	2
Mild	3
Moderate	4
Severe	5
Very severe	6

8 **During the past four weeks, how much did PAIN interfere with your normal work (including both work outside the home and housework)?**
(Circle one number only)

Not at all	1
A little bit	2
Moderately	3
Quite a bit	4
Extremely	5

9 **For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS**
(Circle one number on each line)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life	1	2	3	4	5	6
b	Have you been a very nervous person	1	2	3	4	5	6
c	Have you felt so down in the dumps that nothing could cheer you up	1	2	3	4	5	6
d	Have you felt calm and peaceful	1	2	3	4	5	6
e	Did you have a lot of energy	1	2	3	4	5	6
f	Have you felt down	1	2	3	4	5	6
g	Did you feel worn out	1	2	3	4	5	6
h	Have you been a happy person	1	2	3	4	5	6
i	Did you feel tired	1	2	3	4	5	6

10 **During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting with friends, relatives, etc)?**
(Circle one number only)

All of the time	1
Most of the time	2
Some of the time	3
A little of the time	4
None of the time	5

11 **How TRUE or FALSE is EACH of the following statements for you?**
(Circle one number on each line)

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	1	2	3	4	5
b	I am as healthy as anybody I know	1	2	3	4	5
c	I expect my health to get worse	1	2	3	4	5
d	My health is excellent	1	2	3	4	5

women's health *is about using health services*

12 How many times have you consulted the following for YOUR OWN HEALTH in the LAST 12 MONTHS?
(Circle one number on each line)

		None	Once or twice	Three or four times	Five or six times	Seven or more times
a	Family doctor or another general practitioner	0	1	2	3	4
b	Hospital doctor (eg as an outpatient or in casualty)	0	1	2	3	4
c	Specialist doctor	0	1	2	3	4
d	Allied health professional (eg optician, dentist, physiotherapist, podiatrist, dietitian, counsellor etc)	0	1	2	3	4
e	"Alternative" health practitioner (eg chiropractor, naturopath, acupuncturist, herbalist etc)	0	1	2	3	4
f	Family Planning service	0	1	2	3	4
g	Sexual health service	0	1	2	3	4

13 Here are some questions about your MOST RECENT VISIT to a general practitioner. How would you rate each of the following?
(Circle one number on each line)

		Excellent	Very good	Good	Fair	Poor
a	The convenience of the location of the surgery	1	2	3	4	5
b	The length of time you waited in the waiting room	1	2	3	4	5
c	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	1	2	3	4	5
d	The doctor's explanation of your problem and treatment	1	2	3	4	5
e	The doctor's interest in how you felt about having the tests, treatment or the advice given	1	2	3	4	5
f	Your opportunity to ask all the questions you wanted to	1	2	3	4	5
g	The amount of time you spent with the doctor	1	2	3	4	5
h	The cost of your visit	1	2	3	4	5
i	The visit overall	1	2	3	4	5

14 In general do you prefer to see a female doctor?
(Circle one number only)

Yes always	Yes, but only for certain things	No	Don't care
1	2	3	4

15 Have you ever been told by a doctor that you have:
(Circle one number on each line)

		Yes	No
a	Diabetes (high blood sugar)	1	2
b	Heart disease	1	2
c	Hypertension (high blood pressure)	1	2
d	Low iron level	1	2
e	Asthma	1	2
f	Cancer *(Please specify type)* _____	1	2
g	Other major illness *(Please specify on line)* _____	1	2

16 Have you ever been told by a doctor that you have any sexually transmissible disease (STD)?
(Circle one number on each line)

		Yes	No	Don't want to answer
a	Chlamydia	1	2	3
b	Genital herpes	1	2	3
c	Genital warts (HPV)	1	2	3
d	Other STD (*Please specify on line*) _____	1	2	3

17 This question is about health care
(Circle one number on each line)

		Yes	No
a	Have you been admitted to hospital in the LAST 12 MONTHS?	1	2
b	Do you have private hospital insurance?	1	2
c	Do you have private health insurance for ancillary services (eg dental, physiotherapy etc)?	1	2

18 During the PAST 4 WEEKS, how many different types of medication (eg tablets/medicine) have you used which were:
(Circle one number on each line)

		None	One	Two	Three	Four or more
a	Prescribed by a doctor	0	1	2	3	4
b	Bought without a prescription at the chemist, supermarket or health food shop	0	1	2	3	4
c	For any chronic (long-term) illness	0	1	2	3	4

7

19 When did you last have a Pap test?
A Pap test (cervical smear) is a routine test carried out by a doctor or nurse during an internal (vaginal) examination.
(Circle one number only)

I have never had a Pap test	1 — If never go to question 21
Less than 2 years ago	2
2 - 5 years ago	3
More than 5 years ago	4
Not sure	5

20 Have you EVER had an abnormal Pap test?
(Circle one number only)

Yes	No
1	2

21 Are you currently pregnant?
(Circle one number only)

Yes	No	Don't know
1	2	3

22 How many times have you:
(Circle one number on each line)

		Never	Once	Twice	Three times	Four or more times	Don't want to answer
a	Been pregnant	0	1	2	3	4	5
b	Had a miscarriage	0	1	2	3	4	5
c	Had a termination	0	1	2	3	4	5
d	Given birth to a child	0	1	2	3	4	5

23 What sort of contraception do you use now?
(Circle one number only)

Don't need to use any (eg pregnant or no sex)	1
Choose not to use any (eg want to be pregnant)	2
Oral contraceptive pill	3
Condoms	4
Other *(Please specify on line)*	5 _____

24 For how many years in total have you EVER taken the oral contraceptive pill?
(Circle one number only)

Never used	1
Less than one year	2
1 - 4 years	3
5 years or more	4

25 Are you currently using:
(Circle one number on each line)

		Yes	No
a	condoms for STD/HIV prevention	1	2
b	the oral contraceptive pill for reasons other than contraception	1	2

women's health *is about coping with common problems*

26 a In the LAST 12 MONTHS have you had any of the following:

(Circle one number on each line, here)

b If you have had any of these problems, were you satisfied with the health services available to help you deal with this problem? If you did not seek help, circle 3.

(Circle one number on each line)

		Never	Rarely	Sometimes	Often	Yes	No	Not applicable
a	Allergies, hayfever, sinusitis	1	2	3	4	1	2	3
b	Asthma	1	2	3	4	1	2	3
c	Headaches/migraines	1	2	3	4	1	2	3
d	Constant tiredness	1	2	3	4	1	2	3
e	Back pain	1	2	3	4	1	2	3
f	Urine that burns or stings	1	2	3	4	1	2	3
g	Leaking urine	1	2	3	4	1	2	3
h	Constipation	1	2	3	4	1	2	3
i	Haemorrhoids (piles)	1	2	3	4	1	2	3
j	Other bowel problems	1	2	3	4	1	2	3
k	Vaginal discharge or irritation	1	2	3	4	1	2	3
l	Premenstrual tension	1	2	3	4	1	2	3
m	Irregular monthly periods	1	2	3	4	1	2	3
n	Heavy periods	1	2	3	4	1	2	3
o	Severe period pain	1	2	3	4	1	2	3
p	Skin problems	1	2	3	4	1	2	3
q	Difficulty sleeping	1	2	3	4	1	2	3

women's health *is about coping with stress*

27 Over the LAST 12 months, how stressed have you felt about the following areas of your life:
(Circle one number on each line)

		Not applicable	Not at all stressed	Somewhat stressed	Moderately stressed	Very stressed	Extremely stressed
a	Own health	1	2	3	4	5	6
b	Health of other family members	1	2	3	4	5	6
c	Work/Employment	1	2	3	4	5	6
d	Living arrangements	1	2	3	4	5	6
e	Study	1	2	3	4	5	6
f	Money	1	2	3	4	5	6
g	Relationship with parents	1	2	3	4	5	6
h	Relationship with partner/spouse	1	2	3	4	5	6
i	Relationship with other family members	1	2	3	4	5	6
j	Relationships with boyfriends	1	2	3	4	5	6
k	Relationships with girlfriends	1	2	3	4	5	6
l	Anything else *(Please specify on line)*	1	2	3	4	5	6

_____

28 When you feel stressed, do you use any of the following methods to reduce stress?
(Circle one number on each line)

		None of the time	A little of the time	Some of the time	Most of the time	All of the time
a	Walking, exercise or working out	1	2	3	4	5
b	Music, reading, sleeping, meditation	1	2	3	4	5
c	Talking to a good friend	1	2	3	4	5
d	Writing, drawing or creative activity	1	2	3	4	5
e	Being alone, watching TV	1	2	3	4	5
f	Letting off steam, eg throwing things, slamming doors, etc	1	2	3	4	5
g	Smoking, using drugs or alcohol	1	2	3	4	5
h	Eating more or less	1	2	3	4	5

29 In the LAST 12 MONTHS, have you experienced any of the following events?
(Circle one number on each line)

		Yes	No
a	Major personal illness	1	2
b	Major personal injury	1	2
c	Major surgery (not including dental work)	1	2
d	Pregnancy	1	2
e	Birth of your first child	1	2
f	Starting a new, close personal relationship	1	2
g	Problem in a close personal relationship	1	2
h	Break-up of a close personal relationship	1	2
i	Getting married (or starting to live with someone)	1	2
j	Infidelity of partner or spouse	1	2
k	Becoming a sole parent	1	2
l	Increased hassling with parents	1	2
m	Serious conflict between members of your family	1	2
n	Parents getting divorced, separated or remarried	1	2
o	Partner/close family member/close friend having trouble with alcohol	1	2
p	Death of partner or close family member	1	2
q	Death of a close friend	1	2
r	Leaving home for the first time	1	2
s	Beginning university, college or training program	1	2
t	Exam stress	1	2
u	Difficulty finding a job	1	2
v	Beginning/resuming work outside the home	1	2
w	Change in your type of work/hours/conditions/responsibilities at work	1	2
x	Distressing harassment at work	1	2
y	Loss of job	1	2
z	Parent losing a job	1	2
aa	Decreased income	1	2
bb	Natural disaster (fire, flood, drought, earthquake etc) or house fire	1	2
cc	Major loss or damage to personal property	1	2
dd	Being robbed	1	2
ee	Involvement in a serious accident	1	2
ff	Being pushed, grabbed, shoved, kicked or hit	1	2
gg	Being forced to take part in unwanted sexual activity	1	2
hh	Legal troubles or involved in a court case	1	2
ii	Family member/close friend being arrested/in gaol	1	2

11

30 Which of the following best describes your smoking status NOW?
(Please circle one number here and follow instructions)

I have never smoked	1	Go to Q35
I used to smoke	2	Go to Q31
I now smoke occasionally	3	Go to Q32a
I now smoke regularly	4	Go to Q32a

31 If you used to smoke, how long ago did you give up smoking?
(Circle one number or write years on line)

Within the last 6 months	77
6 - 12 months ago	88
_____ years ago	

Go to question 32b

32a If you NOW smoke, how many cigarettes do you usually smoke in a day?
(Write number on line)

_____ a day

OR

32b If you used to smoke, how many cigarettes did you usually smoke in a day?
(Write number on line)

_____ a day

33 At what age did you start smoking?
(Write years on line)

_____ years

34 Have you ever smoked daily for six months or more?
(Circle one number only)

Yes	No
1	2

35 How often do you usually drink alcohol?
(Circle one number only)

I never drink alcohol	1	If never go to question 38
I drink rarely	2	
Less than once a week	3	
On 1 or 2 days a week	4	
On 3 or 4 days a week	5	
On 5 or 6 days a week	6	
Every day	7	

36 On a day when you drink alcohol, how many drinks do you usually have?
(Circle one number only)

1 or 2 drinks per day	1
3 or 4 drinks per day	2
5 - 8 drinks per day	3
9 or more drinks per day	4

37 How often do you have five or more drinks of alcohol on one occasion?
(Circle one number only)

Never	1
Less than once a month	2
About once a month	3
About once a week	4
More than once a week	5

women's health *is about healthy weight and shape*

38 How tall are you without shoes? _____ cms OR _____ ft _____ ins

39 How much do you weigh without clothes or shoes? _____ kgs OR _____ stones _____ pounds

40 How would you describe yourself now?
(Circle one number only)

Very underweight	1
Underweight	2
Slightly underweight	3
Average	4
Slightly overweight	5
Overweight	6
Very overweight	7
Don't know	8

41 When you were a child (say age 10) how would you describe your weight?
(Circle one number only)

Very underweight	1
Underweight	2
Slightly underweight	3
Average	4
Slightly overweight	5
Overweight	6
Very overweight	7
Don't know	8

42 How much would you LIKE to weigh?
(Circle one number only)

Over 5 kg more	1
1 - 5 kg more	2
Happy as I am	3
1 - 5 kg less	4
6 - 10 kg less	5
Over 10 kg less	6

43 Have you EVER dieted to lose weight?
(Circle one number only)

Yes	1	
No	2	If no, go to Q46

44 How often have you gone on a diet, (that is, limited how much you ate) in order to lose weight DURING THE LAST YEAR?
(Circle one number only)

Never	1
1-4 times	2
5-10 times	3
More than 10 times	4
I am always on a diet to lose weight	5

13

45 How old were you when you first dieted to lose weight? If you are not sure, what is your best guess?
(Write number on line)

_____ years

46 Have you ever
(Circle one number on each line)

		Yes	No
a	LOST 5 kg or more *on purpose*	1	2
b	LOST 5 kg or more *without wanting to*	1	2

IF YOU HAVE NEVER LOST 5 KGS, GO TO QUESTION 48

47 Have you regained that lost weight?
(Circle one number only)

Yes 1
No 2

48 In the past month how dissatisfied have you felt about
(Circle one number on each line)

		Not at all		Slightly		Moderately		Markedly
a	Your weight	0	1	2	3	4	5	6
b	Your shape	0	1	2	3	4	5	6

49 Have there been times when you felt that you have eaten what other people would regard as an unusually large amount of food GIVEN THE CIRCUMSTANCES?
(Circle one number only)

Yes, in the past month 1
Yes, more than one month ago 2
No 3 — If no, go to Q52

50 During these times of overeating did you have a sense of having lost control over your eating, that is, feeling that you couldn't stop eating once you had started?
(Circle one number only)

Yes 1
No 2 — If no, go to Q52

51 Can you say how old you were when you first started overeating like this? If you are not sure, what is your best guess?
(Write years on line)

_____ years

52 Have you used any of the following to CONTROL YOUR WEIGHT OR SHAPE?
(Circle one number on each line)

		Yes, in the past month	Yes, more than one month ago	Never
a	Vomited on purpose after eating	1	2	3
b	Laxatives	1	2	3
c	Diuretics	1	2	3
d	Fasting (not eating food for at least a day)	1	2	3

53 In a NORMAL week, how many times do you engage in VIGOROUS exercise lasting for 20 minutes or more? (exercise which makes you breathe harder or puff and pant, such as netball, squash, jogging, aerobics, vigorous swimming, etc.)
(Circle one number only)

Never	1
Once a week	2
Two or three times a week	3
Four, five or six times a week	4
Once every day	5
More than once every day	6

54 In a NORMAL week, how many times do you engage in LESS VIGOROUS exercise which lasts for 20 minutes or more? (exercise which does not make you breathe harder or puff and pant, like walking, gardening, swimming and lawn bowls)
(Circle one number only)

Never	1
Once a week	2
Two or three times a week	3
Four, five or six times a week	4
Once every day	5
More than once every day	6

55 In the course of your WORK (paid or unpaid) how many times in a NORMAL week would your work involve exertion for MORE THAN 20 MINUTES WITHOUT STOPPING, that is, exertion which makes you breathe harder and puff or pant?
(Circle one number only)

Never	1
Once a week	2
Two or three times a week	3
Four, five or six times a week	4
Once every day	5
More than once every day	6

56 How often do you eat takeaway food?
(Circle one number only)

Never	1
Less than once a month	2
About once a month	3
About once a week	4
More than once a week	5
Almost every day	6

15

women's health *is about juggling time*

57 Which of the following BEST describes your MAIN current employment status? If you are studying AND working, circle the number corresponding to your MAIN activity.
(Circle one number only)

In full time paid work	1
In part time or casual paid work	2
Work without pay (eg in a family business)	3
Home duties only - no paid work	4
Studying	5
Unemployed - looking for work	6
Unpaid voluntary work	7
Unable to work due to sickness or injury	8
Other *(Please specify on line)*	9

_____

If in full or part time paid work go to question 58

If no paid work go to question 62

58 How many hours do you normally spend in all your PAID jobs each week?
(Circle one number only)

1 - 15 hours	1
16 - 24 hours	2
25 - 34 hours	3
35 - 40 hours	4
41 - 48 hours	5
49 hours or more	6

59 Do you normally do paid shift work?
(Circle one number only)

Yes	1
No	2

60 Do you normally do paid work at night?
(Circle one number only)

Yes	1
No	2

61 Is your home your normal ("paid work") work-place? *(Circle one number only)*

Yes	1
No	2

GO TO QUESTION 62, ON THIS PAGE

62 How often do you feel rushed/pressured/ too busy?
(Circle one number only)

Every day	1
A few times a week	2
About once a week	3
About once a month	4
Never	5

63 How often do you feel you have time on your hands that you don't know what to do with?
(Circle one number only)

Every day	1
A few times a week	2
About once a week	3
About once a month	4
Never	5

64 **How happy are you with the amount of time you spend in the following aspects of your life?** *(Circle one number on each line)* **Time spent:**	Happy the way it is	Would like to do more	Would like to do less	Not applicable (Don't do this)
a In paid work	1	2	3	4
b In ACTIVE leisure (eg sport, art, drama, music)	1	2	3	4
c In PASSIVE leisure (eg reading, TV, writing letters)	1	2	3	4
d Studying	1	2	3	4
e Doing voluntary work	1	2	3	4
f In religious activities	1	2	3	4
g Sleeping	1	2	3	4
h Alone	1	2	3	4

65 **Are you happy with YOUR SHARE of the following tasks and activities?** *(Circle one number on each line)*	Happy the way it is	Would like other family members to do more	Would prefer another arrangement	Not applicable (Don't do this)
a Domestic work (shopping, cooking, cleaning etc)	1	2	3	4
b Child care	1	2	3	4
c Caring for another adult (who is elderly/disabled/sick)	1	2	3	4
d Other household work (gardening, home/car maintenance)	1	2	3	4

66 What is your main occupation? (If you are a student, circle the occupation you are studying for)
(Circle one number only)

Manager or administrator (including shop manager, farm manager)	1
Professional (including artist, teacher)	2
Para-professional (including technician, pilot, police etc)	3
Tradesperson (including gardener, hairdresser)	4
Clerk (including telephonist, secretary)	5
Sales and personal service worker (including child care worker, enrolled nurse)	6
Machine operator or driver	7
Manual worker (including cleaner, caretaker)	8
Never had a paid job	9
Other *(Please specify on line)*	10

_____

17

women's health *is about family and friends*

67 Who lives with you?
(Circle one number on each line)

		Yes	No	
a	No-one, I live alone	1	2	If live alone, go to question 69
b	Partner/spouse	1	2	
c	Own children	1	2	
d	Someone else's children	1	2	
e	Parents	1	2	
f	Brothers/sisters	1	2	
g	Other adult relatives	1	2	
h	Other adults who are not family members	1	2	

IF YOU HAVE NO CHILDREN LIVING WITH YOU, GO TO QUESTION 69

68 Most parents need someone to care for their children when they cannot. How satisfied are you with your child care arrangements?
(Circle one number only)

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Not applicable
1	2	3	4	5

69 Do you regularly PROVIDE care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty?
(Circle one number only)

Yes	No
1	2

70 Do you regularly NEED help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)?
(Circle one number only)

Yes	No	
1	2	If no go to Q 72

71 How satisfied are you with the help you receive for your own personal care?
(Circle one number only)

Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
1	2	3	4

72 These questions are about getting on with other people:
(Circle one number on each line)

		Yes	No
a	Has anyone close to you tried to hurt you or harm you recently	1	2
b	Are you sad or lonely often	1	2
c	Do you feel that nobody wants you around	1	2
d	Does anyone in your family drink a lot of alcohol	1	2
e	Are you afraid of anyone in your family	1	2
f	Do you have enough privacy at home	1	2
g	Have you ever been in a violent relationship with a partner/spouse	1	2
h	Has anyone close to you called you names or put you down or made you feel bad recently	1	2

73 Now some questions about your family and friends
(Circle one number on each line)

		Hardly ever	Some of the time	Most of the time
a	Does it seem that your family and friends (ie people who are important to you) understand you?	1	2	3
b	Can you talk about your deepest problems with at least some of your family and friends?	1	2	3

74 Other than members of your family, how many persons in your local area do you feel you can depend on or feel very close to?
(Circle one number only)

None	1
1-2 people	2
More than 2 people	3

women's health *is about you and your life*

75 What is your date of birth?
(Write date on line below)

__ __ Day __ __ Month 1 9 __ __ Year

76 How old were you when you left school?
(Please include both full and part time schooling. Circle one number only)

Still at school	1
Never attended school	2
14 years or less	3
15 -16 years	4
17 -18 years	5
19 years or older	6

77 Are you currently attending an educational institution?
(Circle one number only)

No	1
Yes, part-time student	2
Yes, full-time student	3

78 What is the highest qualification you have completed?
(Circle one number only)

No formal qualifications	1
School Certificate (Year 10 or equivalent)	2
Higher School Certificate (Year 12 or equivalent)	3
Trade/apprenticeship (eg Hairdresser, Chef)	4
Certificate/diploma (eg Child Care, Technician)	5
University degree	6
Higher University degree (eg Grad Dip, Masters, PhD)	7

79 Are you of Aboriginal or Torres Strait Islander origin?
(Circle one number only)

No	1
Aboriginal	2
Torres Strait Islander	3

80 In which country were you born?
(Circle one number only)

Australia	1 — If Australia go to Q82
United Kingdom	2
Italy	3
Greece	4
New Zealand	5
Vietnam	6
Other *(Please specify on line)*	7

_____

81 If you were not born here, when did you first arrive in Australia with the intention of living here for one year or more?
(Circle one number only)

1975 or earlier	1
1976 - 1985	2
1986 - 1990	3
1991 or later	4

82 Do you usually speak a language other than English AT HOME?
(Circle one number only)

No, I speak only English at home	1 — If no go to Q84
Yes, Italian	2
Yes, Greek	3
Yes, Cantonese	4
Yes, Mandarin	5
Yes, German	6
Yes, Arabic	7
Yes, other *(Please specify on line)*	8

_____

83 How well do you speak English?
(Circle one number only)

Very well	1
Well	2
Not well	3
Not at all	4

84 What is your PRESENT marital status?
(Circle one number only)

Married	1
Defacto (opposite sex)	2
Defacto (same sex)	3
Separated	4
Divorced	5
Widowed	6
Never married	7

85 How do you manage on the income you have available?
(Circle one number only)

It is impossible	1
It is difficult all the time	2
It is difficult some of the time	3
It is not too bad	4
It is easy	5

86 Which of the following best describes your housing situation? Do you live in:
(Circle one number only)

A house	1
A flat/unit/apartment	2
A caravan/tent/cabin/houseboat	3
Other *(Please specify on line)*	4

_____

87 In whose name is the ownership/ purchasing agreement/ tenancy agreement?
(Circle one number only)

Self	1
Partner/spouse	2
Partner/spouse and self together	3
Parents or other family members	4
Self and others	5
Not applicable	6
Other *(Please specify on line)*	7

_____

88 What is your postcode?

___ ___ ___ ___

21

89 When you are 35, would you like to be:
(Circle one number only)

In full-time paid employment	1
In part-time paid employment and part-time work at home	2
In full-time unpaid work in the home	3
Other *(Please specify on line)*	4

_____

90 When you are 35, what would be your ideal job?
(Please specify on line)

_____

91 When you are 35, would you like to be:
(Circle one number only)

Married	1
In a stable relationship but not married	2
Single and not in a stable relationship	3
Other *(Please specify on line)*	4

_____

92 When you are 35, would you like to have:
(Circle one number only)

No children	1
1 or 2 children	2
More than 2 children	3

93 When you are 35, would you like to have more educational qualifications than you have now?
(Circle one number only)

Yes	1
No	2
Not sure	3

94 In general, are you satisfied with what you have achieved in your life so far in the areas of:
(Circle one number on each line)

		Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Work/career/study	1	2	3	4
b	Family relationships	1	2	3	4
c	Partner/closest personal relationship	1	2	3	4
d	Friendships	1	2	3	4
e	Social activities	1	2	3	4

Have we missed anything? If you have ANYTHING else you would like to tell us, please write on the lines below.

- *If you need help to answer any of the questions ring our Freecall number 1800 068 081*
- *If you are concerned about any of your health experiences and would like some help, please contact:*
  - *Your nearest Women's Health Centre or Community Health Centre*
  - *Your general practitioner for advice about who would be the best person in your community for you to talk to*
- *If you feel distressed NOW and would like someone to talk to, you could ring Lifeline on 131114 (local call)*

23

Thank you *very much for taking the time to complete this survey.*

Please fold the survey in half and place it in the reply-paid envelope.

DON'T FORGET TO ENCLOSE THE CONSENT FORM

as we will need this to contact you again.

You are a valuable contributor to this women's health research.

Don't forget to let us know your new address if you move!

If you have any questions you can contact us by telephoning

1800 068 081 (This is a FREECALL number)

or writing to us at the address below.

women's health australia

Australian Longitudinal Study on Women's Health
The University of Newcastle, Callaghan NSW 2308. Phone 049 216 422. Facsimile 049 217 415. email. whgb@cc. newcastle.edu.au

APPENDIX F SURVEY 2 (2000) FOR THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH 1973-78 COHORT (22-27 YEARS)

ID

How to complete this survey

This is the second "main" survey for women in their 20's. As the purpose of the project is to look at changes over time, some of the questions are the same as those in the first survey.

Instructions:

- Use a blue/black biro or 2B pencil
- Do not fold or bend
- Erase mistakes fully
- Make no stray marks

Please MARK LIKE THIS: ○ ● ○ ○

Please answer every question you can. If you are unsure about how to answer a question, mark the response for the closest answer to how you feel.

Please read the instructions above each question very carefully. Some require you to only answer those options which are applicable to you. Other questions require you to mark one answer on each line. The questions may also refer to different time periods.

Please write any comments or important information on page 29 only. We are not able to read comments written throughout the survey.

Example 1:

In general, would you say your health is:
(Mark one only)

- ○ Excellent
- ○ Very good
- ● Good - *You would mark this one if you think your health is good*
- ○ Fair
- ○ Poor

Example 2:

What is your postcode?
(PRINT clearly in the boxes) 2 3 0 8

If you need help to answer any questions, please ring 1800 068 081 (This is a FREECALL number)

* *If you are concerned about any of your health experiences and would like some help, please contact:*
  - *Your nearest Women's Health Centre or Community Health Centre;*
  - *Your general practitioner for advice about who would be the best person in your community for you to talk to.*
* *If you feel distressed NOW and would like someone to talk to, you could ring Lifeline on 131114 (local call).*

women's health is about using health services

Q1 How many times have you consulted a family doctor or another general practitioner (GP) for YOUR OWN HEALTH in the LAST 12 MONTHS for:
(Mark one on each line)

	NONE	ONCE	TWICE	3 TIMES	4 TIMES	5 - 6 TIMES	7 - 9 TIMES	10 - 12 TIMES	MORE THAN 12 TIMES
a Pap tests, contraception, routine pregnancy checks	○	○	○	○	○	○	○	○	○
b All other reasons	○	○	○	○	○	○	○	○	○

Q2 How many times have you consulted a specialist doctor for YOUR OWN HEALTH in the LAST 12 MONTHS?
(Mark one on each line)

	NONE	ONCE	TWICE	3 TIMES	4 TIMES	5 - 6 TIMES	7 - 9 TIMES	10 - 12 TIMES	MORE THAN 12 TIMES
a Pap tests, contraception, routine pregnancy checks	○	○	○	○	○	○	○	○	○
b All other reasons	○	○	○	○	○	○	○	○	○

Q3 Have you consulted the following people for YOUR OWN HEALTH in the LAST 12 MONTHS?
(Mark all that apply)

		Yes
a	A hospital doctor (eg in outpatients or casualty)	○
b	An allied health professional (eg optician, dentist, physiotherapist, counsellor etc)	○
c	An "alternative" health practitioner (eg naturopath, acupuncturist, herbalist etc)	○
d	A family planning service	○
e	A sexual health service	○
f	None of these people	○

Q4 Have you been admitted to hospital in the LAST 12 MONTHS for any of these reasons?
(Mark all that apply)

a	○ Normal childbirth
b	○ Problems during pregnancy
c	○ All other reasons
d	○ Not admitted

Q5 When you go to a General Practitioner:
(Mark one on each line)

	ALWAYS	MOST OF THE TIME	SOME-TIMES	RARELY OR NEVER
a Do you go to the same place?	○	○	○	○
b Do you usually see the same doctor?	○	○	○	○

Q6 **Here are some questions about your MOST RECENT VISIT to a general practitioner. In terms of your SATISFACTION, how would you rate each of the following:** *(Mark one on each line)*

		EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
a	How long you waited to get an appointment	○	○	○	○	○
b	Length of time you waited in the waiting room	○	○	○	○	○
c	The amount of time you spent with the doctor	○	○	○	○	○
d	The doctor's explanation of your problem and treatment	○	○	○	○	○
e	The doctor's interest in how you felt about having the tests, treatment or the advice given	○	○	○	○	○
f	Your opportunity to ask all the questions you wanted	○	○	○	○	○
g	The technical skills (thoroughness, carefulness, competence) of the doctor	○	○	○	○	○
h	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	○	○	○	○	○
i	The cost to you of the visit	○	○	○	○	○
	(Mark here if NO COST) ⟹ ○					
j	The visit overall	○	○	○	○	○

Q7 **In general, do you prefer to see a female doctor?** *(Mark one only)*

○ Yes, always ○ Yes, but only for certain things ○ No ○ Don't care

Q8 **Thinking about YOUR OWN HEALTH CARE, how would you rate the following now:** *(Mark one on each line)*

		EXCELLENT	VERY GOOD	GOOD	FAIR	POOR	DON'T KNOW
a	Access to medical specialists if you need them	○	○	○	○	○	○
b	Access to a hospital if you need it	○	○	○	○	○	○
c	Access to after-hours medical care	○	○	○	○	○	○
d	Access to a GP who bulk bills	○	○	○	○	○	○
e	Access to a female GP	○	○	○	○	○	○
f	Hours when a GP is available	○	○	○	○	○	○
g	Number of GPs you have to choose from	○	○	○	○	○	○
h	Ease of seeing the GP of your choice	○	○	○	○	○	○
i	Ease of obtaining a Pap test	○	○	○	○	○	○
j	Access to a counselling service if you need it	○	○	○	○	○	○
k	Access to a Women's Health Centre or a Family Planning Centre	○	○	○	○	○	○

Q9 **Do you have a Health Care Card?** *This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card.* *(Mark one only)*

○ Yes ○ No

Q10 Do you have private health insurance for hospital cover? If not, mark the main reason why. *(Mark one only)*

- ○ Yes
- ○ No - because I can't afford the cost
- ○ No - because I don't think you get value for money
- ○ No - because I don't think I need it
- ○ No - other reason

Q11 Do you have private health insurance for ancillary services (eg dental, physiotherapy)? If not, mark the main reason why. *(Mark one only)*

- ○ Yes
- ○ No - because I can't afford the cost
- ○ No - because I don't think you get value for money
- ○ No - because I don't think I need it
- ○ No - because the services are not available where I live
- ○ No - other reason

Q12 Have you ever been told by a doctor that you have: *(Mark all that apply)*

		A YES, IN THE LAST 4 YEARS	B YES, MORE THAN 4 YEARS AGO
a	Gestational diabetes (during pregnancy)	○	○
b	Insulin dependent (Type I) diabetes	○	○
c	Non-insulin dependent (Type II) diabetes	○	○
d	Heart disease	○	○
e	Hypertension (high blood pressure) during pregnancy	○	○
f	Hypertension (high blood pressure) other than during pregnancy	○	○
g	Low iron (iron deficiency or anaemia)	○	○
h	Asthma	○	○
i	Postnatal depression	○	○
j	Depression (not postnatal)	○	○
k	Anxiety disorder	○	○
l	Endometriosis	○	○
m	Urinary tract infection	○	○
n	Chronic fatigue syndrome	○	○
o	Chlamydia	○	○
p	Genital herpes	○	○
q	Genital warts (HPV)	○	○
r	HIV or AIDS	○	○
s	Hepatitis B or C	○	○
t	Cancer *(Please specify on page 29)*	○	○
u	Other major illness *(Please specify on page 29)*	○	○
v	None of these conditions	○	

women's health *is about coping with common problems*

Q13

	A In the LAST 12 MONTHS, have you had any of the following: *(Mark all that apply. For all that apply, answer columns A, B and C.)* RARELY	SOME-TIMES	OFTEN	B For the problems you had, did you seek help? MARK HERE IF YOU DID SEEK HELP	C If you did seek help, please mark if you were NOT satisfied with that help. MARK HERE IF YOU WERE NOT SATISFIED
a	Allergies, hayfever, sinusitis	○	○	○	○	○
b	Headaches/migraines	○	○	○	○	○
c	Severe tiredness	○	○	○	○	○
d	Back pain	○	○	○	○	○
e	Urine that burns or stings	○	○	○	○	○
f	Leaking urine	○	○	○	○	○
g	Constipation	○	○	○	○	○
h	Haemorrhoids (piles)	○	○	○	○	○
i	Other bowel problems	○	○	○	○	○
j	Vaginal discharge or irritation	○	○	○	○	○
k	Premenstrual tension	○	○	○	○	○
l	Irregular periods	○	○	○	○	○
m	Heavy periods	○	○	○	○	○
n	Severe period pain	○	○	○	○	○
o	Skin problems	○	○	○	○	○
p	Difficulty sleeping	○	○	○	○	○
q	Depression	○	○	○	○	○
r	Episodes of intense anxiety (eg panic attacks)	○	○	○	○	○
s	Palpitations (feeling that your heart is racing or fluttering in your chest)	○	○	○	○	○
t	I have had none of these problems in the last 12 months			○		

women's health *is about how you are feeling*

The questions on this page ask only about NOW - how your health is NOW and about how your health limits certain activities NOW.

Q14 **In general, would you say your health is:**
(Mark one only)

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Q15 **Compared to one year ago, how would you rate your health in general now?**
(Mark one only)

- ○ Much better now than one year ago
- ○ Somewhat better now than one year ago
- ○ About the same as one year ago
- ○ Somewhat worse now than one year ago
- ○ Much worse now than one year ago

Q16 **The following questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much?**
(Mark one on each line)

		YES LIMITED A LOT	YES LIMITED A LITTLE	NO NOT LIMITED AT ALL
a	VIGOROUS activities such as running, lifting heavy objects, participating in strenuous sports	○	○	○
b	MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	○	○	○
c	Lifting or carrying groceries	○	○	○
d	Climbing SEVERAL flights of stairs	○	○	○
e	Climbing ONE flight of stairs	○	○	○
f	Bending, kneeling or stooping	○	○	○
g	Walking MORE THAN ONE kilometre	○	○	○
h	Walking HALF a kilometre	○	○	○
i	Walking 100 metres	○	○	○
j	Bathing or dressing yourself	○	○	○

Q17 During the PAST 4 WEEKS, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH?
(Mark one on each line)

		YES	NO
a	Cut down on the amount of time you spent on work or other activities	○	○
b	Accomplished less than you would like	○	○
c	Were limited in the kind of work or other activities	○	○
d	Had difficulty performing the work or other activities (for example it took extra effort)	○	○

Q18 During the PAST 4 WEEKS, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?
(Mark one on each line)

		YES	NO
a	Cut down on the amount of time you spent on work or other activities	○	○
b	Accomplished less than you would like	○	○
c	Didn't do work or other activities as carefully as usual	○	○

Q19 During the PAST 4 WEEKS, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?
(Mark one only)

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

Q20 How much BODILY pain have you had during the PAST 4 WEEKS?
(Mark one only)

- ○ None
- ○ Very mild
- ○ Mild
- ○ Moderate
- ○ Severe
- ○ Very severe

Q21 During the PAST 4 WEEKS, how much did PAIN interfere with your normal work (including both work outside the home and housework)?
(Mark one only)

- ○ Not at all
- ○ A little bit
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

Q22 For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS:
(Mark one on each line)

	ALL OF THE TIME	MOST OF THE TIME	A GOOD BIT OF THE TIME	SOME OF THE TIME	A LITTLE OF THE TIME	NONE OF THE TIME
a Did you feel full of life	○	○	○	○	○	○
b Have you been a very nervous person	○	○	○	○	○	○
c Have you felt so down in the dumps that nothing could cheer you up	○	○	○	○	○	○
d Have you felt calm and peaceful	○	○	○	○	○	○
e Did you have a lot of energy	○	○	○	○	○	○
f Have you felt down	○	○	○	○	○	○
g Did you feel worn out	○	○	○	○	○	○
h Have you been a happy person	○	○	○	○	○	○
i Did you feel tired	○	○	○	○	○	○

Q23 During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting friends, relatives, etc)? *(Mark one only)*

- ○ All of the time
- ○ Most of the time
- ○ Some of the time
- ○ A little of the time
- ○ None of the time

Q24 How TRUE or FALSE is EACH of the following statements for you?
(Mark one on each line)

	DEFINITELY TRUE	MOSTLY TRUE	DON'T KNOW	MOSTLY FALSE	DEFINITELY FALSE
a I seem to get sick a little easier than other people	○	○	○	○	○
b I am as healthy as anybody I know	○	○	○	○	○
c I expect my health to get worse	○	○	○	○	○
d My health is excellent	○	○	○	○	○

Q25 If you have any serious illness, condition or disability, please write in the box below.

Q26 Do you regularly NEED help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)? *(Mark one only)*

- ○ Yes
- ○ No

women's health *is about sexual and reproductive health*

Q27 What age were you when you had: *(Write age clearly in the boxes or mark one on each line)*

a Your first menstrual period ☐☐ yrs ○ Not applicable

b Your first sexual intercourse ☐☐ yrs ○ Not applicable

c Your first baby ☐☐ yrs ○ Not applicable

The next question applies only if you have ever had a baby.
If you have never had a baby, please go to Question 29.

Q28 How would you rate the help you had in the FIRST 3 MONTHS, with your first baby, from the following:
(Mark one on each line)

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR	NOT AVAILABLE	NOT NEEDED
a Partner	○	○	○	○	○	○	○
b Family	○	○	○	○	○	○	○
c Friends	○	○	○	○	○	○	○
d Health Services	○	○	○	○	○	○	○

Q29 In the PAST 3 MONTHS, about how many times have you had a menstrual period?
(Mark one only)

○ None ○ One ○ Two ○ Three ○ Four ○ Five or more

Q30 Which of these most closely describes your sexual orientation?
(Mark one only)

○ I am exclusively heterosexual
○ I am mainly heterosexual
○ I am bisexual
○ I am mainly homosexual (lesbian)
○ I am exclusively homosexual (lesbian)
○ I don't know
○ I don't want to answer

Q31 How many sexual partners have you had? *(Write a number in the box. Write '0' if none.)*

a Male sexual partners ☐ ○ Don't want to answer

b Female sexual partners ☐ ○ Don't want to answer

Q32 **Which of the following apply to you NOW:** *(Mark all that apply)*

Yes

- *a* ☐ I don't need to use any contraception (eg pregnant or no sex)
- *b* ☐ I choose not to use any contraception (eg want to be pregnant)
- *c* ☐ I use the oral contraceptive pill for contraception
- *d* ☐ I use the oral contraceptive pill for other reasons
- *e* ☐ I use condoms for contraception
- *f* ☐ I use condoms (or other barrier methods) for prevention of infection
- *g* ☐ I use another method of contraception

Q33 **For how many years in total have you EVER taken the oral contraceptive pill?** *(Mark one only)*

☐ Never ☐ 1 or less ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 or more

Q34 **Are you currently pregnant?** *(Mark one only)*

☐ Yes ☐ No ☐ Don't know

Q35 **How many times have you had each of the following?** *(Mark all that apply)*

	ONE	TWO	THREE	FOUR	5 OR MORE
a Live birth (more than 36 weeks)	☐	☐	☐	☐	☐
b Live premature birth (36 weeks or less)	☐	☐	☐	☐	☐
c Stillbirth	☐	☐	☐	☐	☐
d Miscarriage	☐	☐	☐	☐	☐
e Termination (abortion)	☐	☐	☐	☐	☐

Q36 **When did you last have a Pap test?** *A Pap test (for cervical cancer) is a routine test carried out by a doctor or nurse during an internal (vaginal) examination.* *(Mark one only)*

☐ I have never had a Pap test → go to Q38
☐ Less than 2 years ago
☐ 2 - 5 years ago
☐ More than 5 years ago
☐ Not sure

Q37 **Have you EVER had an abnormal Pap test?** *(Mark one only)*

☐ Yes ☐ No

Q38 **Have you and your partner (current or previous) ever had problems with infertility (that is, tried unsuccessfully to get pregnant for 12 months or more)?** *(Mark one only)*

☐ Never tried to get pregnant
☐ No problem with infertility
☐ Yes, but have not sought help/treatment
☐ Yes, and have sought help/treatment

women's health is about health habits

Q39 How tall are you without shoes?
(If you are not sure, please estimate)

☐☐☐ cms **OR** ☐ ft ☐☐ ins

Q40 How much do you weigh without clothes or shoes?
(If you are not sure, please estimate)

☐☐☐ kgs **OR** ☐☐ stones ☐☐☐ pounds

Q41 If you know your weight at birth, or can find out (eg ask your mother, or from your full birth certificate), write it here.

Birth weight ☐☐☐☐ grams **OR** ☐☐ pounds ☐☐ ounces

Q42 How much would you LIKE to weigh NOW? *(Mark one only)*

- ○ Happy as I am
- ○ 1 - 5 kg more
- ○ Over 5 kg more
- ○ 1 - 5 kg less
- ○ 6 - 10 kg less
- ○ Over 10 kg less

Q43 How often have you gone on a diet (that is, limited how much you ate) in order to lose weight DURING THE LAST YEAR? *(Mark one only)*

- ○ Never
- ○ 1 - 4 times
- ○ 5 - 10 times
- ○ More than 10 times
- ○ I am always on a diet to lose weight

Q44 Excluding pregnancy, in the last FOUR YEARS, how many times have you:
(Mark one on each line)

	NEVER	1 - 2 TIMES	3 - 4 TIMES	5 OR MORE TIMES
a Lost 5 kg or more on purpose	○	○	○	○
b Lost 5 kg or more for any other reason	○	○	○	○
c Gained 5 kg or more which was previously lost on purpose	○	○	○	○

Q45 In the PAST MONTH, how dissatisfied have you felt about:
(Mark one on each line)

	NOT AT ALL DISSATISFIED		SLIGHTLY DISSATISFIED		MODERATELY DISSATISFIED		MARKEDLY DISSATISFIED
a Your weight	○	○	○	○	○	○	○
b Your shape	○	○	○	○	○	○	○

Q46 Have there been times when you felt that you have eaten what other people would regard as an unusually large amount of food GIVEN THE CIRCUMSTANCES? *(Mark one only)*

○ Yes, in the past month ○ Yes, more than one month ago ○ No → IF NO, go to Q50

Q47 During these times of overeating, did you have a sense of having lost control over your eating, that is, feeling that you couldn't stop eating once you had started? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q50

Q48 During the PAST MONTH, how often would you have overeaten and experienced loss of control? *(Mark one only)*

○ Every day
○ 2 - 3 times a week
○ Once a week
○ Less than once a week

Q49 How long have you been doing this? *(Mark one only)*

○ 3 months or less ○ 4 - 6 months ○ More than 6 months

Q50

	A: In the LAST 12 MONTHS, have you used any of these methods to control your weight or shape? *(Mark all that apply)* *(For all that apply, answer columns A and B.)* — YES, IN THE LAST 12 MONTHS	B: How often in the LAST MONTH did you use each of these methods to control your weight or shape? *(Mark all that apply)* — EVERY DAY	2 - 3 TIMES A WEEK	ONCE A WEEK	LESS THAN ONCE A WEEK	NOT AT ALL
a	Vigorous exercise	○	○	○	○	○	○
b	Vomited on purpose after eating	○	○	○	○	○	○
c	Used laxatives, diuretics or diet pills	○	○	○	○	○	○
d	Attended commercial weight loss program (eg Weight Watchers, Jenny Craig)	○	○	○	○	○	○
e	Meal replacements or slimming products (eg Limmits, Herbalife)	○	○	○	○	○	○
f	Cut down on size of meals or between meal snacks	○	○	○	○	○	○
g	Cut down on fats and/or sugars	○	○	○	○	○	○
h	Cut out meals (fasted)	○	○	○	○	○	○
i	Smoking	○	○	○	○	○	○
j	I have not used any of these methods ○						

Q51

A: Do you EXCLUDE any of the following food groups from your diet? *(Mark all that apply)*	YES	B: If YES, how long have you been excluding this food group? *(Mark all that apply)* LESS THAN 1 YEAR	1 - 5 YEARS	MORE THAN 5 YEARS
a Red meat (beef, lamb, pork)	○	○	○	○
b Fish	○	○	○	○
c Poultry	○	○	○	○
d Eggs, milk and milk products	○	○	○	○
e I do not exclude any of these food groups	○			

Q52 During the PAST 4 WEEKS, how many different types of medication (eg tablets or medicine) have you used which were: *(Mark all that apply)*

	ONE	TWO	THREE	4 OR MORE
a Prescription medication for your nerves (eg Valium, Serapax, Ducene etc)	○	○	○	○
b Prescription medication to help you sleep (eg Normison, Mogadon etc)	○	○	○	○
c Prescription medication for depression (eg Prozac, Aropax etc)	○	○	○	○
d Other medication prescribed by a doctor (excluding the oral contraceptive pill)	○	○	○	○
e Other medication bought without a prescription at the chemist, supermarket or health food shop	○	○	○	○
f None of these medications ○				

You are half way through

The following sections are about other health habits, time use, your relationships and your future.

Often, there are no 'right' or 'wrong' answers - we are interested only in your opinion or feelings.

If you feel uncomfortable about answering a question, just leave it and go on to the next one, but please try to finish the survey if you can.

You may like to take a break now and do the second part later.

Q53 How often do you currently smoke cigarettes or any tobacco products? *(Mark one only)*

- ○ Daily → go to Q54a
- ○ At least weekly (but not daily) → go to Q54b
- ○ Less often than weekly
- ○ Not at all

→ go to Q55

Q54 *a* If you smoke daily, on average how many cigarettes do you smoke EACH DAY?

PRINT the number in the box

☐☐☐ cigarettes per day → go to Q58

b If you smoke, but not daily, on average how many cigarettes do you smoke PER WEEK?

PRINT the number in the box

☐☐☐ cigarettes per week

Q55 In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q59

Q56 Have you ever smoked daily? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q59

Q57 At what age did you finally stop smoking daily?

PRINT the number in the box

☐☐ years old

Q58 At what age did you start smoking daily?

PRINT the number in the box

☐☐ years old

Q59 How often do you usually drink alcohol? *(Mark one only)*

- ○ I never drink alcohol → go to Q62
- ○ Less than once a month
- ○ Less than once a week
- ○ On 1 or 2 days a week
- ○ On 3 or 4 days a week
- ○ On 5 or 6 days a week
- ○ Every day

Q60 On a day when you drink alcohol, how many standard drinks do you usually have? *(Mark one only)*

- ○ 1 or 2 drinks per day
- ○ 3 or 4 drinks per day
- ○ 5 to 8 drinks per day
- ○ 9 or more drinks per

Q61 How often do you have five or more standard drinks of alcohol on one occasion? *(Mark one only)*

- ○ Never
- ○ Less than once a month
- ○ About once a month
- ○ About once a week
- ○ More than once a week

Remember that any information you give us is kept confidential.

Q62 **The following question asks about the use of drugs for NON-MEDICINAL purposes.**
We want to know about general patterns of use. Please do not give details of specific instances of use.

If you have NEVER used any of these drugs, mark here → ○ **and go to Q65**

If "yes" to I, please answer II and III. *(Mark all that apply)*

		I HAVE YOU EVER TRIED THIS? MARK IF YES	II AT ABOUT WHAT AGE DID YOU FIRST TRY THIS?	III HAVE YOU USED IT IN THE LAST 12 MONTHS? MARK IF YES
a	Marijuana (cannabis, hash, grass, dope, pot, yandi)	○	□□	○
b	Analgesics (eg Aspirin, Paracetamol, Mersyndol)	○	□□	○
c	Amphetamines (eg speed, uppers, methylamphetamine, MDA)	○	□□	○
d	LSD (acid, trips)	○	□□	○
e	Natural hallucinogens (eg magic mushrooms)	○	□□	○
f	Tranquillisers (eg tranks, sleepers, Mandrax, Serapax, Rohypnol)	○	□□	○
g	Cocaine (coke, crack, blow)	○	□□	○
h	Ecstasy/designer drugs (eg E, eccies, MDMA)	○	□□	○
i	Inhalants (eg glue, petrol, solvents)	○	□□	○
j	Heroin (smack, junk)	○	□□	○
k	Barbiturates (eg barbs, downers, purple hearts)	○	□□	○
l	Steroids	○	□□	○

Q63 **Have you ever:** *(Mark one on each line)*

		YES	NO	DON'T WANT TO ANSWER
a	Injected yourself with illegal drugs?	○	○	○
b	Shared a needle?	○	○	○

Q64 **Have you ever used any of the drugs listed above in combination with:** *(Mark one on each line)*

		YES	NO	DON'T WANT TO ANSWER
a	Alcohol	○	○	○
b	Marijuana	○	○	○

The next two questions are about the amount of physical activity you did LAST WEEK.

Q65 How many times did you do each type of activity LAST WEEK?
Only count the number of times when the activity lasted for 10 minutes or more.
*(If you did **not** do an activity, please write "0" in the box.)*

PRINT the number in the box

a **Walking briskly** (for recreation or exercise, or to get from place to place) ☐☐ times

b **Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing) ☐☐ times

c **Vigorous leisure activity** (that makes you breathe harder or puff and pant, like aerobics, competitive sport, vigorous cycling, running, swimming) ☐☐ times

d **Vigorous household or garden chores** (that make you breathe harder or puff and pant) ☐☐ times

Q66 If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity?
(If you did not do an activity, please write "0" in the box.)

a **Walking briskly** (for recreation or exercise, or to get from place to place) ☐☐ hours ☐☐ minutes

b **Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing) ☐☐ hours ☐☐ minutes

c **Vigorous leisure activity** (that makes you breathe harder or puff and pant, like aerobics, competitive sport, vigorous cycling, running, swimming) ☐☐ hours ☐☐ minutes

d **Vigorous household or garden chores** (that make you breathe harder or puff and pant) ☐☐ hours ☐☐ minutes

Now think about all of the time you spend sitting during EACH DAY while at home, at work, while getting from place to place or during your spare time.

Q67 How many hours in total do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television, or working at a desk or computer?

a On a usual week **DAY** ☐☐ hours ☐☐ minutes

b On a usual weekend **DAY** ☐☐ hours ☐☐ minutes

women's health is about how you feel about yourself

Q68 **Please indicate how often each of these statements apply to you:**
(Mark one on each line)

		NEVER	RARELY	SOMETIMES	OFTEN
a	I can usually depend on others	○	○	○	○
b	I am a very organised person	○	○	○	○
c	Sometimes I wonder who I really am	○	○	○	○
d	I have experienced some very close friendships	○	○	○	○
e	My religious or spiritual beliefs are stronger now than they have ever been	○	○	○	○
f	When faced with a problem, I am very good at developing various solutions	○	○	○	○
g	When faced with a task, I like to apply myself fully	○	○	○	○
h	I derive great pleasure in watching a child master a new skill	○	○	○	○
i	Most conflicts between people can be resolved by discussion	○	○	○	○
j	I am quite self-sufficient	○	○	○	○
k	In general, I know what I want out of life	○	○	○	○
l	I often feel lonely even when there are others around me	○	○	○	○
m	Life has been good to me	○	○	○	○
n	I prefer a job that requires little initiative*	○	○	○	○
o	I genuinely enjoy work*	○	○	○	○
p	Planning for future generations is very important	○	○	○	○

** 'Job' and 'work' may refer to paid or unpaid work, volunteer work, or any other task or chore which occupies your time.*

Q69 **Thinking about your current approach to life, please indicate how much you think each statement describes you:**
(Mark one on each line)

		STRONGLY DISAGREE	DIS-AGREE	NEUTRAL	AGREE	STRONGLY AGREE
a	In uncertain times, I usually expect the best	○	○	○	○	○
b	If something can go wrong for me, it will	○	○	○	○	○
c	I'm always optimistic about my future	○	○	○	○	○
d	I hardly ever expect things to go my way	○	○	○	○	○
e	I rarely count on good things happening to me	○	○	○	○	○
f	Overall, I expect more good things to happen to me than bad	○	○	○	○	○

Q70 Have you experienced any of the following events?
(Mark all that apply)

		A YES, IN THE LAST 12 MONTHS	B YES, MORE THAN 12 MONTHS AGO
a	Major personal illness	○	○
b	Major personal injury	○	○
c	Major surgery (not including dental work)	○	○
d	Birth of your first child	○	○
e	Birth of your second or later child	○	○
f	Having a child with a disability or serious illness	○	○
g	Starting a new, close personal relationship	○	○
h	Getting married (or starting to live with someone)	○	○
i	Problem or break-up in a close personal relationship	○	○
j	Divorce or separation	○	○
k	Becoming a sole parent	○	○
l	Increased hassles with parents	○	○
m	Serious conflict between members of your family	○	○
n	Parents getting divorced, separated or remarried	○	○
o	Death of partner or close family member	○	○
p	Death of a child	○	○
q	Stillbirth of a child	○	○
r	Miscarriage	○	○
s	Death of a close friend	○	○
t	Leaving home for the first time	○	○
u	Difficulty finding a job	○	○
v	Return to study	○	○
w	Beginning/resuming work outside the home	○	○
x	Change in your type of work/hours/conditions/responsibilities at work	○	○
y	Distressing harassment at work	○	○
z	Loss of job	○	○
aa	Partner losing a job	○	○
bb	Parent losing a job	○	○
cc	Decreased income	○	○
dd	Natural disaster (fire, flood, drought, earthquake etc) or house fire	○	○
ee	Major loss or damage to personal property	○	○
ff	Being robbed	○	○
gg	Involvement in a serious accident	○	○
hh	Being pushed, grabbed, shoved, kicked or hit	○	○
ii	Being forced to take part in unwanted sexual activity	○	○
jj	Legal troubles or involvement in a court case	○	○
kk	Family member/close friend being arrested/in gaol	○	○
ll	None of these events	○	

Q71 Over the LAST 12 MONTHS, how stressed have you felt about the following areas of your life: *(Mark one on each line)*

		NOT APPLICABLE	NOT AT ALL STRESSED	SOMEWHAT STRESSED	MODERATELY STRESSED	VERY STRESSED	EXTREMELY STRESSED
a	Own health	○	○	○	○	○	○
b	Health of family members	○	○	○	○	○	○
c	Work/employment	○	○	○	○	○	○
d	Living arrangements	○	○	○	○	○	○
e	Study	○	○	○	○	○	○
f	Money	○	○	○	○	○	○
g	Relationship with parents	○	○	○	○	○	○
h	Relationship with partner/spouse	○	○	○	○	○	○
i	Relationship with other family members	○	○	○	○	○	○
j	Relationship with friends	○	○	○	○	○	○

Q72 Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way DURING THE LAST WEEK. *(Mark one on each line)*

		RARELY OR NONE OF THE TIME (less than 1 day)	SOME OR A LITTLE OF THE TIME (1 - 2 days)	OCCASIONALLY OR A MODERATE AMOUNT OF THE TIME (3 - 4 days)	MOST OR ALL OF THE TIME (5 - 7 days)
a	I was bothered by things that don't usually bother me	○	○	○	○
b	I had trouble keeping my mind on what I was doing	○	○	○	○
c	I felt depressed	○	○	○	○
d	I felt that everything I did was an effort	○	○	○	○
e	I felt hopeful about the future	○	○	○	○
f	I felt fearful	○	○	○	○
g	My sleep was restless	○	○	○	○
h	I was happy	○	○	○	○
i	I felt lonely	○	○	○	○
j	I could not 'get going'	○	○	○	○
k	I felt terrific	○	○	○	○

Q73 In the PAST WEEK, have you been feeling that life isn't worth living? *(Mark one only)*

○ Yes ○ No

Q74 In the PAST 6 MONTHS have you EVER deliberately hurt yourself or done anything that you knew might have harmed or even killed you? *(Mark one only)*

○ Yes ○ No

If you answered YES to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 131114 (local call).

women's health is about juggling time

Q75 In the LAST WEEK, how much time in total did you spend doing the following things?
(Mark one on each line)

	I DON'T DO THIS ACTIVITY	1 - 15 HOURS	16 - 24 HOURS	25 - 34 HOURS	35 - 40 HOURS	41 - 48 HOURS	49 HOURS OR MORE
a Full time paid work	○	○	○	○	○	○	○
b Permanent part-time paid work	○	○	○	○	○	○	○
c Casual paid work	○	○	○	○	○	○	○
d Home duties (own/family home)	○	○	○	○	○	○	○
e Work without pay (eg family business)	○	○	○	○	○	○	○
f Studying	○	○	○	○	○	○	○
g Unpaid voluntary work	○	○	○	○	○	○	○
h Active leisure (eg sport)	○	○	○	○	○	○	○
i Passive leisure (eg TV, reading)	○	○	○	○	○	○	○

Q76 Do you normally do any of the following kinds of work?
(Mark all that apply)

- a ○ Paid shift work
- b ○ Paid work at night
- c ○ Paid work from home
- d ○ Run your own business
- e ○ None of the above

Q77 Are you happy with the number of hours of paid work you do?
(Mark one only, even if you have no paid work)

- ○ Yes, happy as is → go to Q80
- ○ No, would like to do more → go to Q79
- ○ No, would like to do less → go to Q78

Q78 What is the main reason you would like to do fewer hours of paid work?
(Mark one only)

- ○ Child care
- ○ Other family reasons
- ○ Health reasons
- ○ Would like more time for leisure/for myself/to do other things

→ go to Q80

Q79 What is the MAIN reason you do not do more hours of paid work?
(Mark one only)

- ○ Can't find a suitable job (eg with right hours/suits my skills/nearby)
- ○ Child care
- ○ Other family reasons
- ○ Health reasons
- ○ My spouse/partner prefers I don't work (more)
- ○ Language difficulties

Q80 Do you regularly provide unpaid care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty?
(Mark one only)

- ○ Yes
- ○ No

Q81 Managing time is often difficult. How often do you feel:
(Mark one on each line)

	EVERY DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	NEVER
a That you are rushed, pressured, too busy?	○	○	○	○	○
b That you have time on your hands that you don't know what to do with?	○	○	○	○	○

The next questions apply only if you have a child or children.
If you have no children, please go to Question 84.

Q82 Most parents need someone to care for their children when they cannot.
How satisfied are you with your child care arrangements? *(Mark one only)*

- ○ Very satisfied ○ Satisfied ○ Dissatisfied ○ Very dissatisfied
- ○ Not applicable → go to Q84

Q83 How often did you use child care in the LAST WEEK?
(Mark one in each column if applicable)

	A FORMAL CARE (eg long day care, pre-school, occasional care)	B INFORMAL CARE (eg family, friends, paid babysitter)
Less than 5 hours per week	○	○
5 - 10 hours	○	○
11 - 20 hours	○	○
21 - 30 hours	○	○
More than 30 hours	○	○

women's health is about family and friends

Q84 Who lives with you? *(Mark all that apply)*

		Yes	
a	☐	No-one, I live alone
b	☐	Partner/spouse
c	☐	Own children
d	☐	Someone else's children
e	☐	Mother
f	☐	Father
g	☐	Step-mother/step-father
h	☐	Brothers/sisters
i	☐	Other adult relatives
j	☐	Other adults who are not family members
k	☐	I live in group accommodation (eg hall of residence, hostel etc)

If you have no children living with you, go to Q86.

Q85 If you have children living with you (your own or your partner's), how many are:
(Mark one on each line)

		NONE	ONE	TWO	THREE	FOUR OR MORE
a	Under 12 months	○	○	○	○	○
b	12 months - 5 years	○	○	○	○	○
c	6 - 12 years	○	○	○	○	○
d	13 - 16 years	○	○	○	○	○

Q86 These questions are about getting on with other people. *(Mark all that apply)*

		Yes	
a	☐	Has anyone close to you tried to hurt you or harm you recently?
b	☐	Are you sad or lonely often?
c	☐	Do you feel that nobody wants you around?
d	☐	Does anyone in your family drink a lot of alcohol?
e	☐	Are you afraid of anyone in your family?
f	☐	Do you have enough privacy at home?
g	☐	Have you ever been in a violent relationship with a partner/spouse?
h	☐	Has anyone close to you called you names or put you down or made you feel bad recently?
i	☐	None of the above

Q87 This question is about your relationship status based on your current living arrangements. Are you: *(Mark one only)*

- ☐ Living in a registered marriage
- ☐ Living in a de facto relationship
- ☐ Not married

Q88 What is your FORMAL registered marital status?
(Mark one only)

- ○ Never married
- ○ Married
- ○ Separated
- ○ Divorced
- ○ Widowed

Q89 People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?
(Mark one on each line)

	NONE OF THE TIME	A LITTLE OF THE TIME	SOME OF THE TIME	MOST OF THE TIME	ALL OF THE TIME
a Someone to help you if you are confined to bed	○	○	○	○	○
b Someone to take you to the doctor if you need it	○	○	○	○	○
c Someone to share your most private worries and fears with	○	○	○	○	○
d Someone to turn to for suggestions about how to deal with a personal problem	○	○	○	○	○
e Someone to do something enjoyable with	○	○	○	○	○
f Someone to love and make you feel wanted	○	○	○	○	○

Q90 Have you EVER experienced any form of physical, mental, emotional or sexual abuse or violence, either as a child, in an adult relationship, or at any other time?
(Mark one only)

- ○ Yes
- ○ No
- ○ Don't want to answer

→ go to Q92

Q91 If YES, was the violence/abuse you experienced:
(Mark all that apply)

Yes

- a ○ **Physical abuse** (eg pushed, grabbed, kicked, hit, shoved, slapped, shaken, restrained)
- b ○ **Severe physical violence** (eg beaten up, thrown, choked, burnt, threatened or attacked with a fist, knife or gun)
- c ○ **Emotional abuse** (eg called names, threats to harm or kill, humiliated, bullied, criticised, locked up/isolated, refused access to work, medical care or money, told that your children or pets would be harmed)
- d ○ **Sexual abuse** (eg rape or attempted rape, sexual assault, fear of sexual assault, forced to engage in unwanted sexual practices)
- e ○ **Harassment** (eg stalking, loitering, interfering with property, offensive mail or telephone calls)

women's health is about you and your life

Q92 How often have you moved your place of residence in the PAST 3 YEARS? *(Mark one only)*

○ Never ○ Once ○ Twice ○ Three times or more

Q93 What is your postcode NOW?
(Write clearly in boxes provided) ☐☐☐☐

PLEASE LET US KNOW YOUR NEW ADDRESS OR AN ADDRESS WHERE WE CAN CONTACT YOU BY FILLING IN THE ENCLOSED CARD.

Q94 What is the HIGHEST qualification you have completed? *(Mark one only)*

- ○ No formal qualifications
- ○ Year 10 or equivalent (eg School Certificate)
- ○ Year 12 or equivalent (eg Higher School Certificate)
- ○ Trade/apprenticeship (eg hairdresser, chef)
- ○ Certificate/diploma (eg child care, technician)
- ○ University degree
- ○ Higher university degree (eg Grad Dip, Masters, PhD)

Q95 We would like to know YOUR main occupation NOW and that of both your main caregivers while you were growing up. (If you are a student, mark the occupation you are studying for.)
(Mark one in each column)

	A SELF	B MOTHER / STEP-MOTHER	C FATHER / STEP-FATHER
Manager or administrator (eg magistrate, farm manager, general manager, director of nursing, school principal)	○	○	○
Professional (eg scientist, doctor, registered nurse, allied health professional, teacher, artist)	○	○	○
Associate professional (eg technician, manager, youth worker, police officer)	○	○	○
Tradesperson or related worker (eg hairdresser, gardener, florist)	○	○	○
Advanced clerical or service worker (eg secretary, personal assistant, flight attendant, law clerk)	○	○	○
Intermediate clerical, sales or service worker (eg typist, word processing/data entry operator, receptionist, child care worker, nursing assistant, hospitality worker)	○	○	○
Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver)	○	○	○
Elementary clerical, sales or service worker (eg filing/mail clerk, parking inspector, sales assistant, telemarketer, housekeeper)	○	○	○
Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand)	○	○	○
No paid job	○	○	○
Don't know or not applicable		○	○

Q96 We are interested in the HIGHEST educational qualification of your parents (or other main caregivers while you were growing up).
(Mark one on each line)

	NOT APPLICABLE / DON'T KNOW	UP TO YEAR 10 OR EQUIVALENT	UP TO YEAR 12 OR EQUIVALENT	TRADE QUALIFICATION	CERTIFICATE / DIPLOMA	DEGREE	HIGHER DEGREE
a Mother or step-mother	○	○	○	○	○	○	○
b Father or step-father	○	○	○	○	○	○	○

Q97 Have you ever been unemployed and actively seeking work? *(Mark one only)*

- ○ No, never
- ○ Yes, for a total of less than 6 months
- ○ Yes, for a total of 6 months to 12 months
- ○ Yes, more than 12 months

Q98 *a* What is the average gross *(before tax)* income that you receive each week, including pensions, allowances and financial support from parents?

b What is the average gross *(before tax)* income of your household (eg you and your partner, or you and your parents sharing a house)?
(Mark one for yourself and one for your household)

	A SELF	B HOUSEHOLD
No income	○	○
$1-$119 ($1-$6,239 annually)	○	○
$120-$299 ($6,240-$15,999 annually)	○	○
$300-$499 ($16,000-$25,999 annually)	○	○
$500-$699 ($26,000-$36,999 annually)	○	○
$700-$999 ($37,000-$51,999 annually)	○	○
$1,000-$1,499 ($52,000-$77,999 annually)	○	○
$1,500 or more ($78,000 or more annually)	○	○
Don't know	○	○
Don't want to answer	○	○
I live alone (household income is the same as mine)	○	

Q99 How many people (including yourself), are dependent on this household income?
(Write number in boxes)

Q100 What is your date of birth?
(Write date in boxes)

DAY	MONTH	YEAR
		1 9

women's health is about you and your future

Q101 When you are 35, would you like to be in: *(Mark one only)*

- ○ Full-time paid employment
- ○ Part-time paid employment
- ○ Full-time unpaid work in the home
- ○ Self-employed/own business

Q102 When you are 35, what would be your ideal job? (Please specify in this box)

Q103 When you are 35, would you like to be: *(Mark one only)*

- ○ Married
- ○ In a stable relationship but not married
- ○ Single (not in a stable relationship)

Q104 When you are 35, would you like to have: *(Mark one only)*

- ○ No children
- ○ 1 child
- ○ 2 children
- ○ 3 or more children

Q105 When you are 35, would you like to have more educational qualifications than you have now? *(Mark one only)*

- ○ Yes
- ○ No
- ○ Not sure

Q106 In general, how satisfied are you with what you have achieved in each of the following areas of your life? *(Mark one on each line)*

		VERY SATISFIED	SATISFIED	DIS-SATISFIED	VERY DISSATISFIED	NOT APPLICABLE
a	Work	○	○	○	○	
b	Career	○	○	○	○	
c	Study	○	○	○	○	
d	Family relationships	○	○	○	○	
e	Partner/closest personal relationship	○	○	○	○	
f	Friendships	○	○	○	○	
g	Social activities	○	○	○	○	
h	Motherhood/children	○	○	○	○	○

Have we missed anything?

If you have ANYTHING else you would like to tell us, please write on the lines below.

Thank you for taking the time to complete this survey.

If you need help to answer any of the questions, ring our Freecall number 1800 068 081.

When you have completed the survey, please sign the next page and send the survey back to us as soon as possible. We will detach the consent form and store it in a separate locked room.

Please let us know your new details if you move, change your name or your telephone number.

If you have any questions you can contact us by telephoning
1800 068 081 (This is a FREECALL number)
or writing to us.

CONSENT

I consent to the researchers 'matching' the information provided in this survey with that provided in the first survey (1996) so that any changes in my health during the last four years can be noted.

Signature: _____ Date: _____

Help us keep in touch!

Sometimes we lose touch with our participants. It would be helpful if you could give us details of parents, a relative or friend who will be able to help us find you.

Name: _____

Address: _____

Postcode: _____

Home Phone: _____ Relationship to you: _____

Name: _____

Address: _____

Postcode: _____

Home Phone: _____ Relationship to you: _____

Please complete this box if you have filled in this survey on someone else's behalf. This helps us to keep our records as accurate as possible.

Your name: _____

Relationship to participant: _____

Reason: _____

Thank you for taking the time to fill in this survey.

Australian Longitudinal Study on Women's Health
The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4921 8609. Fax: 02 4921 7415. Email: whasec@mail.newcastle.edu.au
Web: http://u2.newcastle.edu.au/wha

APPENDIX G SURVEY 3 (2003) FOR THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH 1973-78 COHORT (25-30 YEARS)

ID

How to complete this survey

This is the second "main" survey for women in their 20's. As the purpose of the project is to look at changes over time, some of the questions are the same as those in the first survey.

Instructions:

- Use a blue/black biro or 2B pencil
- Do not fold or bend
- Erase mistakes fully
- Make no stray marks

Please MARK LIKE THIS: ○ ● ○ ○

Please answer every question you can. If you are unsure about how to answer a question, mark the response for the closest answer to how you feel.

Please read the instructions above each question very carefully. Some require you to only answer those options which are applicable to you. Other questions require you to mark one answer on each line. The questions may also refer to different time periods.

Please write any comments or important information on page 29 only. We are not able to read comments written throughout the survey.

Example 1:

In general, would you say your health is:
(Mark one only)

- ○ Excellent
- ○ Very good
- ● Good - *You would mark this one if you think your health is good*
- ○ Fair
- ○ Poor

Example 2:

What is your postcode?
(PRINT clearly in the boxes) 2 3 0 8

If you need help to answer any questions, please ring 1800 068 081 (This is a FREECALL number)

- *If you are concerned about any of your health experiences and would like some help, please contact:*
  - *Your nearest Women's Health Centre or Community Health Centre;*
  - *Your general practitioner for advice about who would be the best person in your community for you to talk to.*
- *If you feel distressed NOW and would like someone to talk to, you could ring Lifeline on 131114 (local call).*

women's health is about using health services

Q1 How many times have you consulted a family doctor or another general practitioner (GP) for YOUR OWN HEALTH in the LAST 12 MONTHS for:
(Mark one on each line)

	NONE	ONCE	TWICE	3 TIMES	4 TIMES	5 - 6 TIMES	7 - 9 TIMES	10 - 12 TIMES	MORE THAN 12 TIMES
a Pap tests, contraception, routine pregnancy checks	○	○	○	○	○	○	○	○	○
b All other reasons	○	○	○	○	○	○	○	○	○

Q2 How many times have you consulted a specialist doctor for YOUR OWN HEALTH in the LAST 12 MONTHS?
(Mark one on each line)

	NONE	ONCE	TWICE	3 TIMES	4 TIMES	5 - 6 TIMES	7 - 9 TIMES	10 - 12 TIMES	MORE THAN 12 TIMES
a Pap tests, contraception, routine pregnancy checks	○	○	○	○	○	○	○	○	○
b All other reasons	○	○	○	○	○	○	○	○	○

Q3 Have you consulted the following people for YOUR OWN HEALTH in the LAST 12 MONTHS?
(Mark all that apply)

	Yes	
a	○	A hospital doctor (eg in outpatients or casualty)
b	○	An allied health professional (eg optician, dentist, physiotherapist, counsellor etc)
c	○	An "alternative" health practitioner (eg naturopath, acupuncturist, herbalist etc)
d	○	A family planning service
e	○	A sexual health service
f	○	None of these people

Q4 Have you been admitted to hospital in the LAST 12 MONTHS for any of these reasons?
(Mark all that apply)

a	○	Normal childbirth
b	○	Problems during pregnancy
c	○	All other reasons
d	○	Not admitted

Q5 When you go to a General Practitioner:
(Mark one on each line)

	ALWAYS	MOST OF THE TIME	SOME-TIMES	RARELY OR NEVER
a Do you go to the same place?	○	○	○	○
b Do you usually see the same doctor?	○	○	○	○

Q6 **Here are some questions about your MOST RECENT VISIT to a general practitioner. In terms of your SATISFACTION, how would you rate each of the following:** *(Mark one on each line)*

		EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
a	How long you waited to get an appointment	○	○	○	○	○
b	Length of time you waited in the waiting room	○	○	○	○	○
c	The amount of time you spent with the doctor	○	○	○	○	○
d	The doctor's explanation of your problem and treatment	○	○	○	○	○
e	The doctor's interest in how you felt about having the tests, treatment or the advice given	○	○	○	○	○
f	Your opportunity to ask all the questions you wanted	○	○	○	○	○
g	The technical skills (thoroughness, carefulness, competence) of the doctor	○	○	○	○	○
h	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	○	○	○	○	○
i	The cost to you of the visit	○	○	○	○	○
	(Mark here if NO COST) ⟹ ○					
j	The visit overall	○	○	○	○	○

Q7 **In general, do you prefer to see a female doctor?** *(Mark one only)*

○ Yes, always ○ Yes, but only for certain things ○ No ○ Don't care

Q8 **Thinking about YOUR OWN HEALTH CARE, how would you rate the following now:** *(Mark one on each line)*

		EXCELLENT	VERY GOOD	GOOD	FAIR	POOR	DON'T KNOW
a	Access to medical specialists if you need them	○	○	○	○	○	○
b	Access to a hospital if you need it	○	○	○	○	○	○
c	Access to after-hours medical care	○	○	○	○	○	○
d	Access to a GP who bulk bills	○	○	○	○	○	○
e	Access to a female GP	○	○	○	○	○	○
f	Hours when a GP is available	○	○	○	○	○	○
g	Number of GPs you have to choose from	○	○	○	○	○	○
h	Ease of seeing the GP of your choice	○	○	○	○	○	○
i	Ease of obtaining a Pap test	○	○	○	○	○	○
j	Access to a counselling service if you need it	○	○	○	○	○	○
k	Access to a Women's Health Centre or a Family Planning Centre	○	○	○	○	○	○

Q9 **Do you have a Health Care Card?** *This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card. (Mark one only)*

○ Yes ○ No

Q10 Do you have private health insurance for hospital cover? If not, mark the main reason why. *(Mark one only)*

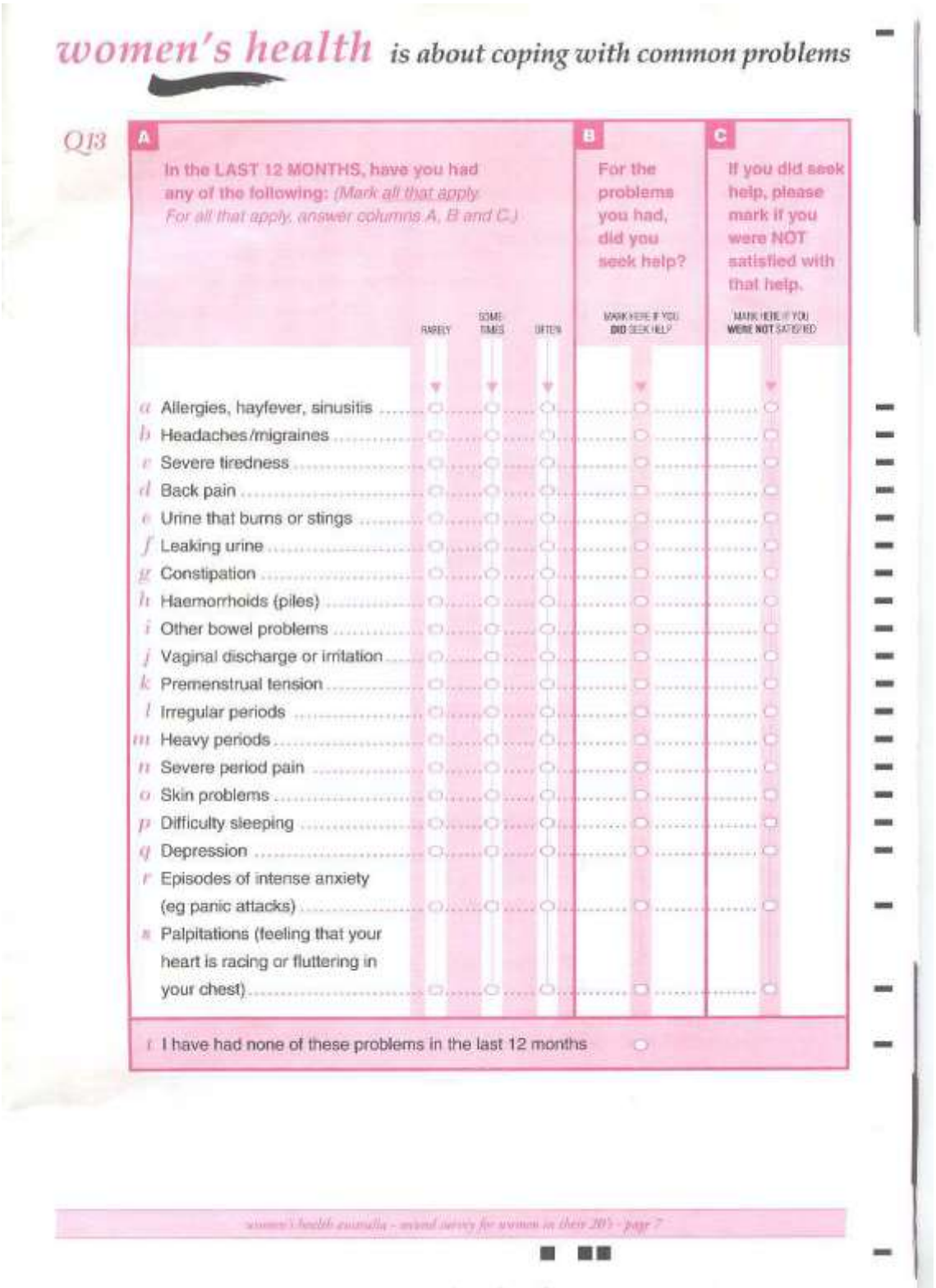
- ○ Yes
- ○ No - because I can't afford the cost
- ○ No - because I don't think you get value for money
- ○ No - because I don't think I need it
- ○ No - other reason

Q11 Do you have private health insurance for ancillary services (eg dental, physiotherapy)? If not, mark the main reason why. *(Mark one only)*

- ○ Yes
- ○ No - because I can't afford the cost
- ○ No - because I don't think you get value for money
- ○ No - because I don't think I need it
- ○ No - because the services are not available where I live
- ○ No - other reason

Q12 Have you ever been told by a doctor that you have: *(Mark all that apply)*

		A YES, IN THE LAST 4 YEARS	B YES, MORE THAN 4 YEARS AGO
a	Gestational diabetes (during pregnancy)	○	○
b	Insulin dependent (Type I) diabetes	○	○
c	Non-insulin dependent (Type II) diabetes	○	○
d	Heart disease	○	○
e	Hypertension (high blood pressure) during pregnancy	○	○
f	Hypertension (high blood pressure) other than during pregnancy	○	○
g	Low iron (iron deficiency or anaemia)	○	○
h	Asthma	○	○
i	Postnatal depression	○	○
j	Depression (not postnatal)	○	○
k	Anxiety disorder	○	○
l	Endometriosis	○	○
m	Urinary tract infection	○	○
n	Chronic fatigue syndrome	○	○
o	Chlamydia	○	○
p	Genital herpes	○	○
q	Genital warts (HPV)	○	○
r	HIV or AIDS	○	○
s	Hepatitis B or C	○	○
t	Cancer *(Please specify on page 29)*	○	○
u	Other major illness *(Please specify on page 29)*	○	○
v	None of these conditions	○	



women's health *is about coping with common problems*

Q13

	A: In the LAST 12 MONTHS, have you had any of the following: *(Mark all that apply. For all that apply, answer columns A, B and C.)* — RARELY	A — SOME TIMES	A — OFTEN	B: For the problems you had, did you seek help? — MARK HERE IF YOU DID SEEK HELP	C: If you did seek help, please mark if you were NOT satisfied with that help. — MARK HERE IF YOU WERE NOT SATISFIED
a Allergies, hayfever, sinusitis	○	○	○	○	○
b Headaches/migraines	○	○	○	○	○
c Severe tiredness	○	○	○	○	○
d Back pain	○	○	○	○	○
e Urine that burns or stings	○	○	○	○	○
f Leaking urine	○	○	○	○	○
g Constipation	○	○	○	○	○
h Haemorrhoids (piles)	○	○	○	○	○
i Other bowel problems	○	○	○	○	○
j Vaginal discharge or irritation	○	○	○	○	○
k Premenstrual tension	○	○	○	○	○
l Irregular periods	○	○	○	○	○
m Heavy periods	○	○	○	○	○
n Severe period pain	○	○	○	○	○
o Skin problems	○	○	○	○	○
p Difficulty sleeping	○	○	○	○	○
q Depression	○	○	○	○	○
r Episodes of intense anxiety (eg panic attacks)	○	○	○	○	○
s Palpitations (feeling that your heart is racing or fluttering in your chest)	○	○	○	○	○
t I have had none of these problems in the last 12 months	○				

women's health *is about how you are feeling*

The questions on this page ask only about NOW - how your health is NOW and about how your health limits certain activities NOW.

Q14 **In general, would you say your health is:**
(Mark one only)

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Q15 **Compared to one year ago, how would you rate your health in general now?**
(Mark one only)

- ○ Much better now than one year ago
- ○ Somewhat better now than one year ago
- ○ About the same as one year ago
- ○ Somewhat worse now than one year ago
- ○ Much worse now than one year ago

Q16 **The following questions are about activities you might do during a typical day. Does YOUR HEALTH NOW LIMIT YOU in these activities? If so, how much?**
(Mark one on each line)

		YES LIMITED A LOT	YES LIMITED A LITTLE	NO NOT LIMITED AT ALL
a	VIGOROUS activities such as running, lifting heavy objects, participating in strenuous sports	○	○	○
b	MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	○	○	○
c	Lifting or carrying groceries	○	○	○
d	Climbing SEVERAL flights of stairs	○	○	○
e	Climbing ONE flight of stairs	○	○	○
f	Bending, kneeling or stooping	○	○	○
g	Walking MORE THAN ONE kilometre	○	○	○
h	Walking HALF a kilometre	○	○	○
i	Walking 100 metres	○	○	○
j	Bathing or dressing yourself	○	○	○

Q17 During the PAST 4 WEEKS, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH?
(Mark one on each line)

		YES	NO
a	Cut down on the amount of time you spent on work or other activities	○	○
b	Accomplished less than you would like	○	○
c	Were limited in the kind of work or other activities	○	○
d	Had difficulty performing the work or other activities (for example it took extra effort)	○	○

Q18 During the PAST 4 WEEKS, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?
(Mark one on each line)

		YES	NO
a	Cut down on the amount of time you spent on work or other activities	○	○
b	Accomplished less than you would like	○	○
c	Didn't do work or other activities as carefully as usual	○	○

Q19 During the PAST 4 WEEKS, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?
(Mark one only)

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

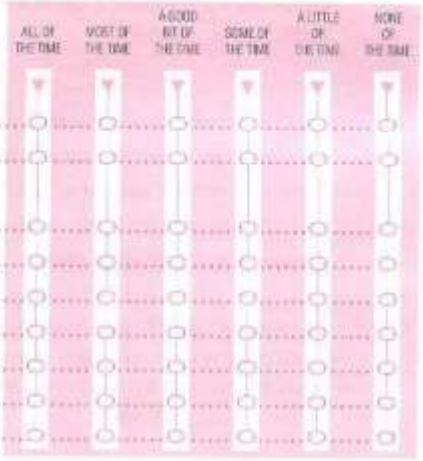
Q20 How much BODILY pain have you had during the PAST 4 WEEKS?
(Mark one only)

- ○ None
- ○ Very mild
- ○ Mild
- ○ Moderate
- ○ Severe
- ○ Very severe

Q21 During the PAST 4 WEEKS, how much did PAIN interfere with your normal work (including both work outside the home and housework)?
(Mark one only)

- ○ Not at all
- ○ A little bit
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

Q22 For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the PAST 4 WEEKS:
(Mark one on each line)

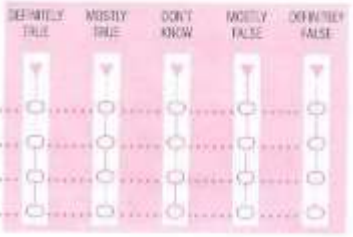


a Did you feel full of life
b Have you been a very nervous person
c Have you felt so down in the dumps that nothing could cheer you up
d Have you felt calm and peaceful
e Did you have a lot of energy
f Have you felt down
g Did you feel worn out
h Have you been a happy person
i Did you feel tired

Q23 During the PAST 4 WEEKS, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting friends, relatives, etc)? *(Mark one only)*

- ○ All of the time
- ○ Most of the time
- ○ Some of the time
- ○ A little of the time
- ○ None of the time

Q24 How TRUE or FALSE is EACH of the following statements for you?
(Mark one on each line)



a I seem to get sick a little easier than other people
b I am as healthy as anybody I know
c I expect my health to get worse
d My health is excellent

Q25 If you have any serious illness, condition or disability, please write in the box below.

Q26 Do you regularly NEED help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)? *(Mark one only)*

- ○ Yes
- ○ No

women's health is about sexual and reproductive health

Q27 What age were you when you had: *(Write age clearly in the boxes or mark one on each line)*

a Your first menstrual period ☐☐ yrs ○ Not applicable

b Your first sexual intercourse ☐☐ yrs ○ Not applicable

c Your first baby ☐☐ yrs ○ Not applicable

The next question applies only if you have ever had a baby.
If you have never had a baby, please go to Question 29.

Q28 How would you rate the help you had in the FIRST 3 MONTHS, with your first baby, from the following:
(Mark one on each line)

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR	NOT AVAILABLE	NOT NEEDED
a Partner	○	○	○	○	○	○	○
b Family	○	○	○	○	○	○	○
c Friends	○	○	○	○	○	○	○
d Health Services	○	○	○	○	○	○	○

Q29 In the PAST 3 MONTHS, about how many times have you had a menstrual period?
(Mark one only)

○ None ○ One ○ Two ○ Three ○ Four ○ Five or more

Q30 Which of these most closely describes your sexual orientation?
(Mark one only)

○ I am exclusively heterosexual
○ I am mainly heterosexual
○ I am bisexual
○ I am mainly homosexual (lesbian)
○ I am exclusively homosexual (lesbian)
○ I don't know
○ I don't want to answer

Q31 How many sexual partners have you had? *(Write a number in the box. Write '0' if none.)*

a Male sexual partners ☐ ○ Don't want to answer

b Female sexual partners ☐ ○ Don't want to answer

Q32 **Which of the following apply to you NOW:** *(Mark all that apply)*

Yes

- *a* ☐ I don't need to use any contraception (eg pregnant or no sex)
- *b* ☐ I choose not to use any contraception (eg want to be pregnant)
- *c* ☐ I use the oral contraceptive pill for contraception
- *d* ☐ I use the oral contraceptive pill for other reasons
- *e* ☐ I use condoms for contraception
- *f* ☐ I use condoms (or other barrier methods) for prevention of infection
- *g* ☐ I use another method of contraception

Q33 **For how many years in total have you EVER taken the oral contraceptive pill?** *(Mark one only)*

☐ Never ☐ 1 or less ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 or more

Q34 **Are you currently pregnant?** *(Mark one only)*

☐ Yes ☐ No ☐ Don't know

Q35 **How many times have you had each of the following?** *(Mark all that apply)*

	ONE	TWO	THREE	FOUR	5 OR MORE
a Live birth (more than 36 weeks)	☐	☐	☐	☐	☐
b Live premature birth (36 weeks or less)	☐	☐	☐	☐	☐
c Stillbirth	☐	☐	☐	☐	☐
d Miscarriage	☐	☐	☐	☐	☐
e Termination (abortion)	☐	☐	☐	☐	☐

Q36 **When did you last have a Pap test?** *A Pap test (for cervical cancer) is a routine test carried out by a doctor or nurse during an internal (vaginal) examination. (Mark one only)*

☐ I have never had a Pap test → go to Q38
☐ Less than 2 years ago
☐ 2 - 5 years ago
☐ More than 5 years ago
☐ Not sure

Q37 **Have you EVER had an abnormal Pap test?** *(Mark one only)*

☐ Yes ☐ No

Q38 **Have you and your partner (current or previous) ever had problems with infertility (that is, tried unsuccessfully to get pregnant for 12 months or more)?** *(Mark one only)*

☐ Never tried to get pregnant
☐ No problem with infertility
☐ Yes, but have not sought help/treatment
☐ Yes, and have sought help/treatment

women's health *is about health habits*

Q39 How tall are you without shoes? *(If you are not sure, please estimate)* ☐☐☐ cms **OR** ☐ ft ☐☐ ins

Q40 How much do you weigh without clothes or shoes? *(If you are not sure, please estimate)* ☐☐☐ kgs **OR** ☐☐ stones ☐☐☐ pounds

Q41 If you know your weight at birth, or can find out (eg ask your mother, or from your full birth certificate), write it here.

Birth weight ☐☐☐☐ grams **OR** ☐☐ pounds ☐☐ ounces

Q42 How much would you LIKE to weigh NOW? *(Mark one only)*

- ○ Happy as I am
- ○ 1 - 5 kg more
- ○ Over 5 kg more
- ○ 1 - 5 kg less
- ○ 6 - 10 kg less
- ○ Over 10 kg less

Q43 How often have you gone on a diet (that is, limited how much you ate) in order to lose weight DURING THE LAST YEAR? *(Mark one only)*

- ○ Never
- ○ 1 - 4 times
- ○ 5 - 10 times
- ○ More than 10 times
- ○ I am always on a diet to lose weight

Q44 Excluding pregnancy, in the last FOUR YEARS, how many times have you: *(Mark one on each line)*

	NEVER	1 - 2 TIMES	3 - 4 TIMES	5 OR MORE TIMES
a Lost 5 kg or more on purpose	○	○	○	○
b Lost 5 kg or more for any other reason	○	○	○	○
c Gained 5 kg or more which was previously lost on purpose	○	○	○	○

Q45 In the PAST MONTH, how dissatisfied have you felt about: *(Mark one on each line)*

	NOT AT ALL DISSATISFIED		SLIGHTLY DISSATISFIED		MODERATELY DISSATISFIED		MARKEDLY DISSATISFIED
a Your weight	○	○	○	○	○	○	○
b Your shape	○	○	○	○	○	○	○

Q46 Have there been times when you felt that you have eaten what other people would regard as an unusually large amount of food GIVEN THE CIRCUMSTANCES? *(Mark one only)*

○ Yes, in the past month ○ Yes, more than one month ago ○ No → IF NO, go to Q50

Q47 During these times of overeating, did you have a sense of having lost control over your eating, that is, feeling that you couldn't stop eating once you had started? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q50

Q48 During the PAST MONTH, how often would you have overeaten and experienced loss of control? *(Mark one only)*

○ Every day
○ 2 - 3 times a week
○ Once a week
○ Less than once a week

Q49 How long have you been doing this? *(Mark one only)*

○ 3 months or less ○ 4 - 6 months ○ More than 6 months

Q50

	A: In the LAST 12 MONTHS, have you used any of these methods to control your weight or shape? *(Mark all that apply)* *(For all that apply, answer columns A and B.)*	B: How often in the LAST MONTH did you use each of these methods to control your weight or shape? *(Mark all that apply)*				
		YES, IN THE LAST 12 MONTHS	EVERY DAY	2 - 3 TIMES A WEEK	ONCE A WEEK	LESS THAN ONCE A WEEK	NOT AT ALL
a	Vigorous exercise	○	○	○	○	○	○
b	Vomited on purpose after eating	○	○	○	○	○	○
c	Used laxatives, diuretics or diet pills	○	○	○	○	○	○
d	Attended commercial weight loss program (eg Weight Watchers, Jenny Craig)	○	○	○	○	○	○
e	Meal replacements or slimming products (eg Limmits, Herbalife)	○	○	○	○	○	○
f	Cut down on size of meals or between meal snacks	○	○	○	○	○	○
g	Cut down on fats and/or sugars	○	○	○	○	○	○
h	Cut out meals (fasted)	○	○	○	○	○	○
i	Smoking	○	○	○	○	○	○
j	I have not used any of these methods ○						

Q51

	A: Do you EXCLUDE any of the following food groups from your diet? *(Mark all that apply)*	YES	B: If YES, how long have you been excluding this food group? *(Mark all that apply)* LESS THAN 1 YEAR	1 - 5 YEARS	MORE THAN 5 YEARS
a	Red meat (beef, lamb, pork)	○	○	○	○
b	Fish	○	○	○	○
c	Poultry	○	○	○	○
d	Eggs, milk and milk products	○	○	○	○
e	I do not exclude any of these food groups	○			

Q52 During the PAST 4 WEEKS, how many different types of medication (eg tablets or medicine) have you used which were: *(Mark all that apply)*

		ONE	TWO	THREE	4 OR MORE
a	Prescription medication for your nerves (eg Valium, Serapax, Ducene etc)	○	○	○	○
b	Prescription medication to help you sleep (eg Normison, Mogadon etc)	○	○	○	○
c	Prescription medication for depression (eg Prozac, Aropax etc)	○	○	○	○
d	Other medication prescribed by a doctor (excluding the oral contraceptive pill)	○	○	○	○
e	Other medication bought without a prescription at the chemist, supermarket or health food shop	○	○	○	○
f	None of these medications ○				

You are half way through

The following sections are about other health habits, time use, your relationships and your future.

Often, there are no 'right' or 'wrong' answers - we are interested only in your opinion or feelings.

If you feel uncomfortable about answering a question, just leave it and go on to the next one, but please try to finish the survey if you can.

You may like to take a break now and do the second part later.

Q53 How often do you currently smoke cigarettes or any tobacco products? *(Mark one only)*

- ○ Daily → go to Q54a
- ○ At least weekly (but not daily) → go to Q54b
- ○ Less often than weekly
- ○ Not at all

→ go to Q55

Q54 *a* If you smoke daily, on average how many cigarettes do you smoke EACH DAY?

PRINT the number in the box

☐☐☐ cigarettes per day → go to Q58

b If you smoke, but not daily, on average how many cigarettes do you smoke PER WEEK?

PRINT the number in the box

☐☐☐ cigarettes per week

Q55 In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q59

Q56 Have you ever smoked daily? *(Mark one only)*

○ Yes ○ No → IF NO, go to Q59

Q57 At what age did you finally stop smoking daily?

PRINT the number in the box

☐☐ years old

Q58 At what age did you start smoking daily?

PRINT the number in the box

☐☐ years old

Q59 How often do you usually drink alcohol? *(Mark one only)*

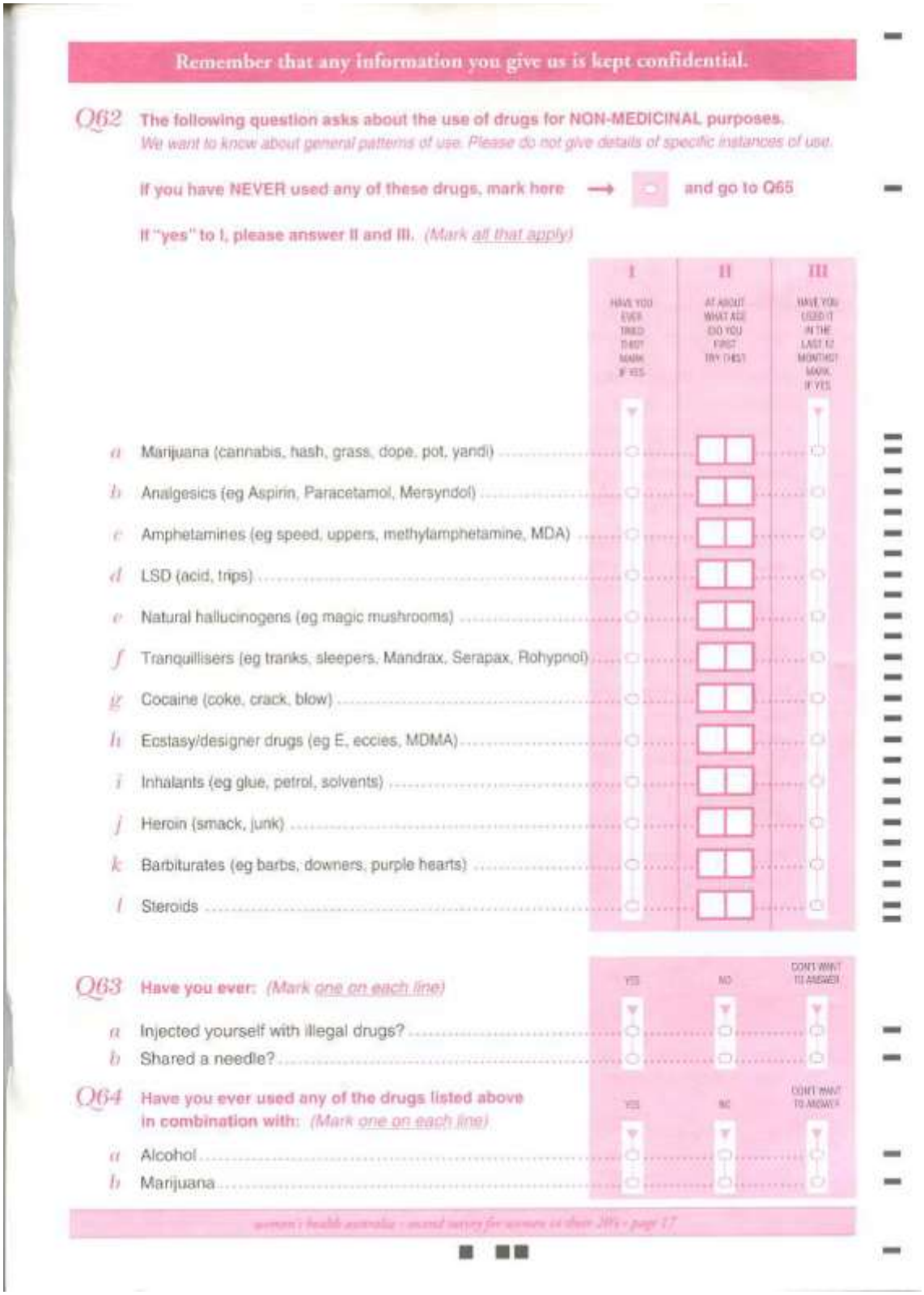
- ○ I never drink alcohol → go to Q62
- ○ Less than once a month
- ○ Less than once a week
- ○ On 1 or 2 days a week
- ○ On 3 or 4 days a week
- ○ On 5 or 6 days a week
- ○ Every day

Q60 On a day when you drink alcohol, how many standard drinks do you usually have? *(Mark one only)*

- ○ 1 or 2 drinks per day
- ○ 3 or 4 drinks per day
- ○ 5 to 8 drinks per day
- ○ 9 or more drinks per

Q61 How often do you have five or more standard drinks of alcohol on one occasion? *(Mark one only)*

- ○ Never
- ○ Less than once a month
- ○ About once a month
- ○ About once a week
- ○ More than once a week



Remember that any information you give us is kept confidential.

Q62 **The following question asks about the use of drugs for NON-MEDICINAL purposes.**
We want to know about general patterns of use. Please do not give details of specific instances of use.

If you have NEVER used any of these drugs, mark here → ○ **and go to Q65**

If "yes" to I, please answer II and III. *(Mark all that apply)*

	I HAVE YOU EVER TRIED THIS? MARK IF YES	II AT ABOUT WHAT AGE DID YOU FIRST TRY THIS?	III HAVE YOU USED IT IN THE LAST 12 MONTHS? MARK IF YES
a Marijuana (cannabis, hash, grass, dope, pot, yandi)	○	☐☐	○
b Analgesics (eg Aspirin, Paracetamol, Mersyndol)	○	☐☐	○
c Amphetamines (eg speed, uppers, methylamphetamine, MDA)	○	☐☐	○
d LSD (acid, trips)	○	☐☐	○
e Natural hallucinogens (eg magic mushrooms)	○	☐☐	○
f Tranquillisers (eg tranks, sleepers, Mandrax, Serapax, Rohypnol)	○	☐☐	○
g Cocaine (coke, crack, blow)	○	☐☐	○
h Ecstasy/designer drugs (eg E, eccies, MDMA)	○	☐☐	○
i Inhalants (eg glue, petrol, solvents)	○	☐☐	○
j Heroin (smack, junk)	○	☐☐	○
k Barbiturates (eg barbs, downers, purple hearts)	○	☐☐	○
l Steroids	○	☐☐	○

	YES	NO	CAN'T REMEMBER / DON'T WANT TO ANSWER
Q63 **Have you ever:** *(Mark one on each line)*			
a Injected yourself with illegal drugs?	○	○	○
b Shared a needle?	○	○	○
Q64 **Have you ever used any of the drugs listed above in combination with:** *(Mark one on each line)*			
a Alcohol	○	○	○
b Marijuana	○	○	○

The next two questions are about the amount of physical activity you did LAST WEEK.

Q65 **How many times did you do each type of activity LAST WEEK?**
Only count the number of times when the activity lasted for 10 minutes or more.
*(If you did **not** do an activity, please write "0" in the box.)*

PRINT the number in the box

a **Walking briskly** (for recreation or exercise, or to get from place to place) ..... ☐☐ times

b **Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing) ..... ☐☐ times

c **Vigorous leisure activity** (that makes you breathe harder or puff and pant, like aerobics, competitive sport, vigorous cycling, running, swimming) ..... ☐☐ times

d **Vigorous household or garden chores** (that make you breathe harder or puff and pant) ..... ☐☐ times

Q66 **If you add up all the times you spent in each activity LAST WEEK, how much time did you spend ALTOGETHER doing each type of activity?**
(If you did not do an activity, please write "0" in the box.)

a **Walking briskly** (for recreation or exercise, or to get from place to place) ..... ☐☐ hours ☐☐ minutes

b **Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing) ..... ☐☐ hours ☐☐ minutes

c **Vigorous leisure activity** (that makes you breathe harder or puff and pant, like aerobics, competitive sport, vigorous cycling, running, swimming) ..... ☐☐ hours ☐☐ minutes

d **Vigorous household or garden chores** (that make you breathe harder or puff and pant) ..... ☐☐ hours ☐☐ minutes

Now think about all of the time you spend sitting during EACH DAY while at home, at work, while getting from place to place or during your spare time.

Q67 **How many hours in total do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television, or working at a desk or computer?**

a On a usual week **DAY** ..... ☐☐ hours ☐☐ minutes

b On a usual weekend **DAY** ..... ☐☐ hours ☐☐ minutes

women's health is about how you feel about yourself

Q68 **Please indicate how often each of these statements apply to you:**
(Mark one on each line)

		NEVER	RARELY	SOMETIMES	OFTEN
a	I can usually depend on others	○	○	○	○
b	I am a very organised person	○	○	○	○
c	Sometimes I wonder who I really am	○	○	○	○
d	I have experienced some very close friendships	○	○	○	○
e	My religious or spiritual beliefs are stronger now than they have ever been	○	○	○	○
f	When faced with a problem, I am very good at developing various solutions	○	○	○	○
g	When faced with a task, I like to apply myself fully	○	○	○	○
h	I derive great pleasure in watching a child master a new skill	○	○	○	○
i	Most conflicts between people can be resolved by discussion	○	○	○	○
j	I am quite self-sufficient	○	○	○	○
k	In general, I know what I want out of life	○	○	○	○
l	I often feel lonely even when there are others around me	○	○	○	○
m	Life has been good to me	○	○	○	○
n	I prefer a job that requires little initiative*	○	○	○	○
o	I genuinely enjoy work*	○	○	○	○
p	Planning for future generations is very important	○	○	○	○

** 'Job' and 'work' may refer to paid or unpaid work, volunteer work, or any other task or chore which occupies your time.*

Q69 **Thinking about your current approach to life, please indicate how much you think each statement describes you:**
(Mark one on each line)

		STRONGLY DISAGREE	DIS-AGREE	NEITHER	AGREE	STRONGLY AGREE
a	In uncertain times, I usually expect the best	○	○	○	○	○
b	If something can go wrong for me, it will	○	○	○	○	○
c	I'm always optimistic about my future	○	○	○	○	○
d	I hardly ever expect things to go my way	○	○	○	○	○
e	I rarely count on good things happening to me	○	○	○	○	○
f	Overall, I expect more good things to happen to me than bad	○	○	○	○	○

Q70 Have you experienced any of the following events?
(Mark all that apply)

		A YES, IN THE LAST 12 MONTHS	B YES, MORE THAN 12 MONTHS AGO
a	Major personal illness	○	○
b	Major personal injury	○	○
c	Major surgery (not including dental work)	○	○
d	Birth of your first child	○	○
e	Birth of your second or later child	○	○
f	Having a child with a disability or serious illness	○	○
g	Starting a new, close personal relationship	○	○
h	Getting married (or starting to live with someone)	○	○
i	Problem or break-up in a close personal relationship	○	○
j	Divorce or separation	○	○
k	Becoming a sole parent	○	○
l	Increased hassles with parents	○	○
m	Serious conflict between members of your family	○	○
n	Parents getting divorced, separated or remarried	○	○
o	Death of partner or close family member	○	○
p	Death of a child	○	○
q	Stillbirth of a child	○	○
r	Miscarriage	○	○
s	Death of a close friend	○	○
t	Leaving home for the first time	○	○
u	Difficulty finding a job	○	○
v	Return to study	○	○
w	Beginning/resuming work outside the home	○	○
x	Change in your type of work/hours/conditions/responsibilities at work	○	○
y	Distressing harassment at work	○	○
z	Loss of job	○	○
aa	Partner losing a job	○	○
bb	Parent losing a job	○	○
cc	Decreased income	○	○
dd	Natural disaster (fire, flood, drought, earthquake etc) or house fire	○	○
ee	Major loss or damage to personal property	○	○
ff	Being robbed	○	○
gg	Involvement in a serious accident	○	○
hh	Being pushed, grabbed, shoved, kicked or hit	○	○
ii	Being forced to take part in unwanted sexual activity	○	○
jj	Legal troubles or involvement in a court case	○	○
kk	Family member/close friend being arrested/in gaol	○	○
ll	None of these events	○	

Q71 Over the LAST 12 MONTHS, how stressed have you felt about the following areas of your life: *(Mark one on each line)*

		NOT APPLICABLE	NOT AT ALL STRESSED	SOMEWHAT STRESSED	MODERATELY STRESSED	VERY STRESSED	EXTREMELY STRESSED
a	Own health	○	○	○	○	○	○
b	Health of family members	○	○	○	○	○	○
c	Work/employment	○	○	○	○	○	○
d	Living arrangements	○	○	○	○	○	○
e	Study	○	○	○	○	○	○
f	Money	○	○	○	○	○	○
g	Relationship with parents	○	○	○	○	○	○
h	Relationship with partner/spouse	○	○	○	○	○	○
i	Relationship with other family members	○	○	○	○	○	○
j	Relationship with friends	○	○	○	○	○	○

Q72 Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way DURING THE LAST WEEK. *(Mark one on each line)*

		RARELY OR NONE OF THE TIME (less than 1 day)	SOME OR A LITTLE OF THE TIME (1 - 2 days)	OCCASIONALLY OR A MODERATE AMOUNT OF THE TIME (3 - 4 days)	MOST OR ALL OF THE TIME (5 - 7 days)
a	I was bothered by things that don't usually bother me	○	○	○	○
b	I had trouble keeping my mind on what I was doing	○	○	○	○
c	I felt depressed	○	○	○	○
d	I felt that everything I did was an effort	○	○	○	○
e	I felt hopeful about the future	○	○	○	○
f	I felt fearful	○	○	○	○
g	My sleep was restless	○	○	○	○
h	I was happy	○	○	○	○
i	I felt lonely	○	○	○	○
j	I could not 'get going'	○	○	○	○
k	I felt terrific	○	○	○	○

Q73 In the PAST WEEK, have you been feeling that life isn't worth living? *(Mark one only)*

○ Yes ○ No

Q74 In the PAST 6 MONTHS have you EVER deliberately hurt yourself or done anything that you knew might have harmed or even killed you? *(Mark one only)*

○ Yes ○ No

If you answered YES to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 131114 (local call).

women's health is about juggling time

Q75 In the LAST WEEK, how much time in total did you spend doing the following things?
(Mark one on each line)

	I DON'T DO THIS ACTIVITY	1 - 15 HOURS	16 - 24 HOURS	25 - 34 HOURS	35 - 40 HOURS	41 - 48 HOURS	49 HOURS OR MORE
a Full time paid work	○	○	○	○	○	○	○
b Permanent part-time paid work	○	○	○	○	○	○	○
c Casual paid work	○	○	○	○	○	○	○
d Home duties (own/family home)	○	○	○	○	○	○	○
e Work without pay (eg family business)	○	○	○	○	○	○	○
f Studying	○	○	○	○	○	○	○
g Unpaid voluntary work	○	○	○	○	○	○	○
h Active leisure (eg sport)	○	○	○	○	○	○	○
i Passive leisure (eg TV, reading)	○	○	○	○	○	○	○

Q76 Do you normally do any of the following kinds of work?
(Mark all that apply)

- a ○ Paid shift work
- b ○ Paid work at night
- c ○ Paid work from home
- d ○ Run your own business
- e ○ None of the above

Q77 Are you happy with the number of hours of paid work you do?
(Mark one only, even if you have no paid work)

- ○ Yes, happy as is → go to Q80
- ○ No, would like to do more → go to Q79
- ○ No, would like to do less → go to Q78

Q78 What is the main reason you would like to do fewer hours of paid work?
(Mark one only)

- ○ Child care
- ○ Other family reasons
- ○ Health reasons
- ○ Would like more time for leisure/for myself/to do other things

→ go to Q80

Q79 What is the MAIN reason you do not do more hours of paid work?
(Mark one only)

- ○ Can't find a suitable job (eg with right hours/suits my skills/nearby)
- ○ Child care
- ○ Other family reasons
- ○ Health reasons
- ○ My spouse/partner prefers I don't work (more)
- ○ Language difficulties

Q80 Do you regularly provide unpaid care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty?
(Mark one only)

- ○ Yes
- ○ No

Q81 Managing time is often difficult. How often do you feel:
(Mark one on each line)

		EVERY DAY	A FEW TIMES A WEEK	ABOUT ONCE A WEEK	ABOUT ONCE A MONTH	NEVER
a	That you are rushed, pressured, too busy?	○	○	○	○	○
b	That you have time on your hands that you don't know what to do with?	○	○	○	○	○

The next questions apply only if you have a child or children.
If you have no children, please go to Question 84.

Q82 Most parents need someone to care for their children when they cannot.
How satisfied are you with your child care arrangements? *(Mark one only)*

- ○ Very satisfied ○ Satisfied ○ Dissatisfied ○ Very dissatisfied
- ○ Not applicable → go to Q84

Q83 How often did you use child care in the LAST WEEK?
(Mark one in each column if applicable)

	A FORMAL CARE (eg long day care, pre-school, occasional care)	B INFORMAL CARE (eg family, friends, paid babysitter)
Less than 5 hours per week	○	○
5 - 10 hours	○	○
11 - 20 hours	○	○
21 - 30 hours	○	○
More than 30 hours	○	○

women's health is about family and friends

Q84 Who lives with you? *(Mark all that apply)*

Yes

- a ○ No-one, I live alone
- b ○ Partner/spouse
- c ○ Own children
- d ○ Someone else's children
- e ○ Mother
- f ○ Father
- g ○ Step-mother/step-father
- h ○ Brothers/sisters
- i ○ Other adult relatives
- j ○ Other adults who are not family members
- k ○ I live in group accommodation (eg hall of residence, hostel etc)

If you have no children living with you, go to Q86.

Q85 If you have children living with you (your own or your partner's), how many are:
(Mark one on each line)

	NONE	ONE	TWO	THREE	FOUR OR MORE
a Under 12 months	○	○	○	○	○
b 12 months - 5 years	○	○	○	○	○
c 6 - 12 years	○	○	○	○	○
d 13 - 16 years	○	○	○	○	○

Q86 These questions are about getting on with other people. *(Mark all that apply)*

Yes

- a ○ Has anyone close to you tried to hurt you or harm you recently?
- b ○ Are you sad or lonely often?
- c ○ Do you feel that nobody wants you around?
- d ○ Does anyone in your family drink a lot of alcohol?
- e ○ Are you afraid of anyone in your family?
- f ○ Do you have enough privacy at home?
- g ○ Have you ever been in a violent relationship with a partner/spouse?
- h ○ Has anyone close to you called you names or put you down or made you feel bad recently?
- i ○ None of the above

Q87 This question is about your relationship status based on your current living arrangements. Are you: *(Mark one only)*

- ○ Living in a registered marriage
- ○ Living in a de facto relationship
- ○ Not married

Q88 What is your FORMAL registered marital status?
(Mark one only)

- Never married
- Married
- Separated
- Divorced
- Widowed

Q89 People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?
(Mark one on each line)

		NONE OF THE TIME	A LITTLE OF THE TIME	SOME OF THE TIME	MOST OF THE TIME	ALL OF THE TIME
a	Someone to help you if you are confined to bed					
b	Someone to take you to the doctor if you need it					
c	Someone to share your most private worries and fears with					
d	Someone to turn to for suggestions about how to deal with a personal problem					
e	Someone to do something enjoyable with					
f	Someone to love and make you feel wanted					

Q90 Have you EVER experienced any form of physical, mental, emotional or sexual abuse or violence, either as a child, in an adult relationship, or at any other time?
(Mark one only)

- Yes
- No
- Don't want to answer → go to Q92

Q91 If YES, was the violence/abuse you experienced:
(Mark all that apply)

	Yes	
a	○	**Physical abuse** (eg pushed, grabbed, kicked, hit, shoved, slapped, shaken, restrained)
b	○	**Severe physical violence** (eg beaten up, thrown, choked, burnt, threatened or attacked with a fist, knife or gun)
c	○	**Emotional abuse** (eg called names, threats to harm or kill, humiliated, bullied, criticised, locked up/isolated, refused access to work, medical care or money, told that your children or pets would be harmed)
d	○	**Sexual abuse** (eg rape or attempted rape, sexual assault, fear of sexual assault, forced to engage in unwanted sexual practices)
e	○	**Harassment** (eg stalking, loitering, interfering with property, offensive mail or telephone calls)

Q92 How often have you moved your place of residence in the PAST 3 YEARS? *(Mark one only)*

○ Never ○ Once ○ Twice ○ Three times or more

Q93 What is your postcode NOW?
(Write clearly in boxes provided)

PLEASE LET US KNOW YOUR NEW ADDRESS OR AN ADDRESS WHERE WE CAN CONTACT YOU BY FILLING IN THE ENCLOSED CARD.

Q94 What is the HIGHEST qualification you have completed? *(Mark one only)*

○ No formal qualifications
○ Year 10 or equivalent (eg School Certificate)
○ Year 12 or equivalent (eg Higher School Certificate)
○ Trade/apprenticeship (eg hairdresser, chef)
○ Certificate/diploma (eg child care, technician)
○ University degree
○ Higher university degree (eg Grad Dip, Masters, PhD)

Q95 We would like to know YOUR main occupation NOW and that of both your main caregivers while you were growing up. (If you are a student, mark the occupation you are studying for.)
(Mark one in each column)

	A SELF	B MOTHER / STEP-MOTHER	C FATHER / STEP-FATHER
Manager or administrator (eg magistrate, farm manager, general manager, director of nursing, school principal)	○	○	○
Professional (eg scientist, doctor, registered nurse, allied health professional, teacher, artist)	○	○	○
Associate professional (eg technician, manager, youth worker, police officer)	○	○	○
Tradesperson or related worker (eg hairdresser, gardener, florist)	○	○	○
Advanced clerical or service worker (eg secretary, personal assistant, flight attendant, law clerk)	○	○	○
Intermediate clerical, sales or service worker (eg typist, word processing/data entry operator, receptionist, child care worker, nursing assistant, hospitality worker)	○	○	○
Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver)	○	○	○
Elementary clerical, sales or service worker (eg filing/mail clerk, parking inspector, sales assistant, telemarketer, housekeeper)	○	○	○
Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand)	○	○	○
No paid job	○	○	○
Don't know or not applicable		○	○

Q96 We are interested in the HIGHEST educational qualification of your parents (or other main caregivers while you were growing up).
(Mark one on each line)

	NOT APPLICABLE / DON'T KNOW	UP TO YEAR 10 OR EQUIVALENT	UP TO YEAR 12 OR EQUIVALENT	TRADE QUALIFICATION	CERTIFICATE / DIPLOMA	DEGREE	HIGHER DEGREE
a Mother or step-mother	○	○	○	○	○	○	○
b Father or step-father	○	○	○	○	○	○	○

Q97 Have you ever been unemployed and actively seeking work? *(Mark one only)*

- ○ No, never
- ○ Yes, for a total of less than 6 months
- ○ Yes, for a total of 6 months to 12 months
- ○ Yes, more than 12 months

Q98 a What is the average gross *(before tax)* income that you receive each week, including pensions, allowances and financial support from parents?

b What is the average gross *(before tax)* income of your household (eg you and your partner, or you and your parents sharing a house)?
(Mark one for yourself and one for your household)

	A SELF	B HOUSEHOLD
No income	○	○
$1-$119 ($1-$6,239 annually)	○	○
$120-$299 ($6,240-$15,999 annually)	○	○
$300-$499 ($16,000-$25,999 annually)	○	○
$500-$699 ($26,000-$36,999 annually)	○	○
$700-$999 ($37,000-$51,999 annually)	○	○
$1,000-$1,499 ($52,000-$77,999 annually)	○	○
$1,500 or more ($78,000 or more annually)	○	○
Don't know	○	○
Don't want to answer	○	○
I live alone (household income is the same as mine)	○	

Q99 How many people (including yourself), are dependent on this household income?
(Write number in boxes) ☐☐

Q100 What is your date of birth?
(Write date in boxes)

DAY	MONTH	YEAR
☐☐	☐☐	1 9 ☐☐

women's health is about you and your future

Q101 When you are 35, would you like to be in: *(Mark one only)*

- ○ Full-time paid employment
- ○ Part-time paid employment
- ○ Full-time unpaid work in the home
- ○ Self-employed/own business

Q102 When you are 35, what would be your ideal job? (Please specify in this box)

Q103 When you are 35, would you like to be: *(Mark one only)*

- ○ Married
- ○ In a stable relationship but not married
- ○ Single (not in a stable relationship)

Q104 When you are 35, would you like to have: *(Mark one only)*

- ○ No children
- ○ 1 child
- ○ 2 children
- ○ 3 or more children

Q105 When you are 35, would you like to have more educational qualifications than you have now? *(Mark one only)*

- ○ Yes
- ○ No
- ○ Not sure

Q106 In general, how satisfied are you with what you have achieved in each of the following areas of your life? *(Mark one on each line)*

	VERY SATISFIED	SATISFIED	DIS-SATISFIED	VERY DISSATISFIED	NOT APPLICABLE
a Work	○	○	○	○	
b Career	○	○	○	○	
c Study	○	○	○	○	
d Family relationships	○	○	○	○	
e Partner/closest personal relationship	○	○	○	○	
f Friendships	○	○	○	○	
g Social activities	○	○	○	○	
h Motherhood/children	○	○	○	○	○

Have we missed anything?

If you have ANYTHING else you would like to tell us, please write on the lines below.

Thank you for taking the time to complete this survey.

If you need help to answer any of the questions, ring our Freecall number 1800 068 081.

When you have completed the survey, please sign the next page and send the survey back to us as soon as possible. We will detach the consent form and store it in a separate locked room.

Don't forget to post this back to us!

Please let us know your new details if you move, change your name or your telephone number.

If you have any questions you can contact us by telephoning
1800 068 081 (This is a FREECALL number)
or writing to us.

CONSENT

I consent to the researchers 'matching' the information provided in this survey with that provided in the first survey (1996) so that any changes in my health during the last four years can be noted.

Signature: _____ Date: _____

Help us keep in touch!

Sometimes we lose touch with our participants. It would be helpful if you could give us details of parents, a relative or friend who will be able to help us find you.

Name: _____

Address: _____

Postcode: _____

Home Phone: _____ Relationship to you: _____

Name: _____

Address: _____

Postcode: _____

Home Phone: _____ Relationship to you: _____

Please complete this box if you have filled in this survey on someone else's behalf. This helps us to keep our records as accurate as possible.

Your name: _____

Relationship to participant: _____

Reason: _____

Thank you for taking the time to fill in this survey.

women's health australia

second survey for women in their 20's

March 2000

Australian Longitudinal Study on Women's Health
The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4921 8609. Fax: 02 4921 7415. Email: whasec@mail.newcastle.edu.au
Web: http://u2.newcastle.edu.au/wha

APPENDIX H SURVEY 4 (2006) FOR THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH 1973-78 COHORT (28-33 YEARS)

How to complete this survey

This is the fourth "main" survey for young women.
As the purpose of the project is to look at changes over time, some of the questions are the same as those in previous surveys.

Please answer every question you can. If you are unsure about how to answer a question, mark the response for the answer closest to how you feel.

Please answer the survey for the time period indicated, even if you are pregnant or your circumstances are unusual in some way (unless the question states otherwise).

Please read the instructions above each question carefully. Some require you to answer only those options that are applicable to you. Other questions require you to mark one answer on each line. The questions may also refer to different time periods.

INSTRUCTIONS:

- Use a black/blue biro
- Do not fold or bend this survey
- **Cross the boxes like this:**

In general, would you say your health is:
(*Mark one only*)

Excellent	☐	
Very good	☐	
Good	☒	*You would mark this one if you think your health is good*
Fair	☐	
Poor	☐	

- **Print clearly in the boxes like this:**

What is your postcode?
(PRINT clearly in the boxes) 2308

- **Correct mistakes like this:**

When you go to a General Practitioner:
(*Mark one on each line*)

	Always	Most of the time	Some-times	Rarely or never
Do you go to the same place?	☐	☒	☒	☐

If you make a mistake simply scribble it out and clearly mark the correct answer with a cross

If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)

- *If you are concerned about any of your health experiences and would like some help, you may like to contact:*
  - *your nearest Women's Health Centre or Community Health Centre;*
  - *your General Practitioner for advice about who would be the best person in your community to talk to.*
- *If you feel distressed now and would like someone to talk to, you could ring Lifeline on 13 11 14 (local call).*

women's health is about using health services

Q1 **How many times have you consulted the following people for your own health in the last 12 months?** *(Mark one on each line)*

		None	1-2 times	3-4 times	5-6 times	7-9 times	10-12 times	More than 12 times
a	A family doctor or another General Practitioner (GP)	☐	☐	☐	☐	☐	☐	☐
b	A specialist doctor	☐	☐	☐	☐	☐	☐	☐
c	A dentist	☐	☐	☐	☐	☐	☐	☐

Q2 **Have you consulted the following services for your own health in the last 12 months?** *(Mark one on each line)*

		Yes	No
a	A hospital doctor (*eg in outpatients or casualty*)	☐	☐
b	A midwife	☐	☐
c	A counsellor or other mental health worker	☐	☐
d	A chiropractor	☐	☐
e	An osteopath	☐	☐
f	A massage therapist	☐	☐
g	An acupuncturist	☐	☐
h	A naturopath / herbalist	☐	☐
i	Another alternative health practitioner (eg aromatherapist, homeopath, reflexologist, iridologist)	☐	☐
j	A community nurse, practice nurse, or nurse practitioner	☐	☐
k	A physiotherapist	☐	☐

Q3 **How often have you used the following therapies for your own health in the last 12 months?** *(Mark one on each line)*

		Never	Rarely	Sometimes	Often
a	Vitamins / Minerals	☐	☐	☐	☐
b	Yoga or meditation	☐	☐	☐	☐
c	Herbal medicines	☐	☐	☐	☐
d	Aromatherapy oils	☐	☐	☐	☐
e	Chinese medicines	☐	☐	☐	☐
f	Prayer or spiritual healing	☐	☐	☐	☐
g	Other alternative therapies	☐	☐	☐	☐

Q4 **Have you been admitted to hospital in the last 12 months for any of these reasons?** *(Mark one on each line)*

		Yes	No
a	Normal childbirth	☐	☐
b	Problems during pregnancy	☐	☐
c	All other reasons	☐	☐

Q5 **When you go to a General Practitioner:**
(Mark one on each line)

		Always	Most of the time	Some-times	Rarely or never
a	Do you go to the same place?	☐	☐	☐	☐
b	Do you usually see the same doctor?	☐	☐	☐	☐

Q6 **Here are some questions about your most recent visit to a General Practitioner. In terms of your satisfaction, how would you rate each of the following?**
(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor
a	The amount of time you spent with the doctor	☐	☐	☐	☐	☐
b	The doctor's explanation of your problem and treatment	☐	☐	☐	☐	☐
c	The doctor's interest in how you felt about having the tests, treatment or the advice given	☐	☐	☐	☐	☐
d	Your opportunity to ask all the questions you wanted	☐	☐	☐	☐	☐
e	The technical skills (thoroughness, carefulness, competence) of the doctor	☐	☐	☐	☐	☐
f	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	☐	☐	☐	☐	☐
g	The cost to you of the visit (Mark here if **No Cost** → ☐)	☐	☐	☐	☐	☐

Q7 **In general, do you prefer to see a female doctor?** *(Mark one only)*

- Yes, always ☐
- Yes, but only for certain things ☐
- No ☐
- Don't care ☐

Q8 **Thinking about your own health care, how would you rate the following now?**
(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to medical specialists if you need them	☐	☐	☐	☐	☐	☐
b	Access to a hospital if you need it	☐	☐	☐	☐	☐	☐
c	Access to after-hours medical care	☐	☐	☐	☐	☐	☐
d	Access to a GP who bulk bills	☐	☐	☐	☐	☐	☐
e	Access to a female GP	☐	☐	☐	☐	☐	☐
f	Hours when a GP is available	☐	☐	☐	☐	☐	☐
g	Number of GPs you have to choose from	☐	☐	☐	☐	☐	☐
h	Ease of seeing the GP of your choice	☐	☐	☐	☐	☐	☐
i	Ease of obtaining a Pap test	☐	☐	☐	☐	☐	☐
j	Access to a Women's Health Centre or a Family Planning Centre	☐	☐	☐	☐	☐	☐

Q9 **Do you have a Health Care Card?** *This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card. (Mark one only)*

- ☐ Yes
- ☐ No

Q10 **Do you have private health insurance for *hospital* cover? If not, mark the main reason why.** *(Mark one only)*

- ☐ Yes
- ☐ No – because I can't afford the cost
- ☐ No – because I don't think you get value for money
- ☐ No – because I don't think I need it
- ☐ No – another reason

Q11 **Do you have private health insurance for *ancillary services* (eg dental, physiotherapy)? If not, mark the main reason why.** *(Mark one only)*

- ☐ Yes
- ☐ No – because I can't afford the cost
- ☐ No – because I don't think you get value for money
- ☐ No – because I don't think I need it
- ☐ No – because the services are not available where I live
- ☐ No – another reason

Q12 **In the last 3 years, have you been diagnosed or treated for:** *(Mark all that apply)*

		Yes, in the last 3 years
a	Gestational diabetes (during pregnancy)	☐
b	Insulin dependent (Type I) diabetes	☐
c	Non-insulin dependent (Type II) diabetes	☐
d	Heart disease	☐
e	Hypertension (high blood pressure) during pregnancy	☐
f	Hypertension (high blood pressure) other than during pregnancy	☐
g	Low iron (iron deficiency or anaemia)	☐
h	Asthma	☐
i	Bronchitis	☐
j	Postnatal depression	☐
k	Depression (not postnatal)	☐
l	Anxiety disorder	☐
m	Endometriosis	☐
n	Polycystic Ovary Syndrome	☐
o	Urinary tract infection	☐
p	A Sexually Transmitted Infection (eg chlamydia, genital herpes etc)	☐
q	Cancer *(please specify on page 30)*	☐
r	Other major physical illness *(please specify on page 30)*	☐
s	Other major mental illness *(please specify on page 30)*	☐
t	None of these conditions	☐

Q13 **In the last 12 months, have you had any of the following:**
(Mark one on each line. For all that apply, also answer columns B and C.)

		A				B If yes, did you seek help for this problem?	C If you did seek help, please mark if you were not satisfied with that help.
		No	Rarely	Some-times	Often	Mark here if you did seek help	Mark here if you were not satisfied
a	Allergies, hay fever, sinusitis	☐	☐	☐	☐	☐	☐
b	Headaches / migraines	☐	☐	☐	☐	☐	☐
c	Severe tiredness	☐	☐	☐	☐	☐	☐
d	Stiff or painful joints	☐	☐	☐	☐	☐	☐
e	Back pain	☐	☐	☐	☐	☐	☐
f	Problems with one or both feet	☐	☐	☐	☐	☐	☐
g	Urine that burns or stings	☐	☐	☐	☐	☐	☐
h	Leaking urine	☐	☐	☐	☐	☐	☐
i	Constipation	☐	☐	☐	☐	☐	☐
j	Haemorrhoids (piles)	☐	☐	☐	☐	☐	☐
k	Other bowel problems	☐	☐	☐	☐	☐	☐
l	Vaginal discharge or irritation	☐	☐	☐	☐	☐	☐
m	Premenstrual tension	☐	☐	☐	☐	☐	☐
n	Irregular periods	☐	☐	☐	☐	☐	☐
o	Heavy periods	☐	☐	☐	☐	☐	☐
p	Severe period pain	☐	☐	☐	☐	☐	☐
q	Skin problems	☐	☐	☐	☐	☐	☐
r	Difficulty sleeping	☐	☐	☐	☐	☐	☐
s	Depression	☐	☐	☐	☐	☐	☐
t	Episodes of intense anxiety (eg panic attacks)	☐	☐	☐	☐	☐	☐
u	Other mental health problems	☐	☐	☐	☐	☐	☐
v	Palpitations (feeling that your heart is racing or fluttering in your chest)	☐	☐	☐	☐	☐	☐

women's health *is about how you are feeling*

The questions on this page ask only about now - how your health is now and about how your health limits certain activities now.

Q14 **In general, would you say your health is:**
(Mark one only)

- Excellent ☐
- Very good ☐
- Good ☐
- Fair ☐
- Poor ☐

Q15 **Compared to one year ago, how would you rate your health in general now?**
(Mark one only)

- Much better now than one year ago ☐
- Somewhat better now than one year ago ☐
- About the same as one year ago ☐
- Somewhat worse now than one year ago ☐
- Much worse now than one year ago ☐

Q16 **The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?**
(Mark one on each line)

		Yes, limited a lot	Yes, limited a little	No, not limited at all
a	Vigorous activities such as running, lifting heavy objects, participating in strenuous sports	☐	☐	☐
b	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	☐	☐	☐
c	Lifting or carrying groceries	☐	☐	☐
d	Climbing several flights of stairs	☐	☐	☐
e	Climbing one flight of stairs	☐	☐	☐
f	Bending, kneeling or stooping	☐	☐	☐
g	Walking more than one kilometre	☐	☐	☐
h	Walking half a kilometre	☐	☐	☐
i	Walking 100 metres	☐	☐	☐
j	Bathing or dressing yourself	☐	☐	☐

Q17 **During the past 4 weeks, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities as a result of your physical health?** *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Were limited in the kind of work or other activities	☐	☐
d	Had difficulty performing the work or other activities (for example it took extra effort)	☐	☐

Q18 **During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?** *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Didn't do work or other activities as carefully as usual	☐	☐

Q19 **During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?** *(Mark one only)*

- Not at all ☐
- Slightly ☐
- Moderately ☐
- Quite a bit ☐
- Extremely ☐

Q20 **How much bodily pain have you had during the past 4 weeks?** *(Mark one only)*

- None ☐
- Very mild ☐
- Mild ☐
- Moderate ☐
- Severe ☐
- Very severe ☐

Q21 **During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?** *(Mark one only)*

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

Q22 **For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks:**

(Mark one on each line)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life?	☐	☐	☐	☐	☐	☐
b	Have you been a very nervous person?	☐	☐	☐	☐	☐	☐
c	Have you felt so down in the dumps that nothing could cheer you up?	☐	☐	☐	☐	☐	☐
d	Have you felt calm and peaceful?	☐	☐	☐	☐	☐	☐
e	Did you have a lot of energy?	☐	☐	☐	☐	☐	☐
f	Have you felt down?	☐	☐	☐	☐	☐	☐
g	Did you feel worn out?	☐	☐	☐	☐	☐	☐
h	Have you been a happy person?	☐	☐	☐	☐	☐	☐
i	Did you feel tired?	☐	☐	☐	☐	☐	☐

Q23 **During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc)?**

(Mark one only)

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

Q24 **How true or false is each of the following statements for you?**

(Mark one on each line)

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	☐	☐	☐	☐	☐
b	I am as healthy as anybody I know	☐	☐	☐	☐	☐
c	I expect my health to get worse	☐	☐	☐	☐	☐
d	My health is excellent	☐	☐	☐	☐	☐

Q25 **When did you last have a Pap test?** *A Pap test (for cervical cancer) is a routine test carried out by a doctor or nurse during an internal (vaginal) examination.*
(Mark one only)

- I have never had a Pap test ☐ → Go to Q27
- Less than 2 years ago ☐
- 2 to less than 3 years ago ☐
- 3 – 5 years ago ☐
- More than 5 years ago ☐
- Not sure ☐

Q26 **Have you ever had an abnormal Pap test?**
(Mark one only)

- Yes ☐
- No ☐
- Don't know ☐

Q27 **Have you and your partner (current or previous) ever had problems with fertility - that is, tried unsuccessfully for 12 months or more to get pregnant?**
(Mark one only)

- No, never tried to get pregnant ☐
- No, had no problem with fertility ☐
- Yes, but have not sought help / treatment ☐
- Yes, and have sought help / treatment ☐

Q28 **What forms of contraception do you use now?**
(Mark all that apply)

- a I use the oral contraceptive pill ☐
- b I use condoms ☐
- c I use emergency contraception (eg morning after pill) ☐
- d I use an implant (eg Implanon) ☐
- e I use the withdrawal method ☐
- f I use another method of contraception ☐
- g I don't use contraception ☐

Q29 **For how many years in total have you ever taken the oral contraceptive pill?** *(Mark one only)*

None	1 or less	2	3	4	5	6 to 9	10 to 14	15 or more
☐	☐	☐	☐	☐	☐	☐	☐	☐

Q30 **Since January 2004 the emergency contraceptive pill (or morning after pill) has been available over the counter at pharmacies without needing to see a health professional.**

Since 2004: *(Mark one only)*

- I have not tried to obtain the emergency contraceptive pill ☐
- I have tried to obtain the emergency contraceptive pill and found it difficult to obtain ☐
- I have tried to obtain the emergency contraceptive pill and found it to be readily available ☐

Q31 **Do any of the following apply to you?** *(Mark one on each line)*

		Yes	No
a	I am pregnant now / have recently had a baby	☐	☐
b	I am trying to become pregnant	☐	☐
c	I have had a tubal ligation	☐	☐
d	I have had a hysterectomy	☐	☐
e	My partner has had a vasectomy	☐	☐
f	I have found out that I cannot have children	☐	☐
g	I have found out that my partner cannot have children	☐	☐
h	I have no male sexual partners now	☐	☐
i	I am using / have used In Vitro Fertilisation (IVF)	☐	☐
j	I am using / have used fertility hormones (eg Clomid)	☐	☐

Q32 **Are you currently pregnant?** *(Mark one only)*

- No ☐
- Less than 3 months ☐
- 3 to 6 months ☐
- More than 6 months ☐
- Don't know ☐

Q33 **How many times have you had each of the following:** *(Mark one on each line)*

		None	One	Two	Three	Four	5 or more
a	Live birth (more than 36 weeks)	☐	☐	☐	☐	☐	☐
b	Live premature birth (36 weeks or less)	☐	☐	☐	☐	☐	☐
c	Stillbirth	☐	☐	☐	☐	☐	☐
d	Miscarriage	☐	☐	☐	☐	☐	☐
e	Termination (abortion) for medical reasons (eg fetal abnormalities)	☐	☐	☐	☐	☐	☐
f	Termination (abortion) for other reasons	☐	☐	☐	☐	☐	☐
g	Ectopic pregnancy (tubal pregnancy)	☐	☐	☐	☐	☐	☐

Questions on the next 2 pages are for women who have given birth to a child. If you have never given birth to a child go to Q40.

Q34 **If you have ever given birth to a child, please write the date of each birth in the box.**

(If you had twins, please write the date twice.)

1st D D M M Y Y Y Y 2nd D D M M Y Y Y Y 3rd D D M M Y Y Y Y

4th D D M M Y Y Y Y 5th D D M M Y Y Y Y 6th D D M M Y Y Y Y

7th D D M M Y Y Y Y 8th D D M M Y Y Y Y

Q35 **Did you experience any of the following?** *(Mark all that apply on each line)*

		Never experienced this	1st Child	2nd Child	3rd Child	4th Child	5th Child	6th Child	7th Child	8th Child
a	Caesarean section before going into labour	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Caesarean section after labour started	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Labour lasting more than 36 hours	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Episiotomy (cutting of vagina)	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	A vaginal tear requiring stitches	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Forceps or Ventouse suction ('vacuum')	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Medical removal of placenta and / or blood clots by hand	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Excessive blood loss requiring extra blood or fluid by drip (IV infusion)	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	A low birth weight baby (weighing less than 2500 grams or 5½ pounds)	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Epidural or spinal block	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Gas or injection for pain relief	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q36 **How many complete months have you breastfed each of your children?**
(Mark one in each column for each of your children)

	1st Child	2nd Child	3rd Child	4th Child	5th Child	6th Child	7th Child	8th Child
Less than one month	☐	☐	☐	☐	☐	☐	☐	☐
1 - 6 months	☐	☐	☐	☐	☐	☐	☐	☐
7 - 12 months	☐	☐	☐	☐	☐	☐	☐	☐
13 - 24 months	☐	☐	☐	☐	☐	☐	☐	☐
More than 24 months	☐	☐	☐	☐	☐	☐	☐	☐
Currently breastfeeding	☐	☐	☐	☐	☐	☐	☐	☐
Did not breastfeed	☐	☐	☐	☐	☐	☐	☐	☐

Q37 **Thinking about the birth of your last child:** *(Mark one on each line)*

		Yes	No	Don't know
a	Were you entitled to paid maternity leave?	☐	☐	☐
b	Did you take paid maternity leave?	☐	☐	☐
c	Were you entitled to unpaid maternity leave?	☐	☐	☐
d	Did you take unpaid maternity leave?	☐	☐	☐

Q38 **After the birth of your last child, how soon did you go back to paid work?** *(Mark one only)*

- Less than 6 weeks after the birth ☐
- 6 - 12 weeks after the birth ☐
- 12 weeks to a year after the birth ☐
- More than a year after the birth ☐
- Did not go back to paid work ☐

Q39 **Are you currently on maternity leave?** *(Mark one only)*

Yes	No
☐	☐

Q40 **Do you have children living with you (your own, your partner's, fostered etc)?** *(Mark one only)*

Yes	No	
☐	☐	If no, go to Q47

Q41 **If you have children living with you (your own, your partner's, fostered etc), how many are:** *(Mark one on each line)*

		None	One	Two	Three	Four or more
a	Under 12 months?	☐	☐	☐	☐	☐
b	12 months - 5 years?	☐	☐	☐	☐	☐
c	6 - 12 years?	☐	☐	☐	☐	☐
d	13 - 16 years?	☐	☐	☐	☐	☐

Most parents need someone to care for their children when they cannot.
Formal child care includes before and / or after school care, long day care, family day care, occasional care and preschool.
Informal child care includes care by family, friends (paid or unpaid) and a baby sitter.

Q42 **Whether you use child care or not, please answer the following questions.** *(Mark one on each line)*

		Yes	No	Don't know
a	Is formal child care located in an area convenient to you?	☐	☐	☐
b	Are formal child care places available to you?	☐	☐	☐
c	Is the cost of formal child care a problem for you?	☐	☐	☐
d	Is informal child care available to you?	☐	☐	☐

Q43 **Do you ever use child care (formal or informal)?** *(Mark one only)*

Yes ☐ No ☐ If no, go to Q47

Q44 **In a normal week, how often do you usually use child care?** *(Mark one on each line)*

		Do not use this type of child care	Less than 5 hrs	5 - 10 hrs	11 - 20 hrs	21 - 30 hrs	31 - 40 hrs	More than 40 hrs
a	Formal Care	☐	☐	☐	☐	☐	☐	☐
b	Informal Care	☐	☐	☐	☐	☐	☐	☐

Q45 **In general, how satisfied are you with your child care arrangements?** *(Mark one on each line)*

		Do not use this type of child care	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Formal Care	☐	☐	☐	☐	☐
b	Informal Care	☐	☐	☐	☐	☐

Q46 **In general, how satisfied are you with the amount of child care you use?** *(Mark one on each line)*

		I would like to use more hours	I would like to use fewer hours	I am satisfied with the hours I use
a	Formal Care	☐	☐	☐
b	Informal Care	☐	☐	☐

women's health is about health habits

Q47 **How tall are you without shoes?**
(If you are not sure, please estimate)
☐☐☐ cms OR ☐ ft ☐☐ ins

Q48 **How much do you weigh without clothes or shoes? *If you are pregnant now, write in the weight you were in the month prior to pregnancy.***
(If you are not sure, please estimate)
☐☐☐ kgs OR ☐☐ stones ☐☐ pounds

Q49 **How much would you <u>like</u> to weigh <u>now</u>?**
(Mark <u>one only</u>)

- Happy as I am ☐
- 1 – 5 kg more ☐
- Over 5 kg more ☐
- 1 – 5 kg less ☐
- 6 – 10 kg less ☐
- Over 10 kg less ☐

Q50 **How often have you gone on a diet (that is, limited how much you ate) in order to lose weight <u>during the last year</u>?** *(Mark <u>one only</u>)*

- Never ☐
- 1 – 4 times ☐
- 5 – 10 times ☐
- More than 10 times ☐
- I am always on a diet to lose weight ☐

Q51 **In the <u>past month</u>, how dissatisfied have you felt about:**
(Mark <u>one on each line</u>)

		Not at all dissatisfied		Slightly dissatisfied		Moderately dissatisfied		Markedly dissatisfied
a	Your weight	☐	☐	☐	☐	☐	☐	☐
b	Your shape	☐	☐	☐	☐	☐	☐	☐

Q52 **During the <u>past 4 weeks</u>, have you used medications (eg tablets or medicine) that were:**
(Mark <u>all that apply</u>)

		Yes
a	Prescription medication for your nerves / anxiety (eg Valium, Serapax, Kalma, Ducene etc)	☐
b	Prescription medication to help you sleep (eg Temaze, Normison, Mogadon, Stilnox etc)	☐
c	Prescription medication for depression (eg Zoloft, Aropax, Lexapro, Cipramil etc)	☐
d	Other medication prescribed by a doctor (excluding the oral contraceptive pill)	☐
e	Other medication bought without a prescription at the chemist, supermarket or health food shop	☐
f	None of these medications	☐

Q53 **How often do you currently smoke cigarettes or any tobacco products?** *(Mark one only)*

- Daily ☐ → Go to Q54a
- At least weekly (but not daily) ☐ → Go to Q54b
- Less often than weekly ☐
- Not at all ☐ → Go to Q55

Q54 **a If you smoke daily, on average how many cigarettes do you smoke each day?**

PRINT the number in the box ☐☐☐ cigarettes per day → Go to Q58

b If you smoke, but not daily, on average how many cigarettes do you smoke per week?

PRINT the number in the box ☐☐☐ cigarettes per week

Q55 **In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)?** *(Mark one only)* Yes ☐ No ☐ → If no, go to Q59

Q56 **Have you ever smoked daily?** *(Mark one only)* Yes ☐ No ☐ → If no, go to Q59

Q57 **At what age did you finally stop smoking daily?** *(Write age in boxes)* ☐☐ years old

Q58 **At what age did you start smoking daily?** *(Write age in boxes)* ☐☐ years old

Q59 **How often do you usually drink alcohol?** *(Mark one only)*

- I never drink alcohol ☐ → Go to Q62
- Less than once a month ☐
- Less than once a week ☐
- On 1 or 2 days a week ☐
- On 3 or 4 days a week ☐
- On 5 or 6 days a week ☐
- Every day ☐

Q60 **On a day when you drink alcohol, how many standard drinks do you usually have?** *(Mark one only)*

- 1 or 2 drinks per day ☐
- 3 or 4 drinks per day ☐
- 5 to 8 drinks per day ☐
- 9 or more drinks per day ☐

Q61 **How often do you have five or more standard drinks of alcohol on one occasion?** *(Mark one only)*

- Never ☐
- Less than once a month ☐
- About once a month ☐
- About once a week ☐
- More than once a week ☐

Q62 **How many serves of vegetables do you usually eat each day?**
(Mark one only)

A serve = half a cup of cooked vegetables or a cup of salad vegetables

None	1 serve	2-3 serves	4 serves	5 serves or more
☐	☐	☐	☐	☐

Q63 **How many serves of fruit do you usually eat each day?**
(Mark one only)

A serve = one medium piece or two small pieces of fruit or one cup of diced pieces

None	1 serve	2-3 serves	4 serves	5 serves or more
☐	☐	☐	☐	☐

***Remember* that any information you give us is kept confidential.**

Q64 **The following question asks about the use of drugs for non-medicinal purposes. We want to know about general patterns of use. Please do not give details of specific instances of use.**

*If you have **never** used any of these drugs, mark here and go to Q65* **Never used** → ☐

If 'yes' to A, please answer B and C.
(Mark all that apply)

		A Have you ever tried this? Mark if yes	B At about what age did you first try this?	C Have you used it in the last 12 months? Mark if yes
a	Marijuana (cannabis, hash, grass, dope, pot, yandi)	☐		☐
b	Amphetamines (eg speed, uppers, methylamphetamine, MDA)	☐		☐
c	LSD (acid, trips)	☐		☐
d	Natural hallucinogens (eg magic mushrooms)	☐		☐
e	Tranquillisers (eg tranks, sleepers, Mandrax, Serapax, Rohypnol)	☐		☐
f	Cocaine (coke, crack, blow)	☐		☐
g	Ecstasy / designer drugs (eg E, eccies, MDMA)	☐		☐
h	Inhalants (eg glue, petrol, solvents)	☐		☐
i	Heroin (smack, junk)	☐		☐
j	Barbiturates (eg barbs, downers, purple hearts)	☐		☐

The next question is about the amount of physical activity you did last week.

Q65 **Please state *how many times* you did each type of activity and *how much time you spent altogether* doing each type of activity last week.**
Only count activities that lasted for 10 minutes or more; add up all the times you spent in each activity to get the total time for each activity.
(If you did not do an activity, please write "0" in the boxes)

		Number of times	Total time in this activity hours	minutes
a	**Walking briskly** (for recreation or exercise, or to get from place to place)			
b	**Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing)			
c	**Vigorous leisure activity** (that makes you breathe harder or puff and pant like aerobics, competitive sport, vigorous cycling, running, swimming)			
d	**Vigorous household or garden chores** (that make you breathe harder or puff and pant)			

Now think about all of the time you spend sitting during each day while at home, at work, while getting from place to place or during your spare time.

Q66 **How many hours in total do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television, or working at a desk or computer?**

a	On a usual **week day**	hours	minutes
b	On a usual **weekend day**	hours	minutes

The next question asks about physical activity in your main job (this could be paid work, unpaid work, caring etc – whatever you spend most of your 'working day' doing).

Q67 **During your usual working day, how often do you do each of the following?**
(Mark one on each line)

		All of the time	Most of the time	Some of the time	A little of the time	None of the time
a	Sitting	☐	☐	☐	☐	☐
b	Standing	☐	☐	☐	☐	☐
c	Walking	☐	☐	☐	☐	☐
d	Heavy labour or physically demanding work	☐	☐	☐	☐	☐

Q68 **How often do you do each of the following?**
(Mark one on each line)

		Never	Less than once a month	1-3 times a month	Once a week (4 times a month)	More than once a week
a	Take a dog for a walk	☐	☐	☐	☐	☐
b	Walk, swim or cycle for exercise or fitness (not including walking a dog)	☐	☐	☐	☐	☐
c	Go to a gym, do aerobics or other vigorous exercise class	☐	☐	☐	☐	☐
d	Do Yoga, Tai Chi or similar (less vigorous) exercise class	☐	☐	☐	☐	☐
e	Play competitive sport (eg tennis, netball etc)	☐	☐	☐	☐	☐

women's health is about family and friends

Q69 **People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?**

(Mark one on each line)

		None of the time	A little of the time	Some of the time	Most of the time	All of the time
a	Someone to help you if you are confined to bed	☐	☐	☐	☐	☐
b	Someone you can count on to listen to you when you need to talk	☐	☐	☐	☐	☐
c	Someone to give you good advice about a crisis	☐	☐	☐	☐	☐
d	Someone to take you to the doctor if you need it	☐	☐	☐	☐	☐
e	Someone who shows you love and affection	☐	☐	☐	☐	☐
f	Someone to have a good time with	☐	☐	☐	☐	☐
g	Someone to give you information to help you understand a situation	☐	☐	☐	☐	☐
h	Someone to confide in or talk to about yourself or your problems	☐	☐	☐	☐	☐
i	Someone who hugs you	☐	☐	☐	☐	☐
j	Someone to get together with for relaxation	☐	☐	☐	☐	☐
k	Someone to prepare your meals if you are unable to do it yourself	☐	☐	☐	☐	☐
l	Someone whose advice you really want	☐	☐	☐	☐	☐
m	Someone to do things with to help you get your mind off things	☐	☐	☐	☐	☐
n	Someone to help with daily chores if you are sick	☐	☐	☐	☐	☐
o	Someone to share your most private worries and fears with	☐	☐	☐	☐	☐
p	Someone to turn to for suggestions about how to deal with a personal problem	☐	☐	☐	☐	☐
q	Someone to do something enjoyable with	☐	☐	☐	☐	☐
r	Someone who understands your problems	☐	☐	☐	☐	☐
s	Someone to love and make you feel wanted	☐	☐	☐	☐	☐

Q70 **Thinking about your current approach to life, please indicate how much you think each statement describes you:**
(Mark one on each line)

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	In uncertain times, I usually expect the best	☐	☐	☐	☐	☐
b	If something can go wrong for me, it will	☐	☐	☐	☐	☐
c	I'm always optimistic about my future	☐	☐	☐	☐	☐
d	I hardly ever expect things to go my way	☐	☐	☐	☐	☐
e	I rarely count on good things happening to me	☐	☐	☐	☐	☐
f	Overall, I expect more good things to happen to me than bad	☐	☐	☐	☐	☐

Q71 **Over the last 12 months, how stressed have you felt about the following areas of your life?**
(Mark one on each line)

		Not applicable	Not at all stressed	Somewhat stressed	Moderately stressed	Very stressed	Extremely stressed
a	Own health		☐	☐	☐	☐	☐
b	Health of family members	☐	☐	☐	☐	☐	☐
c	Work / employment	☐	☐	☐	☐	☐	☐
d	Living arrangements	☐	☐	☐	☐	☐	☐
e	Study	☐	☐	☐	☐	☐	☐
f	Money	☐	☐	☐	☐	☐	☐
g	Relationship with parents	☐	☐	☐	☐	☐	☐
h	Relationship with partner / spouse	☐	☐	☐	☐	☐	☐
i	Relationship with other family members	☐	☐	☐	☐	☐	☐
j	Relationship with friends	☐	☐	☐	☐	☐	☐
k	Motherhood / children	☐	☐	☐	☐	☐	☐

Q72	Have you experienced any of the following events? *(Mark all that apply)*	A Yes – In the last 12 months	B Yes – More than 12 months ago
a	Major personal illness	☐	☐
b	Major personal injury	☐	☐
c	Major surgery (not including dental work)	☐	☐
d	Birth of a child	☐	☐
e	Having a child with a disability or serious illness	☐	☐
f	Starting a new, close personal relationship	☐	☐
g	Getting married (or starting to live with someone)	☐	☐
h	Problem or break-up in a close personal relationship	☐	☐
i	Divorce or separation	☐	☐
j	Becoming a sole parent	☐	☐
k	Increased hassles with parents	☐	☐
l	Serious conflict between members of your family	☐	☐
m	Parents getting divorced, separated or remarried	☐	☐
n	Death of partner or close family member	☐	☐
o	Death of a child	☐	☐
p	Stillbirth of a child	☐	☐
q	Miscarriage	☐	☐
r	Death of a close friend	☐	☐
s	Difficulty finding a job	☐	☐
t	Return to study	☐	☐
u	Beginning / resuming work outside the home	☐	☐
v	Distressing harassment at work	☐	☐
w	Loss of job	☐	☐
x	Partner losing a job	☐	☐
y	Decreased income	☐	☐
z	Natural disaster (fire, flood, drought, earthquake etc) or house fire	☐	☐
aa	Major loss or damage to personal property	☐	☐
bb	Being robbed	☐	☐
cc	Involvement in a serious accident	☐	☐
dd	Being pushed, grabbed, shoved, kicked or hit	☐	☐
ee	Being forced to take part in unwanted sexual activity	☐	☐
ff	Legal troubles or involvement in a court case	☐	☐
gg	Family member / close friend being arrested / in gaol	☐	☐
hh	None of these events	☐	

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Q73 **Next are some specific questions about your health and how you have been feeling in the past month.** *(Mark one on each line)*

		Yes	No
a	Have you felt keyed up or on edge?	☐	☐
b	Have you been worrying a lot?	☐	☐
c	Have you been irritable?	☐	☐
d	Have you had difficulty relaxing?	☐	☐
e	Have you been sleeping poorly?	☐	☐
f	Have you had headaches or neck aches?	☐	☐
g	Have you had any of the following: trembling, tingling, dizzy spells, sweating, diarrhoea or needing to pass urine more often than usual?	☐	☐
h	Have you been worried about your health?	☐	☐
i	Have you had difficulty falling asleep?	☐	☐

Q74 **Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the last week.**
(Mark one on each line)

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
a	I was bothered by things that don't usually bother me	☐	☐	☐	☐
b	I had trouble keeping my mind on what I was doing	☐	☐	☐	☐
c	I felt depressed	☐	☐	☐	☐
d	I felt that everything I did was an effort	☐	☐	☐	☐
e	I felt hopeful about the future	☐	☐	☐	☐
f	I felt fearful	☐	☐	☐	☐
g	My sleep was restless	☐	☐	☐	☐
h	I was happy	☐	☐	☐	☐
i	I felt lonely	☐	☐	☐	☐
j	I could not 'get going'	☐	☐	☐	☐
k	I felt terrific	☐	☐	☐	☐

Q75 **In the past week, have you been feeling that life isn't worth living?**
(Mark one only) **Yes** ☐ **No** ☐

Q76 **In the past 6 months, have you ever deliberately hurt yourself or done anything that you knew might have harmed or even killed you?**
(Mark one only) **Yes** ☐ **No** ☐

If you answered yes to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 13 11 14 (local call).

■ *women's health is about juggling time*

Q77 **In a usual week, how much time in total do you spend doing the following things?**
(Mark one on each line)

		I don't do this activity	1-15 hours	16-24 hours	25-34 hours	35-40 hours	41-48 hours	49 hours or more
a	Active leisure (eg walking, exercise, sport)	☐	☐	☐	☐	☐	☐	☐
b	Passive leisure (eg TV, music, reading, relaxing)	☐	☐	☐	☐	☐	☐	☐
c	Full-time permanent paid work	☐	☐	☐	☐	☐	☐	☐
d	Part-time permanent paid work	☐	☐	☐	☐	☐	☐	☐
e	Casual paid work (no paid holiday or sick leave)	☐	☐	☐	☐	☐	☐	☐
f	Work without pay (eg family business)	☐	☐	☐	☐	☐	☐	☐
g	Studying	☐	☐	☐	☐	☐	☐	☐
h	Unpaid voluntary work	☐	☐	☐	☐	☐	☐	☐
i	Home duties (own / family home)	☐	☐	☐	☐	☐	☐	☐
j	Looking after your / your partner's children	☐	☐	☐	☐	☐	☐	☐

Q78 **Managing time is often difficult. How often do you feel:**
(Mark one on each line)

		Every day	A few times a week	About once a week	About once a month	Never
a	That you are rushed, pressured, too busy?	☐	☐	☐	☐	☐
b	That you have time on your hands that you don't know what to do with?	☐	☐	☐	☐	☐

Q79 **Are you happy with your share of the following tasks and activities?**
(Mark one on each line)

		Happy as it is	Would like other family members to do more	Would prefer another arrangement	I don't do this activity
a	Domestic work (shopping, cooking, cleaning etc)	☐	☐	☐	☐
b	Child care	☐	☐	☐	☐
c	Caring for another adult (who is elderly / disabled / sick)	☐	☐	☐	☐
d	Other household work (gardening, home / car maintenance)	☐	☐	☐	☐

■ ■

Q80 **Do you normally do any of the following kinds of paid work?**
(Mark all that apply)

a	I don't do any paid work	☐ Go to Q82
b	Paid shift work	☐
c	Paid work with irregular hours	☐
d	Paid work on short-term contract (less than one year)	☐
e	Paid work in more than one job	☐
f	Paid work at night	☐
g	Paid work from home	☐
h	Self employment	☐
i	None of the above	☐

Q81 **How secure or insecure do you feel about your paid job or jobs?**
(Mark one only)

- I worry all the time about losing my job ☐
- Sometimes I worry about losing my job ☐
- I rarely or never worry about losing my job ☐
- Don't know ☐

Q82 **Are you happy with the number of hours of paid work you do?**
(Mark one only, even if you have no paid work)

- Yes, happy as is ☐
- No, would like to do more ☐
- No, would like to do less ☐

Q83 **We would like to know your main occupation now.** *(Mark one only)*

- Manager or administrator (eg magistrate, farm manager, general manager, director of nursing, school principal) ☐
- Professional (eg scientist, doctor, registered nurse, allied health professional, teacher, artist) ☐
- Associate professional (eg technician, manager, youth worker, police officer) ☐
- Tradesperson or related worker (eg hairdresser, gardener, florist) ☐
- Advanced clerical or service worker (eg secretary, personal assistant, flight attendant, law clerk) ☐
- Intermediate clerical, sales or service worker (eg typist, word processing, data entry operator, receptionist, child care worker, nursing assistant, hospitality worker) ☐
- Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver) ☐
- Elementary clerical, sales or service worker (eg filing / mail clerk, parking inspector, sales assistant, telemarketer, housekeeper) ☐
- Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand) ☐
- No paid job ☐

Q84 **Are you currently unemployed and actively seeking work?** *(Mark one only)*

- No ☐
- Yes, unemployed for less than 6 months ☐
- Yes, unemployed for 6 months or more ☐

Q85 **Do you regularly provide unpaid care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty?**
(Mark one only)

Yes ☐
No ☐

Q86 **Do you regularly need help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)?**
(Mark one only)

Yes ☐
No ☐

Q87 **What is your present marital status?**
(Mark one only)

Never married	☐	Separated	☐
Married	☐	Divorced	☐
De facto (opposite sex)	☐	Widowed	☐
De facto (same sex)	☐		

Q88 **Who lives with you?**
(Mark all that apply)

a	No one, I live alone	☐
b	Partner / spouse	☐
c	Own children	☐
d	Someone else's children	☐
e	Parents	☐
f	Other adults	☐

Q89 **What is the highest qualification you have completed?** *(Mark one only)*

No formal qualifications	☐
Year 10 or equivalent (eg School Certificate)	☐
Year 12 or equivalent (eg Higher School Certificate)	☐
Trade / apprenticeship (eg hairdresser, chef)	☐
Certificate / diploma (eg child care, technician)	☐
University degree	☐
Higher university degree (eg Grad Dip, Masters, PhD)	☐

Q90 **How many months have you been overseas in each of the following years:**
(Mark one for each year)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
None	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Less than 2 months	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2 – 6 months	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7 – 12 months	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

The following questions ask about difficult situations you may have experienced. Some people prefer not to answer questions of this nature. If this is true of you, please go to Question 95.

Q91 **Have you had a partner during the last 12 months?**
(Mark one only)

Yes ☐
No ☐ → Go to Q93

Q92 **This question asks about situations with your partner. We would like to know if you experienced any of the actions listed below and how often it happened during the past twelve months.**

(Mark one on each line)

	My Partner:	Never	Only once	Several times	Once/ month	Once/ week	Daily
a	Told me that I wasn't good enough	☐	☐	☐	☐	☐	☐
b	Kept me from medical care	☐	☐	☐	☐	☐	☐
c	Followed me	☐	☐	☐	☐	☐	☐
d	Tried to turn my family, friends & children against me	☐	☐	☐	☐	☐	☐
e	Locked me in the bedroom	☐	☐	☐	☐	☐	☐
f	Slapped me	☐	☐	☐	☐	☐	☐
g	Forced me to take part in unwanted sexual activity	☐	☐	☐	☐	☐	☐
h	Told me that I was ugly	☐	☐	☐	☐	☐	☐
i	Tried to keep me from seeing or talking to my family	☐	☐	☐	☐	☐	☐
j	Threw me	☐	☐	☐	☐	☐	☐
k	Hung around outside my house	☐	☐	☐	☐	☐	☐
l	Blamed me for causing their violent behaviour	☐	☐	☐	☐	☐	☐
m	Harassed me over the telephone	☐	☐	☐	☐	☐	☐
n	Shook me	☐	☐	☐	☐	☐	☐
o	Harassed me at work	☐	☐	☐	☐	☐	☐
p	Pushed, grabbed or shoved me	☐	☐	☐	☐	☐	☐
q	Used a knife or gun or other weapon	☐	☐	☐	☐	☐	☐
r	Became upset if dinner / housework wasn't done when they thought it should be	☐	☐	☐	☐	☐	☐
s	Told me that I was crazy	☐	☐	☐	☐	☐	☐
t	Told me that no one would ever want me	☐	☐	☐	☐	☐	☐
u	Took my wallet and left me stranded	☐	☐	☐	☐	☐	☐
v	Hit or tried to hit me with something	☐	☐	☐	☐	☐	☐
w	Did not want me to socialise with my female friends	☐	☐	☐	☐	☐	☐
x	Refused to let me work outside the home	☐	☐	☐	☐	☐	☐
y	Kicked me, bit me or hit me with a fist	☐	☐	☐	☐	☐	☐
z	Tried to convince my friends, family or children that I was crazy	☐	☐	☐	☐	☐	☐
aa	Told me that I was stupid	☐	☐	☐	☐	☐	☐
bb	Beat me up	☐	☐	☐	☐	☐	☐

Q93 **As a child did you experience sexual abuse (eg forced to engage in unwanted sexual practices such as unwanted touching, exposure or penetration)?**

(Mark one only) Yes ☐ No ☐

Q94 **Have you ever been in a violent relationship with a partner / spouse?**

(Mark one only) Yes ☐ No ☐

If you feel distressed about any experiences of violence and abuse and would like some help to deal with this, please consider contacting one of the following:
• Your nearest Women's Health Centre or Community Health Centre
• Your General Practitioner for advice about who would be the best person in your community to talk to
• A Lifeline counsellor on 13 11 14 (local call)

Q95 **I have found that the following are beneficial to my sense of well-being:**

(Mark all that apply)

a	Sensing an inner strength	☐
b	Believing that overall what I am doing is worthwhile	☐
c	Feeling at peace with my past	☐
d	Feeling confident about whatever the future may bring	☐
e	Having a belief in a higher power	☐
f	Having a sense of connection with my environment	☐
g	None of the above	☐

Q96 **In the last 12 months, about how often did you use the internet for information about health or health care?**

(Mark one only)

About once a week or more often	☐
About once a month	☐
Less than monthly	☐
I have not used the internet for information about health or health care	☐
I do not use the internet	☐

Q97 **What is your main form of transportation?**

(Mark one on each line)

		Private vehicle or taxi	Public transport (eg bus, train, tram)	Walking	Bicycle	Other
a	On a week day	☐	☐	☐	☐	☐
b	On a weekend day	☐	☐	☐	☐	☐

Q98 **What is your date of birth?**
(Write date in boxes)

Day | Month | 19 Year

Q99 **What is your postcode?**

a What is your RESIDENTIAL postcode?
(where you live)

b What is the postcode of your POSTAL ADDRESS?
(if different from residential)

Q100 a **What is the average gross (before tax) income that you receive each week, including pensions, allowances and financial support from parents?**

b **What is the average gross (before tax) income of your household (eg you and your partner, or you and your parents sharing a house)?**
*(Mark **one** for **yourself** and **one** for your **household**)*

	a Self	b Household
No income	☐	☐
$1-$119 ($1-$6,239 annually)	☐	☐
$120-$299 ($6,240-$15,999 annually)	☐	☐
$300-$499 ($16,000-$25,999 annually)	☐	☐
$500-$699 ($26,000-$36,999 annually)	☐	☐
$700-$999 ($37,000-$51,999 annually)	☐	☐
$1,000-$1,499 ($52,000-$77,999 annually)	☐	☐
$1,500 or more ($78,000 or more annually)	☐	☐
Don't know	☐	☐
Don't want to answer	☐	☐
I live alone (household income is the same as mine)		☐

Q101 **How many people (including yourself), are dependent on this household income?**
(Write number in boxes)

Q102 **How do you manage on the income you have available?**
(Mark one only)

- It is impossible ☐
- It is difficult all the time ☐
- It is difficult some of the time ☐
- It is not too bad ☐
- It is easy ☐

women's health *is about you and your future*

Q103 **When you are 35, would you like to be in:**
(Mark one only)

- Full-time paid employment ☐
- Part-time paid employment ☐
- Full-time unpaid work in the home ☐
- Self-employed / own business ☐

Q104 **When you are 35, would you like to be:**
(Mark one only)

- Married ☐
- In a stable relationship but not married ☐
- Single (not in a stable relationship) ☐

Q105 **When you are 35, would you like to have:**
(Mark one only)

- No children ☐
- 1 child ☐
- 2 children ☐
- 3 or more children ☐

Q106 **When you are 35, would you like to have more educational qualifications than you have now?**
(Mark one only)

- Yes ☐
- No ☐
- Not sure ☐

Q107 **In general, how satisfied are you with what you have achieved in each of the following areas of your life?**
(Mark one on each line)

			Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Work		☐	☐	☐	☐
b	Career		☐	☐	☐	☐
c	Study		☐	☐	☐	☐
d	Family relationships		☐	☐	☐	☐
e	Partner / closest personal relationship		☐	☐	☐	☐
f	Friendships		☐	☐	☐	☐
g	Social activities		☐	☐	☐	☐
h	Motherhood / children	Not applicable ☐	☐	☐	☐	☐

Have we missed anything? If you have anything else you would like to tell us, please write on the lines below. You may also like to take a moment to check that you have not missed any questions or pages.

Thank you for taking the time to complete this survey.

If you need help to answer any of the questions, you can contact us by telephoning
1800 068 081 *(Freecall)*

When you have completed the survey, please sign the next page and send the survey back to us as soon as possible. We will detach the consent form and store it in a separate locked room.

Consent

Young 4 2006

I consent to the researchers 'matching' the information provided in this survey with that provided in previous surveys so that any changes in my health can be noted.

Signature _____ Date _____

Office use only - DO NOT DETACH.

Help us keep in touch!

Sometimes we lose touch with our participants. It would be helpful if you could give us your mobile phone number and email address.

Mobile

Email

It would be helpful also if you could give us details of parents, a relative or friend who would be able to help us find you.

Name

Address

P'Code

Phone (home) ( )

Relationship to you

Name

Address

P'Code

Phone (home) ( )

Relationship to you

Please complete this box if you have filled in this survey on someone else's behalf. This helps us to keep our records as accurate as possible.

Your name

Relationship to participant

Reason

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women's health australia

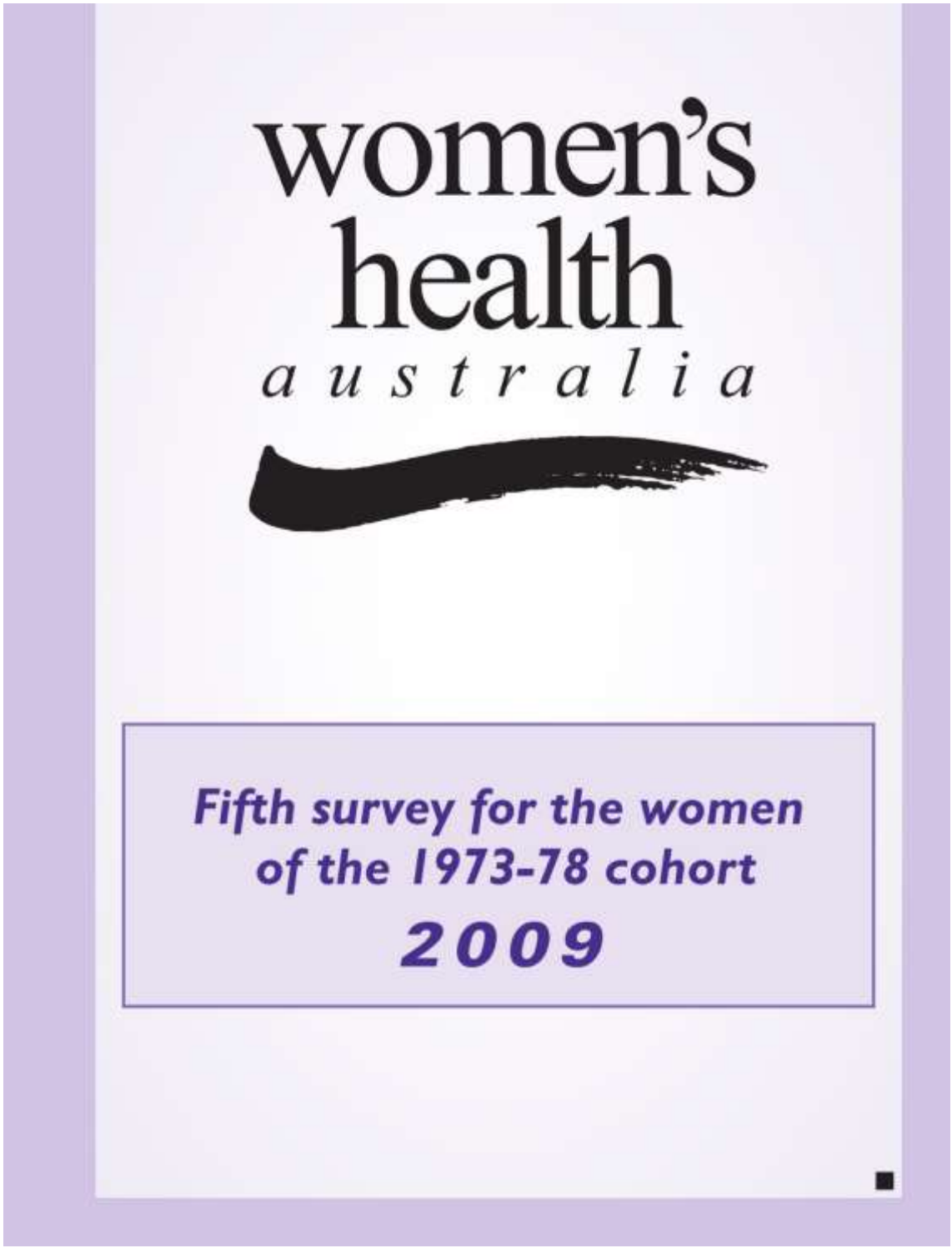
Please post this back in the Reply Paid envelope provided.

Please let us know your new details if you move, change your name or your telephone number.

Freecall Number: 1800 068 081

Australian Longitudinal Study on Women's Health
The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4923 6872 Fax: 02 4923 6888 Email: whasec@newcastle.edu.au
Web: http://www.newcastle.edu.au/centre/wha

APPENDIX I SURVEY 5 (2009) FOR THE AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH 1973-78 COHORT (31-36 YEARS)



How to complete this survey

This is the fifth survey for the women of the 1973-78 cohort.
As the purpose of the project is to look at changes over time, some of the questions are the same as those in previous surveys.

Please answer every question you can. If you are unsure about how to answer a question, mark the response for the closest answer to how you feel.

Please answer the survey for the time period indicated even if you are pregnant or your circumstances are unusual in some way (unless the question states otherwise).

Please read the instructions above each question carefully. Some require you to answer only those options which are applicable to you. Other questions require you to mark one answer on each line. The questions may also refer to different time periods.

INSTRUCTIONS:

- **Use a black or blue biro**
- **Do not fold or bend this survey**

Cross the boxes like this:

In general, would you say your health is: (Mark *one only*)

Excellent	☐
Very good	☐
Good	☒ ← You would cross this box if you think your health is good
Fair	☐
Poor	☐

Print clearly in the boxes like this:

What is your postcode?
(PRINT clearly in the boxes) 2308

Correct mistakes like this:

When you go to a General Practitioner:
(Mark one on each line)

	Always	Most of the time	Some-times	Rarely or never
Do you go to the same place?	☐	☒	■	☐

If you make a mistake simply scribble it out and clearly mark the correct answer with a cross.

If you need help to answer any questions, please ring 1800 068 081
(This is a FREECALL number)

* If you are concerned about any of your health experiences and would like some help, you may like to contact:
  - your nearest Women's Health Centre or Community Health Centre
  - your General Practitioner for advice about who would be the best person in your community for you to talk to.

* If you feel distressed *now* and would like someone to talk to, you could ring Lifeline on 13 11 14 (local call).

women's health

Q1 **How many times have you consulted the following people for *your own health* in the *last 12 months*?** *(Mark one on each line)*

		None	1-2 times	3-4 times	5-6 times	7-9 times	10-12 times	More than 12 times
a	A family doctor or another General Practitioner (GP)	☐	☐	☐	☐	☐	☐	☐
b	A specialist doctor	☐	☐	☐	☐	☐	☐	☐
c	A dentist	☐	☐	☐	☐	☐	☐	☐

Q2 **Have you consulted the following services for *your own health* in the *last 12 months*?** *(Mark one on each line)*

		Yes	No
a	A hospital doctor (eg in outpatients or casualty)	☐	☐
b	A midwife	☐	☐
c	A counsellor or other mental health worker	☐	☐
d	A chiropractor	☐	☐
e	An osteopath	☐	☐
f	A massage therapist	☐	☐
g	An acupuncturist	☐	☐
h	A naturopath / herbalist	☐	☐
i	Another alternative health practitioner (eg aromatherapist, homeopath, reflexologist, iridologist)	☐	☐
j	A community nurse, practice nurse or nurse practitioner	☐	☐
k	A physiotherapist	☐	☐

Q3 **How often have you used the following therapies for *your own health* in the *last 12 months*?** *(Mark one on each line)*

		Never	Rarely	Sometimes	Often
a	Vitamins / minerals	☐	☐	☐	☐
b	Yoga or meditation	☐	☐	☐	☐
c	Herbal medicines	☐	☐	☐	☐
d	Aromatherapy oils	☐	☐	☐	☐
e	Chinese medicines	☐	☐	☐	☐
f	Prayer or spiritual healing	☐	☐	☐	☐
g	Other alternative therapies	☐	☐	☐	☐

Q4 **Have you been admitted to hospital in the *last 12 months* for any of these reasons?** *(Mark one on each line)*

		Yes	No
a	Normal childbirth	☐	☐
b	Problems during pregnancy	☐	☐
c	All other reasons	☐	☐

Q5 **When you go to a General Practitioner:**

(Mark one on each line)

		Always	Most of the time	Sometimes	Rarely or never
a	Do you go to the same place?	☐	☐	☐	☐
b	Do you usually see the same doctor?	☐	☐	☐	☐

Q6 **Here are some questions about your *most recent visit* to a General Practitioner.**
In terms of your *satisfaction*, how would you rate each of the following?

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor
a	The amount of time you spent with the doctor	☐	☐	☐	☐	☐
b	The doctor's explanation of your problem and treatment	☐	☐	☐	☐	☐
c	The doctor's interest in how you felt about having the tests, treatment or the advice given	☐	☐	☐	☐	☐
d	Your opportunity to ask all the questions you wanted	☐	☐	☐	☐	☐
e	The technical skills (thoroughness, carefulness, competence) of the doctor	☐	☐	☐	☐	☐
f	The personal manner (courtesy, respect, sensitivity, friendliness) of the doctor	☐	☐	☐	☐	☐
g	The cost to you of the visit	☐	☐	☐	☐	☐
	Mark here if **No Cost** → ☐					

Q7 **In general, do you prefer to see a female doctor?** *(Mark one only)*

- Yes, always ☐
- Yes, but only for certain things ☐
- No ☐
- Don't care ☐

Q8 **Thinking about *your own health care*, how would you rate the following now?**

(Mark one on each line)

		Excellent	Very good	Good	Fair	Poor	Don't know
a	Access to medical specialists if you need them	☐	☐	☐	☐	☐	☐
b	Access to a hospital if you need it	☐	☐	☐	☐	☐	☐
c	Access to after-hours medical care	☐	☐	☐	☐	☐	☐
d	Access to a GP who bulk bills	☐	☐	☐	☐	☐	☐
e	Access to a female GP	☐	☐	☐	☐	☐	☐
f	Hours when a GP is available	☐	☐	☐	☐	☐	☐
g	Number of GPs you have to choose from	☐	☐	☐	☐	☐	☐
h	Ease of seeing the GP of your choice	☐	☐	☐	☐	☐	☐
i	Ease of obtaining a Pap test	☐	☐	☐	☐	☐	☐
j	Access to Women's Health or Family Planning services	☐	☐	☐	☐	☐	☐
k	Access to maternal and child health services	☐	☐	☐	☐	☐	☐

Q9 **Do you have a Health Care Card?** *This is a card that entitles you to discounts and assistance with medical expenses. This is not the same as a Medicare card. (Mark one only)*

- Yes ☐
- No ☐

Q10 **Do you have private health insurance for *hospital cover*? If not, mark the main reason why.** *(Mark one only)*

- Yes ☐
- No – because I can't afford the cost ☐
- No – because I don't think you get value for money ☐
- No – because I don't think I need it ☐
- No – another reason ☐

Q11 **Do you have private health insurance for *ancillary services* (eg dental, physiotherapy)? If not, mark the main reason why.** *(Mark one only)*

- Yes ☐
- No – because I can't afford the cost ☐
- No – because I don't think you get value for money ☐
- No – because I don't think I need it ☐
- No – because the services are not available where I live ☐
- No – another reason ☐

Q12 **In the *last 3 years*, have you been diagnosed or treated for:** *(Mark all that apply)*
Please record conditions related to pregnancy (gestational diabetes, hypertension during pregnancy, antenatal depression and postnatal depression) in the section relating to pregnancy later in the survey.

		Yes, in the last 3 years
a	Insulin dependent (Type 1) diabetes	☐
b	Non-insulin dependent (Type 2) diabetes	☐
c	Heart disease	☐
d	Hypertension (high blood pressure)	☐
e	Low iron (iron deficiency or anaemia)	☐
f	Asthma	☐
g	Bronchitis	☐
h	Depression	☐
i	Anxiety disorder	☐
j	Endometriosis	☐
k	Polycystic Ovary Syndrome	☐
l	Urinary tract infection	☐
m	Chlamydia	☐
n	Genital herpes	☐
o	Genital warts (HPV)	☐
p	HIV or AIDS	☐
q	Hepatitis B or C	☐
r	Skin cancer	☐
s	Other cancer *(Please specify on page 30)*	☐
t	Other major physical illness *(Please specify on page 30)*	☐
u	Other major mental illness *(Please specify on page 30)*	☐
v	Other sexually transmitted infection *(Please specify on page 30)*	☐
w	Other *(Please specify on page 30)*	☐
x	**None of these conditions**	☐

women's health

Q13 **In the *last 12 months*, have you had any of the following:**
(Mark one on each line. For all that apply, also answer columns B and C).

		A				B	C
		Never	Rarely	Some-times	Often	Mark here if you did seek help	Mark here if you were not satisfied
a	Allergies, hay fever, sinusitis	☐	☐	☐	☐	☐	☐
b	Headaches / migraines	☐	☐	☐	☐	☐	☐
c	Severe tiredness	☐	☐	☐	☐	☐	☐
d	Indigestion (heart burn)	☐	☐	☐	☐	☐	☐
e	Breathing difficulties	☐	☐	☐	☐	☐	☐
f	Stiff or painful joints	☐	☐	☐	☐	☐	☐
g	Back pain	☐	☐	☐	☐	☐	☐
h	Problems with one or both feet	☐	☐	☐	☐	☐	☐
i	Urine that burns or stings	☐	☐	☐	☐	☐	☐
j	Leaking urine	☐	☐	☐	☐	☐	☐
k	Constipation	☐	☐	☐	☐	☐	☐
l	Haemorrhoids (piles)	☐	☐	☐	☐	☐	☐
m	Other bowel problems	☐	☐	☐	☐	☐	☐
n	Vaginal discharge or irritation	☐	☐	☐	☐	☐	☐
o	Premenstrual tension	☐	☐	☐	☐	☐	☐
p	Irregular periods	☐	☐	☐	☐	☐	☐
q	Heavy periods	☐	☐	☐	☐	☐	☐
r	Severe period pain	☐	☐	☐	☐	☐	☐
s	Skin problems	☐	☐	☐	☐	☐	☐
t	Difficulty sleeping	☐	☐	☐	☐	☐	☐
u	Depression	☐	☐	☐	☐	☐	☐
v	Episodes of intense anxiety (eg panic attacks)	☐	☐	☐	☐	☐	☐
w	Other mental health problems	☐	☐	☐	☐	☐	☐
x	Palpitations (feeling that your heart is racing or fluttering in your chest)	☐	☐	☐	☐	☐	☐

Q14 **What is your date of birth?**
(Write date in boxes)

D D Day | M M Month | 1 9 Y Y Year

Q15 **What is your postcode?**

a What is your RESIDENTIAL postcode? *(where you live)* ☐☐☐☐ Mark here if living overseas ☐

b What is the postcode of your POSTAL ADDRESS? *(if different from residential)* ☐☐☐☐

Q16 **When you are outside on a typical summer day, how often do you do the following things to protect yourself from the sun?** *(Mark one on each line)*

		Never	Rarely	Sometimes	Usually	Always
a	Wear a hat	☐	☐	☐	☐	☐
b	Wear clothing that protects your skin	☐	☐	☐	☐	☐
c	Wear sunglasses	☐	☐	☐	☐	☐
d	Stay in the shade when outdoors	☐	☐	☐	☐	☐
e	Apply sunscreen to face	☐	☐	☐	☐	☐
f	Apply sunscreen to exposed body parts	☐	☐	☐	☐	☐

Q17 **When did you last have:**
(Mark one on each line)

		Less than two years ago	2 to less than 3 years ago	3-5 years ago	More than five years ago	Never	Not sure
a	A Pap test?	☐	☐	☐	☐	☐	☐
b	Your blood pressure checked?	☐	☐	☐	☐	☐	☐
c	Your skin checked (eg spots, lesions, moles)?	☐	☐	☐	☐	☐	☐

Q18 **Have you *ever* had a vaccination for HPV (genital warts, cervical cancer)?** *(Mark one only)*

Yes ☐
No ☐

Q19 **Please write down the names of all your medications, vitamins, supplements or herbal therapies that you have taken in the *last 4 weeks*. Where possible, copy names from the packets.**
(Please write in block letters)

None ☐

a		h	
b		i	
c		j	
d		k	
e		l	
f		m	
g		n	

women's health

*The questions on this page ask only about **now** - how your health is now and about how your health limits certain activities now.*

Q20 **In general, would you say your health is:**
(Mark one only)

- Excellent ☐
- Very good ☐
- Good ☐
- Fair ☐
- Poor ☐

Q21 **Compared to one year ago, how would you rate your health in general now?** *(Mark one only)*

- Much better now than one year ago ☐
- Somewhat better now than one year ago ☐
- About the same as one year ago ☐
- Somewhat worse now than one year ago ☐
- Much worse now than one year ago ☐

Q22 **The following questions are about activities you might do during a typical day.**
Does *your health now limit you* in these activities? If so, how much? *(Mark one on each line)*

		Yes, limited a lot	Yes, limited a little	No, not limited at all
a	Vigorous activities such as running, lifting heavy objects, participating in strenuous sports	☐	☐	☐
b	Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	☐	☐	☐
c	Lifting or carrying groceries	☐	☐	☐
d	Climbing several flights of stairs	☐	☐	☐
e	Climbing one flight of stairs	☐	☐	☐
f	Bending, kneeling or stooping	☐	☐	☐
g	Walking more than one kilometre	☐	☐	☐
h	Walking half a kilometre	☐	☐	☐
i	Walking 100 metres	☐	☐	☐
j	Bathing or dressing yourself	☐	☐	☐

Q23 **During the *past 4 weeks*, have you had any of the following problems with your work (including your work outside the home and housework) or other regular daily activities *as a result of your physical health*?** *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Were limited in the kind of work or other activities	☐	☐
d	Had difficulty performing the work or other activities *(for example it took extra effort)*	☐	☐

Q24 **During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities *as a result of any emotional problems* (such as feeling depressed or anxious)?** *(Mark one on each line)*

		Yes	No
a	Cut down on the amount of time you spent on work or other activities	☐	☐
b	Accomplished less than you would like	☐	☐
c	Didn't do work or other activities as carefully as usual	☐	☐

Q25 **During the *past 4 weeks*, to what extent has your *physical health or emotional problems* interfered with your normal social activities with family, friends, neighbours or groups?** *(Mark one only)*

- Not at all ☐
- Slightly ☐
- Moderately ☐
- Quite a bit ☐
- Extremely ☐

Q26 **How much *bodily* pain have you had during the *past 4 weeks*?** *(Mark one only)*

- None ☐
- Very mild ☐
- Mild ☐
- Moderate ☐
- Severe ☐
- Very severe ☐

Q27 **During the *past 4 weeks*, how much did *pain* interfere with your normal work (including both work outside the home and housework)?** *(Mark one only)*

- Not at all ☐
- A little bit ☐
- Moderately ☐
- Quite a bit ☐
- Extremely ☐

Q28 **For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the *past 4 weeks*:** *(Mark one on each line)*

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
a	Did you feel full of life?	☐	☐	☐	☐	☐	☐
b	Have you been a very nervous person?	☐	☐	☐	☐	☐	☐
c	Have you felt so down in the dumps that nothing could cheer you up?	☐	☐	☐	☐	☐	☐
d	Have you felt calm and peaceful?	☐	☐	☐	☐	☐	☐
e	Did you have a lot of energy?	☐	☐	☐	☐	☐	☐
f	Have you felt down?	☐	☐	☐	☐	☐	☐
g	Did you feel worn out?	☐	☐	☐	☐	☐	☐
h	Have you been a happy person?	☐	☐	☐	☐	☐	☐
i	Did you feel tired?	☐	☐	☐	☐	☐	☐

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Q29 **During the *past 4 weeks*, how much of the time has your *physical health or emotional problems* interfered with your social activities (like visiting friends, relatives etc)?** *(Mark one only)*

All of the time	☐	A little of the time	☐
Most of the time	☐	None of the time	☐
Some of the time	☐		

Q30 **How *true* or *false* is *each* of the following statements for you?** *(Mark one on each line)*

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
a	I seem to get sick a little easier than other people	☐	☐	☐	☐	☐
b	I am as healthy as anybody I know	☐	☐	☐	☐	☐
c	I expect my health to get worse	☐	☐	☐	☐	☐
d	My health is excellent	☐	☐	☐	☐	☐

Q31 **Have you and your partner (current or previous) ever had problems with fertility - that is, tried unsuccessfully for 12 months or more to get pregnant?** *(Mark one only)*

- No, have never tried to get pregnant ☐
- No, have had no problem with fertility ☐
- Yes, but have not sought help / treatment ☐
- Yes, and have sought help / treatment ☐

Q32 **Have you ever had any of the following operations or procedures?** *(Mark one on each line)*

		Yes	No
a	Hysterectomy	☐	☐
b	One ovary removed	☐	☐
c	Both ovaries removed	☐	☐
d	Repair of prolapsed vagina, bladder or bowel	☐	☐
e	Lumpectomy *(removal of lump from breasts)*	☐	☐
f	Breast biopsy *(taking a sample of breast tissue)*	☐	☐
g	Cholecystectomy *(gall bladder removed)*	☐	☐
h	Gastric banding	☐	☐
i	Cosmetic surgery	☐	☐

Q33 **Do any of the following apply to you?** *(Mark one on each line)*

		Yes	No
a	I am pregnant now / have recently had a baby	☐	☐
b	I am trying to become pregnant	☐	☐
c	I have had a tubal ligation	☐	☐
d	I have had a hysterectomy	☐	☐
e	My partner has had a vasectomy	☐	☐
f	I cannot have children	☐	☐
g	My partner cannot have children	☐	☐
h	My partner has a low or zero sperm count	☐	☐
i	I have no male sexual partners now	☐	☐
j	I am using / have used In Vitro Fertilisation (IVF)	☐	☐
k	I am using / have used fertility hormones (eg Clomid)	☐	☐

Q34 **What forms of contraception do you use now?** *(Mark all that apply)*

a	I use a combined oral contraceptive pill (The Pill)	☐
b	I use a progestogen only oral contraceptive pill (The Mini Pill)	☐
c	I use the oral contraceptive pill but I don't know what type	☐
d	I use condoms	☐
e	I use emergency contraception (eg morning after pill)	☐
f	I use an implant (eg Implanon)	☐
g	I use the withdrawal method	☐
h	I use a copper intrauterine device (IUD)	☐
i	I use a progestogen intrauterine device (IUD) (eg Mirena)	☐
j	I use an injection (eg Depo-provera)	☐
k	I use a safe period method (eg natural family planning, rhythm method, Billings method, body temperature method, periodic abstinence)	☐
l	I use a vaginal ring (eg Nuvaring)	☐
m	I use another method of contraception	☐
n	**I don't use contraception**	☐

Q35 **Are you currently pregnant?** *(Mark one only)*

No	☐	More than 6 months	☐
Less than 3 months	☐	Don't know	☐
3 to 6 months	☐		

Q36 **Have you ever been pregnant?**

Yes ☐

No ☐ → **If no, go to Q48**

Q37 **How many times have you had each of the following?** *(Mark one on each line)*

		None	One	Two	Three	Four	5 or more
a	Live birth	☐	☐	☐	☐	☐	☐
b	Stillbirth	☐	☐	☐	☐	☐	☐
c	Miscarriage	☐	☐	☐	☐	☐	☐
d	Termination (abortion) for medical reasons (eg fetal abnormalities)	☐	☐	☐	☐	☐	☐
e	Termination (abortion) for other reasons	☐	☐	☐	☐	☐	☐
f	Ectopic pregnancy (tubal pregnancy)	☐	☐	☐	☐	☐	☐

Q38 **For your most recent pregnancy, were you:** *(Mark one on each line)*

		Never	Yes, during pregnancy	Yes, following birth	Yes, both during pregnancy and following birth
a	Given any information about emotional well being during pregnancy and early parenthood (eg about depression, anxiety, parenting stress)?	☐	☐	☐	☐
b	Asked any questions by a midwife, GP, child health nurse or other professional about your emotional well being (eg given a questionnaire to complete)?	☐	☐	☐	☐

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Q39 **Have you ever given birth to a child?**

Yes ☐

No ☐ → **If no, go to Q48**

Q40 **If you have ever given birth to a child, please write the date of each birth in the box.**

(If you had twins, please write the date twice)

1st	2nd	3rd
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y
4th	**5th**	**6th**
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y
7th	**8th**	**9th**
D D M M Y Y Y Y	D D M M Y Y Y Y	D D M M Y Y Y Y

Q41 **Did you experience any of the following?**

(Mark all that apply on each line)

		Never experienced this	1st Child	2nd Child	3rd Child	4th Child	5th Child	6th Child	7th Child	8th Child	9th Child
a	Premature birth	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Caesarean section before going into labour	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Caesarean section after labour started	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Labour lasting more than 36 hours	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Episiotomy (cutting of vagina)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	A vaginal tear requiring stitches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Forceps or Ventouse suction ('vacuum')	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Medical removal of placenta and / or blood clots by hand	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Excessive blood loss requiring extra blood or fluid by drip (IV infusion)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	A low birth weight baby (weighing less than 2500 grams or 5 ½ pounds)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Epidural or spinal block	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l	Gas or injection for pain relief	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
m	Emotional distress	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q42 **Were you diagnosed or treated for:**

(Mark all that apply on each line)

		Never experienced this	1st Child	2nd Child	3rd Child	4th Child	5th Child	6th Child	7th Child	8th Child	9th Child
a	Antenatal depression?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Postnatal depression?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Antenatal anxiety?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Postnatal anxiety?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Gestational diabetes?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Hypertension (high blood pressure) during pregnancy?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q43 **How many complete months have you breastfed each of your children?**

(Please write the number of MONTHS in the boxes)

1st Child	2nd Child	3rd Child	4th Child	5th Child	6th Child	7th Child	8th Child	9th Child

Q44 **At the time of the birth of your last child were you employed (even if you were on leave)?** *(Mark one only)*

Yes ☐
No ☐

Q45 **If you went back to paid work after the birth of your last child, how soon did you go back?** *(Please write the number of MONTHS in the boxes)*

☐☐ **Months** Not applicable ☐

Q46 **If you did NOT go back to paid work after the birth of your last child:** *(Mark one on each line)*

		Yes	No
a	Are you currently on maternity leave?	☐	☐
b	Are you planning to go back to paid work?	☐	☐

Q47 **Thinking about the birth of your last child:** *(Mark one on each line)*

		Yes	No
a	Did you take paid maternity leave?	☐	☐
b	Did you take unpaid maternity leave?	☐	☐

Q48 **Do you have children living with you (your own, your partner's, fostered etc)?** *(Mark one only)*

Yes ☐
No ☐ → **If no, go to Q52**

Q49 **If you have children living with you (your own, your partner's, fostered etc), how many are:** *(Mark one on each line)*

		None	One	Two	Three	Four or more
a	Under 12 months?	☐	☐	☐	☐	☐
b	12 months - 5 years?	☐	☐	☐	☐	☐
c	6 - 12 years?	☐	☐	☐	☐	☐
d	13 - 16 years?	☐	☐	☐	☐	☐

Most parents need someone to care for their children when they cannot.
Formal child care includes before and / or after school care, long day care, family day care, occasional care and preschool. *Informal child care* includes care by family, friends (paid or unpaid) and a paid babysitter.

Q50 **Whether you use child care or not, please answer the following questions.** *(Mark one on each line)*

		Yes	No	Don't know
a	Is formal child care located in an area convenient to you?	☐	☐	☐
b	Are formal child care places available to you?	☐	☐	☐
c	Is the cost of formal child care a problem for you?	☐	☐	☐
d	Is informal child care available to you?	☐	☐	☐

Q51 **In a normal week, how often do you usually use child care?** *(Mark one on each line)*

		Do not use this type of child care	Less than 5 hrs	5-10 hrs	11-20 hrs	21-30 hrs	31-40 hrs	More than 40 hrs
a	Formal care	☐	☐	☐	☐	☐	☐	☐
b	Informal care	☐	☐	☐	☐	☐	☐	☐

Q52 **How tall are you without shoes?** *(If you are not sure, please estimate)*

☐☐☐ cms

Q53 **How much do you weigh without clothes or shoes? *If you are pregnant now, write in the weight you were in the month prior to pregnancy.*** *(If you are not sure, please estimate)*

☐☐☐ kgs

Q54 **What is your waist measurement?**

Please measure your waist while in your underwear. If possible, get someone to help you take the measurement. Find your navel (belly button) and measure at that level. Be careful not to have the tape too tight. You should be able to slip your little finger under it comfortably. Write the measurement to the nearest centimetre.

If you are pregnant now, write in your waist measurement for the month prior to your pregnancy.

☐☐☐ cms

Q55 **Have you used any of these methods to lose weight or to control your weight or shape in the *last twelve months*?** *(Mark one on each line)*

		Yes	No
a	Commercial weight loss programs (eg Weight Watchers®, Lite n' Easy®, Sureslim®, Jenny Craig®)	☐	☐
b	Meal replacements or slimming products (eg OPTIFAST®, Herbalife®)	☐	☐
c	Exercise	☐	☐
d	Cut down on the size of meals or between meal snacks	☐	☐
e	Cut down on fats (low fat) and / or sugars	☐	☐
f	Low glycaemic index (GI) diet	☐	☐
g	Diet book diets (eg Atkins, Zone, CSIRO diet, Liver Cleansing diet)	☐	☐
h	Laxatives, diuretics or diet pills (eg Xenical®, Reductil®)	☐	☐
i	Fasting	☐	☐
j	Smoking	☐	☐
k	Other	☐	☐

Q56 **How much would you *like* to weigh *now*?** *(Mark one only)*

- Happy as I am ☐
- 1 – 5 kg more ☐
- Over 5 kg more ☐
- 1 – 5 kg less ☐
- 6 – 10 kg less ☐
- Over 10 kg less ☐

Q57 **In the *past month*, how dissatisfied have you felt about:**
(Mark one on each line)

		Not at all dissatisfied		Slightly dissatisfied		Moderately dissatisfied		Markedly dissatisfied
a	Your weight	☐	☐	☐	☐	☐	☐	☐
b	Your shape	☐	☐	☐	☐	☐	☐	☐

Q58 **How often do you currently smoke cigarettes or any tobacco products?** *(Mark one only)*

- Daily → Go to Q59a
- At least weekly (but not daily) → Go to Q59b
- Less often than weekly → Go to Q60
- Not at all → Go to Q60

Q59 **a. If you smoke daily, on average how many cigarettes do you smoke *each day*?**

PRINT the number in the box ☐☐☐ cigarettes per day → Go to Q63

b. If you smoke, but not daily, on average how many cigarettes do you smoke *per week*?

PRINT the number in the box ☐☐☐ cigarettes per week

Q60 **In your lifetime, would you have smoked at least 100 cigarettes (or equivalent)?** *(Mark one only)* Yes ☐ No ☐ → If no, go to Q64

Q61 **Have you ever smoked daily?** *(Mark one only)* Yes ☐ No ☐ → If no, go to Q64

Q62 **At what age did you finally stop smoking daily?** *(Write age in boxes)* ☐☐ years old

Q63 **Have you tried to quit smoking in the last six months?** *(Mark one only)* Yes ☐ No ☐

Q64 **How often do you usually drink alcohol?** *(Mark one only)*

- I never drink alcohol ☐ → Go to Q67
- Less than once a month ☐
- Less than once a week ☐
- On 1 or 2 days a week ☐
- On 3 or 4 days a week ☐
- On 5 or 6 days a week ☐
- Every day ☐

Q65 **On a day when you drink alcohol, how many standard drinks do you usually have?** *(Mark one only)*

- 1 or 2 drinks per day ☐
- 3 or 4 drinks per day ☐
- 5 to 8 drinks per day ☐
- 9 or more drinks per day ☐

Q66 **How often do you have five or more standard drinks of alcohol on one occasion?** *(Mark one only)*

- Never ☐
- Less than once a month ☐
- About once a month ☐
- About once a week ☐
- More than once a week ☐

Q67 **At what age did you first have five or more drinks on one occasion?** *(Write age in boxes)*

☐☐ years old Have never drunk five or more drinks on one occasion ☐

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Q68 **How often did you have five or more drinks on one occasion when you were:**

		Never	Less than once a month	About once a month	About once a week	More than once a week
a	Sixteen years old	☐	☐	☐	☐	☐
b	Seventeen years old	☐	☐	☐	☐	☐
c	Eighteen years old	☐	☐	☐	☐	☐
d	Nineteen years old	☐	☐	☐	☐	☐
e	Twenty years old	☐	☐	☐	☐	☐
f	Twenty one years old	☐	☐	☐	☐	☐

Remember that any information you give us is kept confidential.

Q69 **The following question asks about the use of drugs for *non-medicinal* purposes. We want to know about general patterns of use. Please do not give details of specific instances of use.**
(Mark all that apply)

		In the last 12 months	More than 12 months ago	Never
a	Have you tried Marijuana (cannabis, hash, grass, dope, pot, yandi)?	☐	☐	☐
b	Have you tried any other illicit drugs (amphetamines, LSD, natural hallucinogens, tranquilisers, cocaine, ecstasy, inhalants, heroin or barbiturates)?	☐	☐	☐

The next question is about the amount of physical activity you did *last week*.

Q70 **Please state how many times you did each type of activity and how much time you spent altogether doing each type of activity *last week*.**
Only count activities that lasted for 10 minutes or more; add up all the times you spent in each activity to get the total time for each activity.
*(If you did **not** do an activity, please write '0' in the boxes)*

		Number of times	Total time in this activity: hours	minutes
a	**Walking briskly** (for recreation or exercise, or to get from place to place)	☐☐	☐☐	☐☐
b	**Moderate leisure activity** (like social tennis, moderate exercise classes, recreational swimming, dancing)	☐☐	☐☐	☐☐
c	**Vigorous leisure activity** (that makes you breathe harder or puff and pant like aerobics, competitive sport, vigorous cycling, running, swimming)	☐☐	☐☐	☐☐
d	**Vigorous household or garden chores** (that make you breathe harder or puff and pant)	☐☐	☐☐	☐☐

Now think about all of the time you spend sitting during *each day* while at home, at work, while getting from place to place or during your spare time.

Q71 **How many hours in total do you typically spend sitting down while doing things like visiting friends, driving, reading, watching television, or working at a desk or computer?**

a	On a usual **week day**	☐☐ hours	☐☐ minutes
b	On a usual **weekend day**	☐☐ hours	☐☐ minutes

This section is about your **usual** eating habits **over the past 12 months**. Where possible give only **one answer per question** for the type of food you eat **most often**. (If you can't decide which type you have most often, answer for the types you usually eat.)

Q72 **How many pieces of fresh fruit do you usually eat per day?** *(Count ½ cup of diced fruit, berries or grapes as one piece) (Mark one only)*

- I don't eat fruit ☐
- Less than 1 piece of fruit per day ☐
- 1 piece of fruit per day ☐
- 2 pieces of fruit per day ☐
- 3 pieces of fruit per day ☐
- 4 or more pieces of fruit per day ☐

Q73 **How many different vegetables do you usually eat per day?** *(Count all types, fresh, frozen or tinned) (Mark one only)*

- Less than 1 vegetable per day ☐
- 1 vegetable per day ☐
- 2 vegetables per day ☐
- 3 vegetables per day ☐
- 4 vegetables per day ☐
- 5 vegetables per day ☐
- 6 or more vegetables per day ☐

Q74 **What type of milk do you usually use?** *(Mark all that apply)*

- a None ☐
- b Full cream milk ☐
- c Reduced fat milk ☐
- d Skim milk ☐
- e Soya milk ☐

Q75 **How much milk do you usually use per day?** *(Include flavoured milk and milk added to tea, coffee, cereal etc) (Mark one only)*

- None ☐
- Less than 250 ml (1 large cup or mug) ☐
- Between 250 and 500 ml (1-2 cups) ☐
- Between 500 and 750 ml (2-3 cups) ☐
- 750 ml (3 cups) or more ☐

Q76 **What type of bread do you usually eat?** *(Mark all that apply)*

- a I don't eat bread ☐
- b High fibre white bread ☐
- c White bread ☐
- d Wholemeal bread ☐
- e Rye bread ☐
- f Multi-grain bread ☐

Q77 **How many slices of bread do you usually eat per day?** *(Include all types, fresh or toasted and count one bread roll as 2 slices) (Mark one only)*

- Less than 1 slice per day ☐
- 1 slice per day ☐
- 2 slices per day ☐
- 3 slices per day ☐
- 4 slices per day ☐
- 5-7 slices per day ☐
- 8 or more slices per day ☐

Q78 **Which spread do you usually put on bread?** *(Mark all that apply)*

- a I don't usually use any fat spread ☐
- b Margarine of any kind ☐
- c Polyunsaturated margarine ☐
- d Monounsaturated margarine ☐
- e Butter and margarine blends ☐
- f Butter ☐

Q79 **On average, how many teaspoons of sugar do you usually use per day?** *(Include sugar taken with tea and coffee and on breakfast cereal etc) (Mark one only)*

- None ☐
- 1 to 4 teaspoons per day ☐
- 5 to 8 teaspoons per day ☐
- 9 to 12 teaspoons per day ☐
- More than 12 teaspoons per day ☐

Q80 **On average, how many eggs do you usually eat per week?** *(Mark one only)*

- I don't eat eggs ☐
- Less than 1 egg per week ☐
- 1 to 2 eggs per week ☐
- 3 to 5 eggs per week ☐
- 6 or more eggs per week ☐

Q81 **What types of cheese do you usually eat?** *(Mark all that apply)*

- a I don't eat cheese ☐
- b Hard cheeses, eg parmesan, romano ☐
- c Firm cheeses, eg cheddar, edam ☐
- d Soft cheeses, eg camembert, brie ☐
- e Ricotta or cottage cheese ☐
- f Cream cheese ☐
- g Low fat cheese ☐

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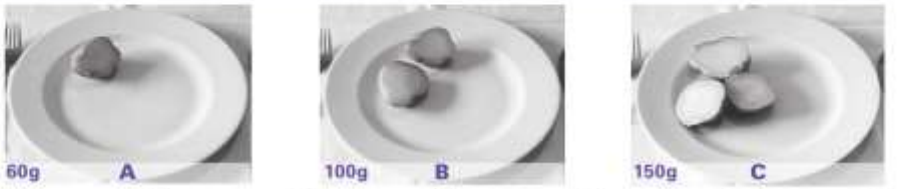
For each food shown on this page, indicate **how much on average you would usually have eaten at main meals during the *past 12 months***. When answering each question, think of the **amount** of that food you usually ate, even though you may rarely have eaten the food on its own. If you usually ate more than one helping, mark the box for the serving size closest to the **total amount** you ate.

Q82 **When you ate potato, did you usually eat:** I never ate potato ☐

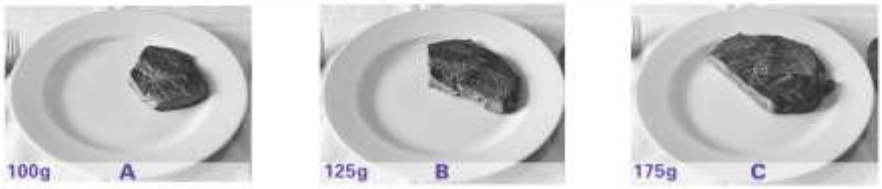


☐ Less than A ☐ A ☐ Between A & B ☐ B ☐ Between B & C ☐ C ☐ More than C

Q83 **When you ate vegetables, did you usually eat:** I never ate vegetables ☐

☐ Less than A ☐ A ☐ Between A & B ☐ B ☐ Between B & C ☐ C ☐ More than C

Q84 **When you ate steak, did you usually eat:** I never ate steak ☐



☐ Less than A ☐ A ☐ Between A & B ☐ B ☐ Between B & C ☐ C ☐ More than C

Q85 **When you ate meat *or* vegetable casserole, did you usually eat:** I never ate casserole ☐

☐ Less than A ☐ A ☐ Between A & B ☐ B ☐ Between B & C ☐ C ☐ More than C

Q86 **Over the *last 12 months*, on average, how often did you eat the following foods?**
(Mark one on each line)

TIMES YOU HAVE EATEN		Never	Less than once per month	1 to 3 times per month	1 time per week	2 times per week	3 to 4 times per week	5 to 6 times per week	1 time per day	2 times per day	3 or more times per day
Cereal, Foods, Sweets & Snacks											
a	All Bran™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Sultana Bran™, FibrePlus™, Branflakes™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Weet Bix™, Vita Brits™, Weeties™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Cornflakes, Nutrigrain™, Special K™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Porridge	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Muesli	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Rice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Pasta or noodles (include lasagne)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Crackers, crispbreads, dry biscuits	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Sweet biscuits	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Cakes, sweet pies, tarts and other sweet pastries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l	Meat pies, pasties, quiche and other savoury pastries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
m	Pizza	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
n	Hamburger with a bun	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
o	Chocolate	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
p	Flavoured milk drink (cocoa, Milo™ etc)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
q	Nuts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
r	Peanut butter or peanut paste	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
s	Corn chips, potato crisps, Twisties™ etc	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
t	Jam, marmalade, honey or syrups	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
u	Vegemite™, Marmite™ or Promite™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Dairy Products, Meat & Fish											
a	Cheese	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Ice-cream	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Yoghurt	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Beef	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Veal	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Chicken	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Lamb	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Pork	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Bacon	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Ham	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Corned beef, luncheon meats or salami	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l	Sausages or frankfurters	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
m	Fish, steamed, grilled or baked	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
n	Fish, fried (include take-away)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
o	Fish, tinned (salmon, tuna, sardines etc)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fruit											
a	Tinned or frozen fruit (any kind)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Fruit juice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Oranges or other citrus fruit	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Apples	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Pears	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Bananas	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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TIMES YOU HAVE EATEN CONTINUED		Never	Less than once per month	1 to 3 times per month	1 time per week	2 times per week	3 to 4 times per week	5 to 6 times per week	1 time per day	2 times per day	3 or more times per day
Fruit											
g	Watermelon, rockmelon (cantaloupe), honeydew etc	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Pineapple	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Strawberries	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Apricots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Peaches or nectarines	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l	Mango or paw paw	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
m	Avocado	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vegetables (including fresh, frozen and tinned)											
a	Potatoes, roasted or fried (include hot chips)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Potatoes cooked without fat	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Tomato sauce, tomato paste or dried tomatoes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Fresh or tinned tomatoes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Peppers (capsicum)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Lettuce, endive or other salad greens	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Cucumber	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Celery	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Beetroot	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Carrots	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k	Cabbage or Brussels sprouts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l	Cauliflower	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
m	Broccoli	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
n	Silverbeet or spinach	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
o	Peas	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
p	Green beans	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
q	Bean sprouts or alfalfa sprouts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
r	Baked beans	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
s	Soy beans, soy bean curd or tofu	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
t	Other beans (include chick peas, lentils etc)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
u	Pumpkin	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
v	Onion or leeks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
w	Garlic (not garlic tablets)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
x	Mushrooms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
y	Zucchini	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q87 **Over the last 12 months, how often did you drink beer, wine and / or spirits?** *(Mark one on each line)*

If you do **NOT** drink alcohol, mark here and go to Q89. **I do not drink alcohol** ☐

TIMES THAT YOU DRANK		Never	Less than once per month	1 to 3 days per month	1 day per week	2 days per week	3 days per week	4 days per week	5 days per week	6 days per week	every day
a	Beer (low alcohol)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Beer (full strength)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Red wine	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	White wine (include sparkling wines)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Fortified wines, port, sherry etc	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Spirits, liqueurs etc	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

When answering the next two questions, please convert the amounts you drink into glasses using the examples given below. For spirits, liqueurs and mixed drinks containing spirits, please count each nip (30 ml) as one glass.

1 can or stubby of beer = 2 glasses
1 large bottle beer (750 ml) = 4 glasses
1 bottle wine (750 ml) = 6 glasses
1 bottle of port or sherry (750 ml) = 12 glasses

Q88 **Over the *last 12 months*, on days when you were drinking, how many glasses of beer, wine and / or spirits altogether did you usually drink?**
(Mark one only)

	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten or more
Total number of glasses per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q89 **Over the *last 12 months*, what was the maximum number of glasses of beer, wine and / or spirits that you drank in 24 hours?**
(Mark one only)

	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19 or more
Maximum number of glasses per 24 hours	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Questions 72 to 89 are from the Cancer Council of Victoria Food Frequency Questionnaire and are used with their permission.

Q90 **Over the *last 12 months*, on average, how often did you drink the following?**
(Mark one on each line)

		Never	Less than once per month	1 to 3 times per month	1 time per week	2 times per week	3 to 4 times per week	5 to 6 times per week	1 time per day	2 times per day	3 or more times per day
a	Cola drinks - not diet (eg Coke)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b	Diet cola drinks (eg Diet Coke™)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c	Other carbonated (eg fizzy / soft drinks)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d	Cordials, fruit or sport drinks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e	Milk or soya milk (including flavoured varieties)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f	Fruit or vegetable juices	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g	Tea	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h	Herbal tea	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i	Coffee	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j	Water (including soda or plain mineral water)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q91 **Over the *last 12 months*, how stressed have you felt about the following areas of your life?**
(Mark one on each line)

		Not applicable	Not at all stressed	Somewhat stressed	Moderately stressed	Very stressed	Extremely stressed
a	Own health		☐	☐	☐	☐	☐
b	Health of family members	☐	☐	☐	☐	☐	☐
c	Work / employment	☐	☐	☐	☐	☐	☐
d	Living arrangements	☐	☐	☐	☐	☐	☐
e	Study	☐	☐	☐	☐	☐	☐
f	Money	☐	☐	☐	☐	☐	☐
g	Relationship with parents	☐	☐	☐	☐	☐	☐
h	Relationship with partner / spouse	☐	☐	☐	☐	☐	☐
i	Relationship with other family members	☐	☐	☐	☐	☐	☐
j	Relationship with friends	☐	☐	☐	☐	☐	☐
k	Motherhood / children	☐	☐	☐	☐	☐	☐

Q92 **People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kind of support available to you if you need it?**
(Mark one on each line)

		None of the time	A little of the time	Some of the time	Most of the time	All of the time
a	Someone to help you if you are confined to bed	☐	☐	☐	☐	☐
b	Someone you can count on to listen to you when you need to talk	☐	☐	☐	☐	☐
c	Someone to give you good advice about a crisis	☐	☐	☐	☐	☐
d	Someone to take you to the doctor if you need it	☐	☐	☐	☐	☐
e	Someone who shows you love and affection	☐	☐	☐	☐	☐
f	Someone to have a good time with	☐	☐	☐	☐	☐
g	Someone to give you information to help you understand a situation	☐	☐	☐	☐	☐
h	Someone to confide in or talk to about yourself or your problems	☐	☐	☐	☐	☐
i	Someone who hugs you	☐	☐	☐	☐	☐
j	Someone to get together with for relaxation	☐	☐	☐	☐	☐
k	Someone to prepare your meals if you are unable to do it yourself	☐	☐	☐	☐	☐
l	Someone whose advice you really want	☐	☐	☐	☐	☐
m	Someone to do things with to help you get your mind off things	☐	☐	☐	☐	☐
n	Someone to help with daily chores if you are sick	☐	☐	☐	☐	☐
o	Someone to share your most private worries and fears with	☐	☐	☐	☐	☐
p	Someone to turn to for suggestions about how to deal with a personal problem	☐	☐	☐	☐	☐
q	Someone to do something enjoyable with	☐	☐	☐	☐	☐
r	Someone who understands your problems	☐	☐	☐	☐	☐
s	Someone to love and make you feel wanted	☐	☐	☐	☐	☐

Q93 **Thinking about your current approach to life, please indicate how much you think each statement describes you:**
(Mark one on each line)

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a	In uncertain times, I usually expect the best	☐	☐	☐	☐	☐
b	If something can go wrong for me, it will	☐	☐	☐	☐	☐
c	I'm always optimistic about my future	☐	☐	☐	☐	☐
d	I hardly ever expect things to go my way	☐	☐	☐	☐	☐
e	I rarely count on good things happening to me	☐	☐	☐	☐	☐
f	Overall, I expect more good things to happen to me than bad	☐	☐	☐	☐	☐

women's health

Q94 **Have you experienced any of the following events?**
(Mark all that apply)

		A Yes – In the last 12 months	B Yes – More than 12 months ago
a	Major personal illness	☐	☐
b	Major personal injury	☐	☐
c	Major surgery (not including dental work)	☐	☐
d	Birth of a child	☐	☐
e	Having a child with a disability or serious illness	☐	☐
f	Starting a new, close personal relationship	☐	☐
g	Getting married (or starting to live with someone)	☐	☐
h	Problem or break-up in a close personal relationship	☐	☐
i	Divorce or separation	☐	☐
j	Becoming a sole parent	☐	☐
k	Increased hassles with parents	☐	☐
l	Serious conflict between members of your family	☐	☐
m	Parents getting divorced, separated or remarried	☐	☐
n	Death of partner or close family member	☐	☐
o	Death of a child	☐	☐
p	Stillbirth of a child	☐	☐
q	Miscarriage	☐	☐
r	Death of a close friend	☐	☐
s	Difficulty finding a job	☐	☐
t	Return to study	☐	☐
u	Beginning / resuming work outside the home	☐	☐
v	Distressing harassment at work	☐	☐
w	Loss of job	☐	☐
x	Partner losing a job	☐	☐
y	Decreased income	☐	☐
z	Natural disaster (fire, flood, drought, earthquake etc) or house fire	☐	☐
aa	Major loss or damage to personal property	☐	☐
bb	Being robbed	☐	☐
cc	Involvement in a serious accident	☐	☐
dd	Being pushed, grabbed, shoved, kicked or hit	☐	☐
ee	Being forced to take part in unwanted sexual activity	☐	☐
ff	Legal troubles or involvement in a court case	☐	☐
gg	Family member / close friend being arrested / in gaol	☐	☐
hh	You or a family member involved in problem gambling	☐	☐
ii	None of these events		☐

Q95 **In the *past week*, have you been feeling that life isn't worth living?** *(Mark one only)*

Yes	No
☐	☐

Q96 **In the *past 6 months*, have you *ever* deliberately hurt yourself or done anything that you knew might have harmed or even killed you?** *(Mark one only)*

Yes	No
☐	☐

If you answered yes to either of the last 2 questions, you might like to talk to someone about how you are feeling. You could ring Lifeline on 13 11 14 (local call).

Q97 **Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way *during the last week*.** *(Mark one on each line)*

		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
a	I was bothered by things that don't usually bother me	☐	☐	☐	☐
b	I had trouble keeping my mind on what I was doing	☐	☐	☐	☐
c	I felt depressed	☐	☐	☐	☐
d	I felt that everything I did was an effort	☐	☐	☐	☐
e	I felt hopeful about the future	☐	☐	☐	☐
f	I felt fearful	☐	☐	☐	☐
g	My sleep was restless	☐	☐	☐	☐
h	I was happy	☐	☐	☐	☐
i	I felt lonely	☐	☐	☐	☐
j	I could not 'get going'	☐	☐	☐	☐
k	I felt terrific	☐	☐	☐	☐

Q98 **Next are some specific questions about your health and how you have been feeling in the *past month*.** *(Mark one on each line)*

		Yes	No
a	Have you felt keyed up or on edge?	☐	☐
b	Have you been worrying a lot?	☐	☐
c	Have you been irritable?	☐	☐
d	Have you had difficulty relaxing?	☐	☐
e	Have you been sleeping poorly?	☐	☐
f	Have you had headaches or neck aches?	☐	☐
g	Have you had any of the following: trembling, tingling, dizzy spells, sweating, diarrhoea or needing to pass urine more often than usual?	☐	☐
h	Have you been worried about your health?	☐	☐
i	Have you had difficulty falling asleep?	☐	☐

Q99 **Do you regularly *provide* unpaid care or assistance (eg personal care, transport) to any other person because of their long-term illness, disability or frailty?** *(Mark one only)*

Yes	No
☐	☐

Q100 **Do you regularly *need* help with daily tasks because of a long-term illness or disability (eg help with personal care, getting around, preparing meals etc)?** *(Mark one only)*

Yes	No
☐	☐

The following questions ask about difficult situations you may have experienced. Some people prefer not to answer questions of this nature. If this is true for you, please go to *Question 104*.

Q101 **Have you ever had a partner or spouse?** *(Mark one only)* Yes ☐ No ☐ → If no, go to Q104

Q102 **This question asks about situations you may have experienced with *current or past* partners.**

(Mark as many as apply on each line)

	My Partner:	In the last 12 months	More than 12 months ago	Never
a	Told me that I wasn't good enough	☐	☐	☐
b	Kept me from medical care	☐	☐	☐
c	Followed me	☐	☐	☐
d	Tried to turn my family, friends and children against me	☐	☐	☐
e	Locked me in the bedroom	☐	☐	☐
f	Slapped me	☐	☐	☐
g	Forced me to take part in unwanted sexual activity	☐	☐	☐
h	Told me that I was ugly	☐	☐	☐
i	Tried to keep me from seeing or talking to my family	☐	☐	☐
j	Threw me	☐	☐	☐
k	Hung around outside my house	☐	☐	☐
l	Blamed me for causing their violent behaviour	☐	☐	☐
m	Harassed me over the telephone	☐	☐	☐
n	Shook me	☐	☐	☐
o	Harassed me at work	☐	☐	☐
p	Pushed, grabbed or shoved me	☐	☐	☐
q	Used a knife or gun or other weapon	☐	☐	☐
r	Became upset if dinner / housework wasn't done when they thought it should be	☐	☐	☐
s	Told me that I was crazy	☐	☐	☐
t	Told me that no one would ever want me	☐	☐	☐
u	Took my wallet and left me stranded	☐	☐	☐
v	Hit or tried to hit me with something	☐	☐	☐
w	Did not want me to socialise with my female friends	☐	☐	☐
x	Refused to let me work outside the home	☐	☐	☐
y	Kicked me, bit me or hit me with a fist	☐	☐	☐
z	Tried to convince my friends, family or children that I was crazy	☐	☐	☐
aa	Told me that I was stupid	☐	☐	☐
bb	Beat me up	☐	☐	☐

Q103 **Have you ever been in a violent relationship with a partner / spouse?** *(Mark one only)* Yes ☐ No ☐

If you feel distressed about any experiences of violence and abuse and would like some help to deal with this, please consider contacting one of the following:
**** Your nearest Women's Health Centre or Community Health Centre***
**** Your General Practitioner for advice about who would be the best person in your community to talk to***
**** A Lifeline counsellor on 13 11 14 (local call).***

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The following questions ask about how you use your time

Q104 **Managing time is often difficult. How often do you feel:**
(Mark one on each line)

		Every day	A few times a week	About once a week	About once a month	Never
a	That you are rushed, pressured, too busy?	☐	☐	☐	☐	☐
b	That you have time on your hands that you don't know what to do with?	☐	☐	☐	☐	☐

Q105 **In a usual week, how much time in total do you spend doing the following things?**
(Mark one on each line)

		I don't do this activity	1-15 hours	16-24 hours	25-34 hours	35-40 hours	41-48 hours	49 hours or more
a	Active leisure (eg walking, exercise, sport)	☐	☐	☐	☐	☐	☐	☐
b	Passive leisure (eg TV, music, reading, relaxation)	☐	☐	☐	☐	☐	☐	☐
c	Full-time permanent paid work	☐	☐	☐	☐	☐	☐	☐
d	Part-time permanent paid work	☐	☐	☐	☐	☐	☐	☐
e	Casual paid work	☐	☐	☐	☐	☐	☐	☐
f	Work without pay (eg family business)	☐	☐	☐	☐	☐	☐	☐
g	Studying	☐	☐	☐	☐	☐	☐	☐
h	Unpaid voluntary work	☐	☐	☐	☐	☐	☐	☐
i	Home duties (own / family home)	☐	☐	☐	☐	☐	☐	☐
j	Looking after your / your partner's children	☐	☐	☐	☐	☐	☐	☐

Q106 **In a seven day week, on how many DAYS would you say you are AT WORK (paid or unpaid)?**

Number of days ☐

Q107 **On average, on days when you are AT WORK (paid or unpaid), how many hours per day do you work?**

Number of hours ☐☐

Q108 **Please estimate how much time you spent SITTING in each of the following activities on your last WORKING day and on your last NON-WORKING day (weekend day or day off).**

		WORK DAY hours	WORK DAY minutes	NON-WORK DAY hours	NON-WORK DAY minutes
a	For TRANSPORT (eg in car, bus, train etc)	☐☐	☐☐	☐☐	☐☐
b	At WORK (eg sitting at a desk or using a computer)	☐☐	☐☐	☐☐	☐☐
c	Watching TV	☐☐	☐☐	☐☐	☐☐
d	Using a computer at home (email, games, information, chatting)	☐☐	☐☐	☐☐	☐☐
e	Other leisure activities (socializing, movies, etc, but NOT including TV or computer use)	☐☐	☐☐	☐☐	☐☐

Q109 **How much time did you spend SLEEPING on each of these days?**

hours	minutes	hours	minutes
☐☐	☐☐	☐☐	☐☐

Q110 **Do you normally do any of the following kinds of paid work?** *(Mark all that apply)*

a	I don't do any paid work	☐	→ **Go to Q112**
b	Paid shift work	☐	
c	Paid work with irregular hours	☐	
d	Paid work on short-term contract (less than one year)	☐	
e	Paid work in more than one job	☐	
f	Paid work at night	☐	
g	Paid work from home	☐	
h	Self employment	☐	
i	**None of the above**	☐	

Q111 **How secure or insecure do you feel about your paid job or jobs?** *(Mark one only)*

- ☐ I worry all the time about losing my job
- ☐ Sometimes I worry about losing my job
- ☐ I rarely or never worry about losing my job
- ☐ Don't know

Q112 **Are you happy with the number of hours of paid work you do?**
(Mark one only, even if you have no paid work)

- ☐ Yes, happy as is
- ☐ No, would like to do more
- ☐ No, would like to do less

Q113 **We would like to know your main occupation *now*** *(Mark one only)*

- ☐ Manager or administrator (eg magistrate, farm manager, general manager, director of nursing, school principal)
- ☐ Professional (eg scientist, doctor, registered nurse, allied health professional, teacher, artist)
- ☐ Associate professional (eg technician, manager, youth worker, police officer)
- ☐ Tradesperson or related worker (eg hairdresser, gardener, florist)
- ☐ Advanced clerical or service worker (eg secretary, personal assistant, flight attendant, law clerk)
- ☐ Intermediate clerical, sales or service worker (eg typist, word processing / data entry operator, receptionist, child care worker, nursing assistant, hospitality worker)
- ☐ Intermediate production or transport worker (eg sewing machinist, machine operator, bus driver)
- ☐ Elementary clerical, sales or service worker (eg filing / mail clerk, parking inspector, sales assistant, telemarketer, housekeeper)
- ☐ Labourer or related worker (eg cleaner, factory worker, general farm hand, kitchenhand)
- ☐ No paid job

Q114 **Are you currently unemployed *and actively seeking work*?** *(Mark one only)*

- ☐ No
- ☐ Yes, unemployed for less than 6 months
- ☐ Yes, unemployed for 6 months or more

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Q115 **What is the highest qualification you have completed?** *(Mark one only)*

- ☐ No formal qualifications
- ☐ Year 10 or equivalent (eg School Certificate)
- ☐ Year 12 or equivalent (eg Higher School Certificate)
- ☐ Trade / apprenticeship (eg hairdresser, chef)
- ☐ Certificate / diploma (eg child care, technician)
- ☐ University degree
- ☐ Higher university degree (eg Grad Dip, Masters, PhD)

Q116 **a** **What is the average gross (before tax) income that you receive each week, including pensions, allowances and financial support from parents?**

b **What is the average gross (before tax) income of your household each week (eg you and your partner, or you and your parents sharing a house?)**
*(Mark **one** for **yourself** and **one** for your **household**)*

	a. Self	b. Household
No income	☐	☐
$1-$119 ($1-$6,239 annually)	☐	☐
$120-$299 ($6,240-$15,599 annually)	☐	☐
$300-$499 ($15,600-$25,999 annually)	☐	☐
$500-$699 ($26,000-$36,399 annually)	☐	☐
$700-$999 ($36,400-$51,999 annually)	☐	☐
$1,000-$1,499 ($52,000-$77,999 annually)	☐	☐
$1,500-$1,999 ($78,000-$103,999 annually)	☐	☐
$2,000-$2,499 ($104,000-$129,999 annually)	☐	☐
$2,500-$2,999 ($130,000-$155,999 annually)	☐	☐
$3,000 or more ($156,000 or more annually)	☐	☐
Don't know	☐	☐
Don't want to answer	☐	☐
I live alone (household income is the same as mine)		☐

Q117 **How many people (including yourself), are dependent on this household income?** *(Write number in boxes)* ☐☐

Q118 **How do you manage on the income you have available?** *(Mark one only)*

- ☐ It is impossible
- ☐ It is difficult all the time
- ☐ It is difficult some of the time
- ☐ It is not too bad
- ☐ It is easy

Q119 **How much of your gross (before tax) household income do you spend on your housing (eg rent, mortgage repayments)?** *(Write percentage in boxes)* ☐☐ %

Q120 **Which one of the following best describes your housing situation?** *(Mark one only)*

- Private rental (including rent paid to real estate agents) ☐
- State Department of Housing public rental ☐
- Housing that comes with employment (eg Department of Defence, Department of Education, mining company etc) ☐
- Owned home (with or without mortgage) ☐
- Living with parents / in-laws ☐

Q121 **What is your present marital status?** *(Mark one only)*

- Never married ☐
- Married ☐
- De facto (opposite sex) ☐
- De facto (same sex) ☐
- Separated ☐
- Divorced ☐
- Widowed ☐

Q122 **Who lives with you?** *(Mark all that apply)*

a	No one, I live alone	☐
b	Partner / spouse	☐
c	Own children	☐
d	Someone else's children	☐
e	Parents	☐
f	Other adults	☐

Q123 **In general, how satisfied are you with what you have achieved in each of the following areas of your life?** *(Mark one on each line)*

			Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
a	Work		☐	☐	☐	☐
b	Career		☐	☐	☐	☐
c	Study		☐	☐	☐	☐
d	Family relationships		☐	☐	☐	☐
e	Partner / closest personal relationship		☐	☐	☐	☐
f	Friendships		☐	☐	☐	☐
g	Social activities		☐	☐	☐	☐
h	Motherhood / children	☐ Not applicable	☐	☐	☐	☐

Q124 **Did someone help you fill in this survey?** *(Mark one only)*

No	☐
Yes, but I told them the answers I wanted	☐
Yes, but the helper answered for me using his / her own judgement	☐

Q125 **What was the MAIN reason for your needing help to fill in this survey?** *(Please describe)*

Have we missed anything?
If you have anything else you would like to tell us, please write on the lines below.
You may also like to take a moment to check you have not missed any questions or pages.

Thank you for taking the time to complete this survey.

If you need help to answer any of the questions, you can contact us by telephoning
1800 068 081(Freecall)

When you have completed the survey, please sign the next page and send the survey back to us as soon as possible. We will detach the consent form and store it in a separate locked room.

Consent

I agree to the research team following health and other records relating to me, including hospital and health service use records and cancer registers and other chronic conditions registers as described to me in the accompanying brochure. I also understand this means I agree to Medicare releasing information concerning services provided to me under Medicare, the Department of Veterans' Affairs, the Pharmaceutical Benefits Scheme and the Repatriation Pharmaceutical Benefits Scheme, including past information, for the duration of the study, as outlined in the enclosed brochure. *(Mark one only)* Yes ☐ No ☐

Please sign below and send the completed survey back to us in the envelope supplied as soon as possible. We will detach the consent form and store it in a separate locked room.

I consent to the researchers 'matching' the information provided in this survey with that given in previous surveys so that any change in my health can be noted.

Signature: **Date:** / /

What is your Maiden Name? (Please print in the boxes)

Have you remembered to measure your waist?
Page 14 Question 54.

Help us keep in touch

Sometimes we lose touch with our participants. It would be helpful if you could give us your mobile phone number and email address.

Mobile

Email

It would be helpful also, if you could give us details of **parents, a relative or friend** who will be able to help us find you, after checking that the relative or friend is happy for you to provide these details.

Name:

Address:

Town/ Suburb State Postcode

Phone: ( ) **Relationship to you:**

Name:

Address:

Town/ Suburb State Postcode

Phone: ( ) **Relationship to you:**

women's health australia

Please post this back in the Reply Paid envelope provided.

Women's Health Australia
Reply Paid 70
Hunter Region MC
NSW 2310

Please let us know your new details if you move, change your name or your telephone number.

Freecall Number 1800 068 081

Australian Longitudinal Study on Women's Health

The University of Newcastle, Callaghan NSW 2308.
Phone: 02 4913 8872 Fax: 02 4913 8888
Email: whasec@newcastle.edu.au
Web: www.alswh.org.au

APPENDIX J CERTIFICATE OF APPROVAL TO CONDUCT HUMAN RESEARCH: AUSTRALIAN LONGITUDINAL STUDY ON WOMEN'S HEALTH

HUMAN RESEARCH ETHICS COMMITTEE

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

APPROVAL TO CONDUCT HUMAN RESEARCH

To Chief Investigator or Project Supervisor:	**Associate Professor Deb Loxton**
Cc Co-investigators / Research Students:	**Doctor Meredith Tavener** **Professor Gita Mishra** **Professor Julie Byles** **Dr Leigh Tooth** **Professor Annette Dobson** **Associate Professor Jayne Lucke** **Professor Christina Lee** **Associate Professor David Sibbritt** **Associate Professor Nancy Pachana** **Professor Wendy Brown**
Re Protocol:	**Australian longitudinal study on women's health**
Date:	**20-Aug-2012**
Reference No:	**H 076 0795**

Thank you for your recent application to the University of Newcastle Human Research Ethics Committee (HREC) requesting a certificate of approval for the protocol identified above.

A *Certificate of Approval* is enclosed Details of previous approvals for Initial, Renewal and Variation applications are also included on the certificate.

The *Certificate* and this advice are to be retained
They are important documents

- Note any comments related to the approval.
- **Where the HREC is the lead or primary HREC, if the research requires the use of an Information Statement, ensure the Reference No. is inserted into the complaints paragraph in the approved document(s) prior to distribution to potential participants.**
- Where the research is the project of a higher degree candidate, it is the responsibility of the project supervisor to ensure that the candidate receives this approval advice.

Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress*, *Reporting of Adverse Events*, and *Variations to the Approved Protocol* as detailed below.

PLEASE NOTE:
In the case where 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, you will apply to the External HREC for approval in the first instance and then Register that approval with the University's HREC.

- ***Monitoring of Progress***

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. The *Certificate of Approval* identifies the period for which approval is granted and your progress report schedule. A progress report is required on an annual basis, you will be advised when a report is due.

- ***Reporting of Adverse Events***

1. It is the responsibility of the person **first named on the Certificate** to report adverse events.

2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.

3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Certificate to the (HREC) by way of the Adverse Event Report form within 72 hours of the occurrence of the event or the investigator receiving advice of the event.

4. Serious adverse events are defined as:
    - Causing death, life threatening or serious disability.
    - Causing or prolonging hospitalisation.
    - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
    - Causing psycho-social and/or financial harm. This covers everything from

perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
- Any other event which might affect the continued ethical acceptability of the project.

5. Reports of adverse events must include:
   - Participant's study identification number;
   - date of birth;
   - date of entry into the study;
   - treatment arm (if applicable);
   - date of event;
   - details of event;
   - the investigator's opinion as to whether the event is related to the research procedures; and
   - action taken in response to the event.

6. Adverse events which do not fall within the definition of serious, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

- ***Variations to approved protocol***

If you wish to change, or deviate from, the approved protocol, you will need to submit an *Application for Variation to Approved Human Research*. Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

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.

With best wishes for a successful project.

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

For communications and enquiries:
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T +61 2 492 18999
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Human-Ethics@newcastle.edu.au

Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref
University of Newcastle/Pilot Grant(**)	Establishing a linked record system to optimise the use of longitudinal health-related datasets: illustrated by two studies of medication use	Young Anne,	G0186687
University of Newcastle/Project Grant(**)	Social determinants of weight control strategies and the effects on health status	Williams Lauren,	G0184629
University of Newcastle/New Staff Grant(**)	The development of iron deficiency in Australian women	Patterson Amanda,	G0190113
Office for the Status of Women/Research Grant(**)	Management fee for violence against young women and reproductive medicine project.	Lee Christina,Engrid	G0181864
Food Standards Australia New Zealand/Project Grant(**)	Iodine-related food intake among pregnant, breastfeeding and other women	Powers Jennifer,	G0189008
NSW Ministry of Health/Drug and Alcohol Council Research Grants Program(**)	The mental health of women who binge drink	Powers Jennifer,	G1000947
Womens Health East/Research Grant(**)	Research report: Women's health in the east of Victoria	Loxton Deb,	G0190059
Australian Rotary Health/Mental Health Research Grant(**)	Uptake and impact of new Medicare Benefits Schedule Items - Psychologists and Other Allied Mental Health Professionals	Byles Julie,	G0189463
Department of Health and Ageing/Consultancy/Tender(**)	The Australian Longitudinal Study on Women's Health (Renewal of funding)	Byles Julie,	G0189875
University of Queensland/Shared(**)	Centre of Research Excellence in Women's Health in the 21st Century (CREWH21)	Byles Julie,	G1000941
Commonwealth Department of Health & Aged Care/Office of NHMRC(**)	Longitudinal Study on Women's Health (Renewal of funding)	Byles Julie,	G0179009
Hunter Medical Research Institute/PULSE Education Prize(**)	PULSE Education Prize	Hure Alexis,	G1200174
Department of Family and Community Services/Consultancy/Tender(**)	Women's experience of paid work and planning for retirement	Warner-Smith Penelope,	G0186751
Royal Australian College of General Practitioners/Research Grant for a Pilot Study(**)	Development of a clinical tool to assess anticholinergic medicines overload in general practice	Magin Parker,	G1200624
Health Administration Corporation/Research Grant(**)	Opioid use, health and health care in the Australian Longitudinal Study on Women	Parkinson Lynne,	G1101174
Hunter Medical Research Institute/Project Grant(**)	Women and Athritis: the burden of suffering for older Australian women	Parkinson Lynne,	G0186097
Australian Academy of Science/Scientific visits to the USA, Canada and Mexico(**)	Arthritis and comorbid conditions in older women: Perspectives, impacts and management in Australia and Canada	Parkinson Lynne,	G1000938
Arthritis Australia/Special Purpose Grant(**)	Women and arthritis: The burden of suffering for older Australian women	Parkinson Lynne,	G0185622

HUMAN RESEARCH ETHICS COMMITTEE
Certificate of Approval

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Applicant: (first named in application)	Associate Professor Deb Loxton
Co-Investigators / Research Students:	Doctor Meredith Tavener Professor Gita Mishra Professor Julie Byles Dr Leigh Tooth Professor Annette Dobson Associate Professor Jayne Lucke Professor Christina Lee Associate Professor David Sibbritt Associate Professor Nancy Pachana Professor Wendy Brown
Protocol:	Australian longitudinal study on women's health

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.

Note: Approval is granted subject to the requirements set out in the accompanying document ***Approval to Conduct Human Research***, and any additional comments or conditions noted below.

Details of Approval

HREC Approval No: H 076 0795 **Date of Initial Approval:** 26-Jul-1995

Approval

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.

Progress reports due: Annually.

If the approval of an External HREC has been "noted", the reporting period is as determined by that HREC.

Approval Details

Variation

14-May-2008

Variation for submission of:

1. ALSWH Older-aged Cohort Survey 5. This incorporates minor amendments from the pilot version of Survey 5 to the main version.

2. ALSWH Older-aged Cohort Survey 5 Letter. This incorporates refinement of wording relating to data linkage from the pilot version to the main version.

3. Revised Reminder and Thank You cards to reflect change in follow-up protocols. Targeted reminder to non-responders and thank you slip to all respondents after majority of surveys returned.

Approved

The Committee ratified the approval granted by the Deputy Chair on 12-Feb-2008 under the provisions for expedited review.

Initial Application

Approved

16/11/94

The proposal is approved in principle subject to full details of information/consent documents and data linkage being submitted to and approved by the Committee. Sub-studies undertaken will require separate ethics approval, as you indicated in your application.

19.8.98

APPROVAL RENEWED for a further three-year period on the basis of information contained in the application for renewal of ethics approval and Professor Dobson's covering letter of 14 July 1998.

19.9.01

Approval granted for a further three years.

10.11.04

Approval renewed for a further three-year period.

12.12.07

Approval renewed for a further three (3) year period.

Progress Report / Renewal

Approved

Variation

10-Dec-2008

Variation to:

1. Provide a telephone reminder to the Younger 5 pilot cohort.

2. Change the title of the participant groups to '1973-78 cohort', '1946-51 cohort' and '1921-26' cohort.

- 1973-78 Pilot Cohort: Telephone Reminder Script, Version 1, undated

Approved

Variation

15-Apr-2009

Variation for submission of the ALSWH Younger-aged Cohort Survey 5.

Approved

Variation

09-Jul-2008

Variation to:

1. Write to participants who do not respond to the consent question within the questionnaire, and ask if they would like to respond to this missed question (ALSWH Letter 1, Version 2 dated 30 May 2008).

2. Telephone participants (only those of whom have already consented to be contacted by the researchers), to remind them of any omissions within their returned questionnaire and, if appropriate, to ask them to respond to the consent question within the questionnaire.

3. Write to participants who have not signed the survey, and ask them if they would add their signature.
(ALSWH Letter 1, Version 2 dated 30 May 2008).

4. Write to participants who have missed both the consent section and the signature section within the questionnaire, to ask them to complete the final page.
(ALSWH Letter 1, version 2 dated 30 May 2008)

5. Write to participants who have not completed the surveys and who have withdrawn by mail, to ask for their consent to link their past survey data with other datasets.
(ALSWH Letter 2, Version 2 dated 30 May 2008)

6. Write to participants who have withdrawn their participation by telephone, and who have not completed a survey, to ask them to complete a consent form for data linkage if they appear to be amenable to such a request.
(ALSWH Letter 2, Version 2 dated 30 May 2008).

Approved

Variation

16-Sep-2009

Variation to:

1. Allow Medicare Australia to send out a letter on behalf of the researchers to women who the ALSWH have lost contact with. Medicare Australia will link the ALSWH IDs of these participants to their Medicare address and send out mailing packages on behalf of the researchers. Medicare will receive any Return to Sender mail and will inform ALSWH of this.

2. Include the following mailing packages for each Cohort:

a. 1921-1925 Cohort:
i. Small window-faced envelope from Medicare with their reply-paid address;

ii. Letter from Medicare explaining this process and reminding participants of their original involvement with ALSWH;
iii. Letter from ALSWH providing information about the project and contact details;
iv. Change of details card; and
v. Small ALSWH reply-paid envelopes.

b. 1946-51 Cohort.
As per a above.

c. 1973-78 Cohort:
i. Copy of the 2009 survey for the women of the 1973-78 cohort.
ii. Large window-faced envelope from Medicare with their reply-paid address;
iii. Letter from Medicare explaining this process and reminding participants of their original involvement with ALSWH;
iv. Letter from ALSWH providing information about the project and contact details;
v. Change of details card; and
vi. Large ALSWH reply-paid envelopes.

Approved

The Committee ratified the approval granted by the Chair on 27 August 2009 under the provisions for expedited review.

Variation

16-Sep-2009

Variation to undertake a reminder process for non-responders in the 5th wave of surveys issued to the 1973-78 Cohort. Reminders will be in the form of either: a) Reminder text message to mobile phones; b) email to those participants who have not recorded a mobile phone number or whose text message was undeliverable; or c) telephone for those participants who are not contactable via mobile or email and who have not returned their survey.

Approved

The Committee ratified the approval granted by the Chair on 27 August 2009 under the provisions for expedited review.

Variation

15-Jul-2009

Variation to:

1. Conduct the ALSWH 1946-51 Cohort Pilot Survey 6.

2. Amend the Information Brochure and Consent Form to include information on, and request permission for, data linkage (as previously approved for the other cohorts).

3. Include the Evaluation Sheet for pilot participant feedback.

4. Include reminder process - leaflet after 4 weeks and telephone call after 12 weeks (as previously approved for the other cohorts).

Approved

The Committee ratified the approval granted by the Deputy Chair on 23June 2009 under the provisions for expedited review

Variation

17-Feb-2010

Variation to:

1. Change the method of delivering the bulk text message reminders to the 1973-78 Cohort (approved by HREC Aug 2009) from via University IT Services to via MessageMedia.

2. Amend the wording of the text message to reflect that participants can now reply via text message. New wording is "*Dear Women's Health Australia participant we've not heard from you since sending our last survey. Maybe you've moved? Please reply or call 1800068081. Thanks WHA.*"

Approved

Variation

17-Mar-2010

Variation for submission of the ALSWH *Sixth Survey for the Women of the 1946-51 Cohort (2010)* .

Approved

The Committee ratified the approval granted by the Deputy Chair on 24.2.2010 under the provisions for expedited review

Variation

16-Jun-2010

Variation to use social networking sites (Facebook and MySpace) to track participants lost to contact where all other avenues of recontact have been exhausted and where participant names and dates of birth match publicly available profile information. A private message will be sent to matched profiles inviting them to contact the ALSWH team.

Approved

The Committee ratified the approval granted by the Chair on 28/05/10 under the Provisions for expedited review.

Variation

18-Aug-2010

Variation to:

1. Conduct the ALSWH 1921-26 Cohort Pilot Survey 6 (*Sixth Survey for Women over 80 2010*).
2. Add a new process involving linkage of ALSWH data with the National Centre for Social Applications of Geographic Information Systems (GISCA) Geocoded Data.
3. Submit the current Pilot Invitation Letter and the Evaluation Sheet for pilot participant feedback.

Approved

The Committee ratified the approval granted by the Chair on 27/07/10 under the provisions for expedited review.

Variation

21-Jul-2010

Variation to use SMS reminders for non-respondents across all participant cohorts.

Approved

Variation

16-Feb-2011

Variation for submission of the ALSWH *Sixth Survey for Women of the 1921-26 Cohort 2011*.

Approved

The Committee ratified the approval granted by the Chair on 03/02/11 under the provisions for expedited review.

Variation

17-Aug-2011

Variation to seek current approval from the HREC to access the Australian Electoral Commission's (AEC's) Commonwealth Electoral Roll records for the purpose of locating participants who have left their last known address and whose current address details are unable to be identified through other means. The data items to be requested from the AEC include Electoral Roll information for all female electors nationally, including name, address, gender and age range in three bands (33-38, 60-65 and 85-90).

Approved

Variation

20-Oct-2010

Variation to:

1. Add Professor Gita Mishra (University of Queensland) to the research team.

2. Link this project with the NHMRC-funded 'Centre for Research Excellence in Women's Health in the 21st Century' (G1000941).

Approved

Variation

20-Jul-2011

Variation to:

1. Increase the frequency of surveys for the 1921-26 cohort with a shortened version of the standard survey to be conducted every six months (in addition to the standard 3-year survey).

2. In addition to the pen-paper survey, participants will take part in a short telephone interview to measure cognitive function using Gallo and Breiner's (1995) 21-item Modified Telephone Interview of Cognitive Status (TICS-M).

- Six Monthly Survey Invitation Letter for 1921-26 Cohort (submitted 13/04/2011)
- *Sixth Monthly Survey for Women of the 1921-26 Cohort*
- TICS-M
- Evaluation Sheet

Approved

The Committee ratified the approval granted by the Chair on 31/05/11 under the provisions for expedited review.

Variation

16-Feb-2011

Variation to update the data storage and data security methods for the data collected by the *Australian Longitudinal Study on Women's Health (ALSWH)*.

Approved

The Committee ratified the approval granted by the Chair on 25/01/11 under the provisions for expedited review.

Variation

19-Oct-2011

Variation to:

1. Introduce the use of a bulk email message to participants who are 'lost' or 'in tracking' and who have provided an email address.

2. Amend the message content of the previously approved bulk text message used for participant tracking.

Approved

The Committee ratified the approval granted by the Chair on 04/10/11 under the provisions for expedited review.

Variation

16-Nov-2011

Variation to:

1. Pilot the ALSWH *Sixth Survey for the Women of the 1973-78 Cohort.*

2. Trial the acceptability of online survey completion. Participants in the pilot will be separated into two groups with one group offered paper survey completion (as per standard protocol) and the other group asked to complete the survey online via Survey Monkey. Participants completing the survey online will enter an ALSWH assigned code to identify their survey responses, rather than the standard identifying information recorded on the paper-based surveys.

For paper-based survey group:
- Brochure
- Change of Details Form
- Reminder Flyer
- Email Reminder
- Survey Evaluation Form
- Thank You Flyer

For online survey group:
- Initial Email Invitation (v2, submitted 07/10/2011)
- Brochure
- Change of Details Form
- Paper version of Initial Invitation where there is no response to email (v2, submitted 07/10/2011)
- Paper version of Initial Invitation where no email address is present (v2, submitted

07/10/2011)
- Email Reminder (v2, submitted 07/10/2011)
- Survey Evaluation Form

Approved

The Committee ratified the approval granted by the Chair on 27/10/11 under the provisions for expedited review.

Variation

17-Nov-2010

Variation to use Medicare Australia to assist with tracking ongoing participants whose contact details have changed. Participants will be sent a letter via Medicare Australia with a request to complete a change of details form to be returned to the researchers.

- Covering Letter from Medicare Australia
- Letter from the ALSWH
- Change of Details Card

Approved

The committee ratified the approval granted by the Deputy Chair on 13/10/10 under the provisions for expedited review.

Variation

16-Nov-2011

Variation to introduce a standard response strategy for the 1921-26 cohort in situations where a participant's nominated contact requests that the participant be withdrawn, without prior consultation with the participant and in the absence of reported cognitive impairment.

- Telephone Scripts (submitted 06/10/2011)

Approved

The Committee ratified the approval granted by the Human Research Ethics Officer on 21/10/11 under the provisions for expedited review.

Variation

22-Feb-2012

Variation to send an email reminder to participants who have partially completed their online survey informing them that they can still complete it on the same device on which it was commenced.

Approved

The Committee ratified the approval granted by the Human Research Ethics Officer on the 16th of January 2012 under the provisions for expedited review.

Variation

20-Jun-2012

Variation for the use of publicly available information provided on Facebook and MySpace to assist with tracking participants whose mail is 'returned to sender' or whose telephone and email contact details are no longer current.

Approved

The Committee ratified the approval granted by the Human Research Ethics Officer on 11th May 2012 under the provisions for expedited review.

Variation

18-Apr-2012

Variation to:

1. Add Dr Meredith Tavener to the research team.

2. Conduct the *Sixth Survey for the Women of the 1973-178 Cohort*.

2. Provide participants in this cohort with the option of completing the survey either online, or in hard copy format. The online survey software (Illume) will allow incoming participant data to be housed on ALSWH servers.

Approved

The Committee ratified the approval granted by the Chair on the 28th of March 2012 under the provisions for expedited review.

Variation

19-Oct-2011

Variation to:

1. Conduct the six-monthly survey with the ALSWH main 1921-26 cohort.

2. Administer the *Telephone Interview for Cognitive Status Modified (TICS-M)* to participants once they have returned their completed survey.

3. Add a new question to the previously piloted six-monthly survey covering a description of the participant's housing situation.

- Six-monthly Survey for Women of the 1921-26 Cohort
- Cover/Invitation Letter
- Telephone Interview for Cognitive Status for ALSWH 1921-26 Cohort

Approved

The Committee ratified the approval granted by the Chair on 23/09/11 under the provisions for expedited review.

Variation

22-Feb-2012

Variation to identify a random sample of 120 members of the 1946-51 cohort and ask them about their attitudes to a snowball sampling methodology to recruit a male cohort. The women will be sent a letter with a consent form inviting them to take part in a telephone interview to discuss their attitudes to, and support of, recruitment of a male cohort drawn from their social networks, but particularly focussing on husbands/partners.

- Information Statement: Exploring recruitment of male cohort (version submitted 20/01/12)
- Consent Form: Exploring recruitment of male cohort (version 1, submitted 10/01/12)

Approved

The Committee ratified the approval granted by the Human Research Ethics Officer on the 30th of January 2012 under the provisions for expedited review.

Variation

20-Jun-2012

Variation to amend the online survey front screen by removing the phrase 'I consent to the researchers 'matching' the information provided in this survey with that given in previous surveys so that any change in my health can be noted'.

As this is a longitudinal project, participants have already agreed to their ongoing survey responses being matched.

- Online Survey cover screen, version submitted 24.5.2012

Approved

The Committee ratified the approval granted by the Deputy Chair on 4th June 2012 under the provisions for expedited review.

Variation

22-Feb-2012

Variation to send the group who were originally allocated to completing a paper survey a reminder and brochure which includes the option for them to complete the survey online. This will be sent via email to participants with these details provided, or via letter.

- Email Reminder (submitted 16/01/12)
- Reminder Letter (submitted 16/01/12)

Approved

The Committee ratified the approval granted by the Deputy Chair on the 17th of January 2012 under the provisions for expedited review.

Variation

14-Dec-2011

Variation to send a letter to women who participated in the pilot phase of the survey for the older cohort to acknowledge that the Telephone Interview of Cognitive Status (TICS) was not effective for this population.

Approved

The Committee ratified the approval granted by the Human Research Ethics Officer and the Chair on the 11th of November 2011 under the provisions for expedited review.

Variation

22-Feb-2012

Variation to amend the online change of details form to include the option to provide details of alternate contacts (eg, family members, friends).

Approved

The Committee ratified the approval granted by the Deputy Chair on the 20th December 2011 under the provisions for expedited review.

Variation

19-Sep-2012

Variation to conduct a pilot study involving a sample of 400 parous women in the 1973-78 cohort. The women will be invited to participate in an online survey to discuss their

attitudes to, and support of, the potential recruitment of their children to the Next Generation Study (G2).

- Information Statement: Next Generation (G2) Pilot Study, version submitted 15.8.2012
- The Next Generation (G2) Pilot Study: Children of the 1973-1978 Cohort Questionnaire, version submitted 15.8.2012

Approved

Authorised Certificate held in Research Services

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

APPENDIX K ETHICAL APPROVALS FOR QUALITATIVE WORK REPORTED IN CHAPTER 7

HUMAN RESEARCH ETHICS COMMITTEE

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	**Associate Professor Deb Loxton**
Cc Co-investigators / Research Students:	**Doctor Alexis Hure** **Mrs Frances Kay-Lambkin** **Miss Amy Anderson**
Re Protocol:	**Women's perceptions of information they received about alcohol use during pregnancy**
Date:	**04-Jul-2012**
Reference No:	**H-2012-0153**
Date of Initial Approval:	**04-Jul-2012**

Thank you for your **Response to Conditional Approval (minor amendments)** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited** review by the Ethics Administrator.

I am pleased to advise that the decision on your submission is **Approved** effective **04-Jul-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.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If 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 ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is **H-2012-0153**.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants You may then proceed with the research.

Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress*, *Reporting of Adverse Events*, and *Variations to the Approved Protocol* as detailed below.

PLEASE NOTE:
In the case where 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.

- ***Monitoring of Progress***

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- ***Reporting of Adverse Events***

1. It is the responsibility of the person **first named on this Approval Advice** to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
    - Causing death, life threatening or serious disability.
    - Causing or prolonging hospitalisation.
    - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
    - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
    - Any other event which might affect the continued ethical acceptability of the project.
5. Reports of adverse events must include:
    - Participant's study identification number;
    - date of birth;
    - date of entry into the study;
    - treatment arm (if applicable);

- date of event;
- details of event;
- the investigator's opinion as to whether the event is related to the research procedures; and
- action taken in response to the event.

6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

- ***Variations to approved protocol***

If you wish to change, or deviate from, the approved protocol, you will need to submit an *Application for Variation to Approved Human Research*. Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

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:
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Callaghan NSW 2308
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Human-Ethics@newcastle.edu.au

Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref

HUMAN RESEARCH ETHICS COMMITTEE

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Notification of Expedited Approval

To Chief Investigator or Project Supervisor:	**Associate Professor Deb Loxton**
Cc Co-investigators / Research Students:	**Doctor Alexis Hure** **Mrs Frances Kay-Lambkin** **Miss Amy Anderson**
Re Protocol:	**Women's perceptions of information they received about alcohol use during pregnancy**
Date:	**23-Aug-2012**
Reference No:	**H-2012-0153**

Thank you for your **Variation** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to a variation to the above protocol.

Variation to extend the source of recruitment for this project to include women in the ALSWH 1973-78 cohort who indicated they were pregnant at survey 5 (2009) or survey 6 (2012).

- WHA Covering Letter, Information Statement and Consent Form (v3, dated 27/07/2012)

Your submission was considered under **Expedited** review by the Chair/Deputy Chair.

I am pleased to advise that the decision on your submission is **Approved** effective **23-Aug-2012**.

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request.

Note - this approval has bee granted on the basis of an assurance that for women who reported pregnancy in the 2012 survey, only those who were 6+ months pregnant at the time of the survey will be eligible to avoid directly targeting women who are still pregnant at the time of this study.

Professor Allyson Holbrook
Chair, Human Research Ethics Committee

For communications and enquiries:

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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

HUMAN RESEARCH ETHICS COMMITTEE

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

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Reference No:	**H-2012-0153**
Date of Initial Approval:	**04-Jul-2012**

Thank you for your **Response to Conditional Approval (minor amendments)** submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under **Expedited** review by the Ethics Administrator.

I am pleased to advise that the decision on your submission is **Approved** effective **04-Jul-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.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If 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 ratify this decision at its next scheduled meeting. A formal *Certificate of Approval* will be available upon request. Your approval number is **H-2012-0153**.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants You may then proceed with the research.

Conditions of Approval

This approval has been granted subject to you complying with the requirements for *Monitoring of Progress*, *Reporting of Adverse Events*, and *Variations to the Approved Protocol* as detailed below.

PLEASE NOTE:
In the case where 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.

- ***Monitoring of Progress***

Other than above, the University is obliged to monitor the progress of research projects involving human participants to ensure that they are conducted according to the protocol as approved by the HREC. A progress report is required on an annual basis. Continuation of your HREC approval for this project is conditional upon receipt, and satisfactory assessment, of annual progress reports. You will be advised when a report is due.

- ***Reporting of Adverse Events***

1. It is the responsibility of the person **first named on this Approval Advice** to report adverse events.
2. Adverse events, however minor, must be recorded by the investigator as observed by the investigator or as volunteered by a participant in the research. Full details are to be documented, whether or not the investigator, or his/her deputies, consider the event to be related to the research substance or procedure.
3. Serious or unforeseen adverse events that occur during the research or within six (6) months of completion of the research, must be reported by the person first named on the Approval Advice to the (HREC) by way of the Adverse Event Report form within 72 hours of the occurrence of the event or the investigator receiving advice of the event.
4. Serious adverse events are defined as:
    - Causing death, life threatening or serious disability.
    - Causing or prolonging hospitalisation.
    - Overdoses, cancers, congenital abnormalities, tissue damage, whether or not they are judged to be caused by the investigational agent or procedure.
    - Causing psycho-social and/or financial harm. This covers everything from perceived invasion of privacy, breach of confidentiality, or the diminution of social reputation, to the creation of psychological fears and trauma.
    - Any other event which might affect the continued ethical acceptability of the project.

5. Reports of adverse events must include:
    - Participant's study identification number;

- date of birth;
- date of entry into the study;
- treatment arm (if applicable);
- date of event;
- details of event;
- the investigator's opinion as to whether the event is related to the research procedures; and
- action taken in response to the event.

6. Adverse events which do not fall within the definition of serious or unexpected, including those reported from other sites involved in the research, are to be reported in detail at the time of the annual progress report to the HREC.

- ***Variations to approved protocol***

If you wish to change, or deviate from, the approved protocol, you will need to submit an *Application for Variation to Approved Human Research*. Variations may include, but are not limited to, changes or additions to investigators, study design, study population, number of participants, methods of recruitment, or participant information/consent documentation. **Variations must be approved by the (HREC) before they are implemented** except when Registering an approval of a variation from an external HREC which has been designated the lead HREC, in which case you may proceed as soon as you receive an acknowledgement of your Registration.

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

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Linked University of Newcastle administered funding:

Funding body	Funding project title	First named investigator	Grant Ref

APPENDIX L RESULTS OF MISSING DATA ANALYSIS FOR CHAPTER 4

MODEL A MISSING

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Alc Preg Guideline Compliance * Model A Missing Status	836	5.9%	13405.572	94.1%	14241.572	100.0%

Alc Preg Guideline Compliance * Model A Missing Status Crosstabulation

			Model A Missing Status		
			Missing data	Included Model A	Total
Alc Preg Guideline Compliance	Noncompliant	Count	141	459	600
		% within Alc Preg Guideline Compliance	23.5%	76.5%	100.0%
		Std. Residual	.3	-.1	
	Compliant	Count	51	185	236
		% within Alc Preg Guideline Compliance	21.6%	78.4%	100.0%
		Std. Residual	-.4	.2	
Total		Count	192	644	836
		% within Alc Preg Guideline Compliance	23.0%	77.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.342[a]	1	.559		
Continuity Correction[b]	.243	1	.622		
Likelihood Ratio	.345	1	.557		
Fisher's Exact Test				.585	.313
Linear-by-Linear Association	.342	1	.559		
N of Valid Cases	836				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 54.20.

b. Computed only for a 2x2 table

MODEL B MISSING

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Alc Preg Guideline Compliance * Model B Missing	683	4.8%	13558.572	95.2%	14241.572	100.0%

Alc Preg Guideline Compliance * Model B Missing Crosstabulation

			Model B Missing		
			Missing	Included in Model B	Total
Alc Preg Guideline Compliance	Noncompliant	Count	130	356	486
		% within Alc Preg Guideline Compliance	26.7%	73.3%	100.0%
		Std. Residual	.2	-.1	
	Compliant	Count	49	148	197
		% within Alc Preg Guideline Compliance	24.9%	75.1%	100.0%
		Std. Residual	-.4	.2	
Total		Count	179	504	683
		% within Alc Preg Guideline Compliance	26.2%	73.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.255[a]	1	.614		
Continuity Correction[b]	.167	1	.683		
Likelihood Ratio	.257	1	.612		
Fisher's Exact Test				.633	.343
Linear-by-Linear Association	.255	1	.614		
N of Valid Cases	683				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 51.63.

b. Computed only for a 2x2 table

MODEL B EXCLUDED

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Alc Preg Guideline Compliance * Model B Excluded	658	4.6%	13583.572	95.4%	14241.572	100.0%

Alc Preg Guideline Compliance * Model B Excluded Crosstabulation

			Model B Excluded		
			Included in Model B	Excluded from Model B	Total
Alc Preg Guideline Compliance	Noncompliant	Count	356	114	470
		% within Alc Preg Guideline Compliance	75.7%	24.3%	100.0%
		Std. Residual	-.2	.4	
	Compliant	Count	148	40	188
		% within Alc Preg Guideline Compliance	78.7%	21.3%	100.0%
		Std. Residual	.3	-.6	
Total		Count	504	154	658
		% within Alc Preg Guideline Compliance	76.6%	23.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.665[a]	1	.415		
Continuity Correction[b]	.509	1	.476		
Likelihood Ratio	.674	1	.412		
Fisher's Exact Test				.476	.239
Linear-by-Linear Association	.664	1	.415		
N of Valid Cases	658				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 44.00.

b. Computed only for a 2x2 table

MODEL C MISSING

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Alc Preg Guideline Compliance * Model C Missing	682	4.8%	13559.572	95.2%	14241.572	100.0%

Alc Preg Guideline Compliance * Model C Missing Crosstabulation

			Model C Missing		
			Missing data	Included in Model C	Total
Alc Preg Guideline Compliance	Noncompliant	Count	130	356	486
		% within Alc Preg Guideline Compliance	26.7%	73.3%	100.0%
		Std. Residual	.3	-.2	
	Compliant	Count	48	148	196
		% within Alc Preg Guideline Compliance	24.5%	75.5%	100.0%
		Std. Residual	-.4	.3	
Total		Count	178	504	682
		% within Alc Preg Guideline Compliance	26.1%	73.9%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.370[a]	1	.543		
Continuity Correction[b]	.262	1	.609		
Likelihood Ratio	.373	1	.542		
Fisher's Exact Test				.565	.306
Linear-by-Linear Association	.369	1	.544		
N of Valid Cases	682				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 51.16.

b. Computed only for a 2x2 table

MODEL C EXCLUDED

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Alc Preg Guideline Compliance * Model C Excluded	658	4.6%	13583.572	95.4%	14241.572	100.0%

Alc Preg Guideline Compliance * Model C Excluded Crosstabulation

			Model C Excluded		
			Included in Model C	Excluded from Model C	Total
Alc Preg Guideline Compliance	Noncompliant	Count	356	114	470
		% within Alc Preg Guideline Compliance	75.7%	24.3%	100.0%
		Std. Residual	-.2	.4	
	Compliant	Count	148	40	188
		% within Alc Preg Guideline Compliance	78.7%	21.3%	100.0%
		Std. Residual	.3	-.6	
Total		Count	504	154	658
		% within Alc Preg Guideline Compliance	76.6%	23.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.665[a]	1	.415		
Continuity Correction[b]	.509	1	.476		
Likelihood Ratio	.674	1	.412		
Fisher's Exact Test				.476	.239
Linear-by-Linear Association	.664	1	.415		
N of Valid Cases	658				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 44.00.

b. Computed only for a 2x2 table

APPENDIX M SUPPLEMENTARY MATERIAL TABLE S5.1 FOR CHAPTER 5

Table S5.1 Non-significant univariate predictors of alcohol use during pregnancy for the Australian Longitudinal Study on Women's Health 1973-1978 cohort (N=1969)[a]

Non-significant predictors	n (%)	OR (95% CI)	p-value
Partner status			
Partnered	1893 (96.1)	Ref	Ref
Not partnered	76 (3.9)	1.37 (0.76-2.30)	0.32
Stress about money			
Not applicable or not at all stressed	418 (21.2)	Ref	Ref
Somewhat stressed	845 (42.9)	1.21 (0.89-1.63)	0.22
Moderately stressed	429 (21.8)	1.08 (0.77-1.52)	0.66
Very stressed	199 (10.1)	1.14 (0.74-1.77)	0.55
Extremely stressed	78 (4.0)	0.88 (0.49-1.58)	0.66
Continuity of care (same GP)			
Rarely or Never	41 (2.1)	1.21 (0.50-2.92)	0.67
Sometimes	201 (10.2)	1.02 (0.68-1.52)	0.93
Most of the time	1048 (53.2)	Ref	Ref
Always	679 (34.5)	0.84 (0.65-1.07)	0.16
Private health insurance			
No	819 (41.6)	Ref	Ref
Yes	1150 (58.4)	1.22 (0.97-1.54)	0.09
Perceived access to general medical care (mean ± SD): Range 1-6; higher score better perceived access	4.1 ± 1.1	0.95 (0.86-1.06)	0.36
Perceived access to after-hours or hospital care (mean ± SD): Range 1-6; higher score better perceived access	4.3 ± 1.2	1.02 (0.93-1.13)	0.63
Number of diagnoses/conditions (last 3-4			

Non-significant predictors	n (%)	OR (95% CI)	p-value
years)	1112 (56.5)	Ref	Ref
None	635 (32.2)	0.92 (0.72-1.19)	0.54
One	222 (11.3)	0.80 (0.56-1.14)	0.22
Two or more			
Menstrual Symptoms (mean ± SD): Range 0-4; higher number more often symptom	1.4 ± 0.6	1.09 (0.90-1.32)	0.37
Bowel symptoms (mean ± SD): Range 0-4; higher number more often symptom	1.4 ± 0.5	0.88 (0.71-1.09)	0.25
Head and back symptoms (mean ± SD): Range 0-4; higher number more often symptom	2.3 ± 0.8	0.98 (0.85-1.14)	0.80
Vaginal and urinary symptoms (mean ± SD): Range 0-4; higher number more often symptom	1.4 ± 0.5	1.00 (0.81-1.23)	0.97
Depression			
No	1825 (92.7)	Ref	Ref
Yes	144 (7.3)	1.24 (0.77-1.98)	0.37
Anxiety			
No	1892 (96.1)	Ref	Ref
Yes	77 (3.9)	1.20 (0.64-2.25)	0.57
Previous mental health[b] (mean ± SD): Range 0-100; higher score is better rating of mental health	71.8 ± 16.2	1.01 (1.00-1.01)	0.81
Level of stress last 12mths not including money (mean ± SD): Range 0-36; higher score more stress	5.6 ± 3.8	1.01 (0.98-1.04)	0.43
Mental health symptoms (mean ± SD): Range 0-4; higher number more often symptom	1.3 ± 0.5	1.16 (0.89-1.51)	0.26
Miscarriages			
None	1530 (77.7)	Ref	Ref
One	343 (17.4)	1.01 (0.74-1.37)	0.96
Two or more	96 (4.9)	0.83 (0.50-1.38)	0.47

Non-significant predictors	n (%)	OR (95% CI)	p-value
Stillbirths			
None	1955 (99.3)	Ref	Ref
One or more	14 (0.7)	2.87(0.38-22.05)	0.31
Pregnancy problems (in last 12mths)			
No	1735 (88.1)	Ref	Ref
Yes	234 (11.9)	0.94 (0.66-1.34)	0.74
Premature births			
None	1882 (95.6)	Ref	Ref
One or more	87 (4.4)	0.64 (0.39-1.05)	0.07
Previous live births			
None	996 (50.6)	Ref	Ref
One	713 (36.2)	0.85(0.67-1.09)	0.21
Two	223 (11.3)	1.13 (0.76-1.68)	0.55
Three or more	37 (1.9)	1.09 (0.45-2.64)	0.86
Pap tests			
Less than two years ago	1567 (79.6)	Ref	Ref
Two or more years ago	372 (18.9)	0.95 (0.71-1.27)	0.74
Never/ not sure	30 (1.5)	0.71 (0.30-1.68)	0.44
Previous smoking			
Non-smoker	1526 (77.5)	Ref	Ref
Smoker	443 (22.5)	1.13 (0.85-1.49)	0.41
Previous quantity of alcohol consumption			
1 or 2 drinks per day	1084 (55.1)	Ref	Ref
3 or 4 drinks per day	582 (29.6)	1.22 (0.94-1.60)	0.14
5 or more drinks per day	303 (15.4)	1.18 (0.84-1.65)	0.34

* $p<0.05$

[a] Only includes women who consumed alcohol prior to pregnancy.

[b] From SF-36 subscales (Mental health).

APPENDIX N CHAPTER 5 EXPLORATORY FACTOR ANALYSES FOR HEALTH SYMPTOMS

Statistical analysis

To determine if there was an underlying factor structure to reduce the number of items measuring the women's reported health-related symptoms in the past 12 months, exploratory factor analysis was used separately on the data for women who responded at surveys two, three, four, or five. Exploratory factor analyses were run on all four surveys using the principal components method with a varimax (i.e. orthogonal) rotation for 19 items. Missing data were excluded based on a pairwise method. Decisions about which variables to exclude in the final factor analyses were determined by interpreting the results from all four surveys. Any variables with a factor loading of less than 0.50 on any factor for at least two surveys, or variables with cross-loadings greater than 0.30 on two or more factors for at least two surveys were excluded from the final factor analyses. Variables that had a communality score of less than 0.30 on at least two surveys were also excluded. A factor loading of 0.50 or greater suggests that about 25% of the variance in the item is explained by the factor, therefore meeting practical significance.[268] Additionally, a cross-loading criteria of greater than 0.30 was chosen as this has been suggested as a minimum loading for practical significance for samples sizes of 350 or more.[268]

Results

Initial factor analyses

The initial factor analyses extracted four factors with Eigenvalues > 1.0 from survey two, five factors from survey five, and six factors from surveys three and four. Tables 1 to 4 show the results of the initial factor analyses for surveys two through four. The items relating to bowel, urinary, or vaginal problems loaded together on some surveys, but separately on others. Theoretically it makes more sense that bowel problems are separate to urinary and vaginal problems.

Five items were removed from the final factor analyses as they did not meet the factor loading criteria set forth above. The item "skin problems" did not have a factor loading of 0.50 or greater on any factor for four of the surveys, and at surveys two and five its communality score was less than 0.30. Two items dealing with sleep, "severe tiredness"

and “difficulty sleeping”, had cross-loadings of greater than 0.30 on at least two factors for all four surveys. “Allergies/hayfever/sinusitis” had cross-loadings of greater than 0.30 for at least two factors at survey five, did not have a minimum factor loading of 0.50 at survey two, and was placed in a factor with “skin problems” in three of the surveys. The final item that was removed was “leaking urine” as it did not have a factor loading of greater than 0.50 on any factor at surveys three and four. Another item, “other bowel problems”, was considered for exclusion due to cross-loadings on surveys, but it was believed this would be fixed by removing the “allergies/hayfever/sinusitis” and “skin problems” items that it had cross-loaded with on a separate factor at two surveys, so the item was kept for final analyses. Based on the four initial factor analyses and theoretical considerations, it made sense to impose a five factor structure on all four surveys and re-run with the 14 variables of interest.

Final factor analyses

The final factor analyses was run at each survey with a forced five factor structure for 14 items, with the five items mentioned above excluded from all analyses. The final factor structures can be seen in Tables 5 through 8. There were good indicators of factorability across the final analyses, with all Bartlett’s Test of Sphericity having p’s < 0.01, and Kaiser-Meyer-Olkin Measures of Sampling Adequacy of 0.85, 0.78, 0.79, and 0.79 for surveys two, three, four, and five, respectively. Using a five factor structure explained more than 58% of the total variance for each of the surveys.

Pearson’s correlation coefficients were significant among all items, across all surveys with all p’s < 0.001. At survey two the observed correlations ranged from 0.10 to 0.56. The ranges for the observed correlations for the other three surveys were 0.03 – 0.62, 0.03 – 0.65, and 0.04 – 0.65.

Menstrual symptoms

The first factor in all final analyses accounted for over 23% of the total variance for each survey. The factor had four items with high factor loadings, which all related to menstrual symptoms. The items included “severe period pain”, “heavy periods”, “irregular periods”, and “premenstrual tension”. The items’ factor loadings were all high, ranging from 0.80 – 0.85, 0.79 – 0.83, 0.63 – 0.67, 0.56 – 0.64, respectively. Communality scores for all four items across the four surveys ranged from 0.36 to 0.73.

Mental health symptoms

A total of three items loaded highly onto a factor relating to mental health symptoms. This factor accounted for approximately 10% of the total variance for each survey. Communality scores for all three items on this factor ranged from 0.48 to 0.73. The item "episodes of intense anxiety" had the highest factor loadings across the surveys, ranging from of 0.83 to 0.84. "Depression" had the second highest loadings of 0.71 – 0.74, followed by "palpitations" with a range of 0.66 – 0.70.

Bowel symptoms

The third factor for each analysis accounted for about 8 – 9 % of the total variance. This factor related to bowel symptoms, and included three items: "haemmorrhoids", "constipation", and "other bowel problems" with factor loadings for each ranging from 0.72 – 0.76, 0.69 – 0.72, and 0.57 – 0.67, respectively. Communality scores ranged from 0.38 to 0.59 for the three items.

Head and back symptoms

Two items, "headaches/migraines" and "back pain", loaded together on a factor relating to head and back symptoms. Approximately 7% of the total variance was explained by this factor for each survey, with all communality scores greater than 0.56. The item "headaches/migraines" had factor loadings between 0.76 and 0.79. "Back pain" loaded on the factor across the surveys with a score of 0.73 – 0.77.

Urinary and vaginal symptoms

The final factor, accounting for about 7% of the total variance for each analysis, included two items regarding urinary and vaginal symptoms: "urine burns or stings" and "vaginal discharge/irritation". The two items had communality scores between 0.46 and 0.72. The urinary item had factor loadings between 0.82 and 0.87. The vaginal item had a factor loading range of 0.63 – 0.73.

Table 1. Initial factor structure from survey two

	Component				Communality
	1	2	3	4	
Haemorrhoids	.643				.426
Leaking urine	.610	.105	.117	.151	.420
Constipation	.595	.149	.166	.165	.430
Urine burns or stings	.571	.100		.191	.373
Other bowel problems	.551		.195		.348
Vaginal discharge/irritation	.513	.205	.121	.149	.342
Severe period pain		.791		.151	.664
Heavy periods	.172	.780			.651
Irregular periods	.127	.622	.112		.416
Premenstrual tension	.120	.568	.232	.236	.447
Skin problems	.164	.323	.226	.144	.203
Episodes of intense anxiety	.210	.123	.766		.646
Depression	.111	.175	.720	.163	.588
Palpitations	.272	.116	.632		.489
Difficulty sleeping		.215	.575	.347	.500
Headaches/migraines				.730	.548
Severe tiredness	.147	.138	.356	.623	.556
Back pain	.160		.141	.612	.429
Allergies/hay fever/sinusitis	.177			.431	.229

Shaded rows show items not meeting factor loading criteria

Table 2. Initial factor structure from survey three

	Component						Communality
	1	2	3	4	5	6	
Heavy periods	.830						.709
Severe period pain	.816		.113			.124	.704
Premenstrual tension	.607	.201	.106		.121	.236	.498
Irregular periods	.602					-.112	.392
Episodes of intense anxiety		.822					.689
Depression	.141	.725	.182				.585
Palpitations		.661			.111		.474
Difficulty sleeping	.164	.480	.466				.488
Headaches/migraines			.716			.121	.538
Back pain			.663	.121			.469
Severe tiredness	.158	.310	.615	.120			.521
Constipation	.121	.117	.173	.697	.162		.573
Haemorrhoids				.697		-.110	.510
Other bowel problems		.162		.608		.261	.474
Urine that burns or stings					.798		.648
Vaginal discharge or irritation	.157	.116		.144	.665	.141	.526
Leaking urine			.228	.312	.447	-.184	.385
Allergies/hay fever/sinusitis			.130			.842	.728
Skin problems	.216	.221			.119	.437	.309

Shaded rows show items not meeting factor loading criteria

Table 3. Initial factor structure from survey four

	Component						Communality
	1	2	3	4	5	6	
Heavy periods	.828		.107				.714
Severe period pain	.816	.114	.126			.110	.709
Irregular periods	.625						.409
Premenstrual tension	.621	.203	.112		.103	.212	.500
Episodes of intense anxiety	.105	.819					.690
Depression	.162	.732	.178				.599
Palpitations		.620	.112			.101	.427
Back pain			.696	.123			.512
Headaches/migraines	.112		.687			.139	.512
Severe tiredness	.106	.313	.667	.140			.578
Difficulty sleeping	.203	.459	.485				.502
Haemorrhoids				.735		-.127	.562
Constipation	.119		.169	.697	.177		.575
Other bowel problems		.175		.555		.344	.460
Urine that burns or stings					.797		.646
Vaginal discharge or irritation	.132			.130	.664	.158	.513
Leaking urine			.173	.306	.488		.373
Allergies/hay fever/sinusitis			.161			.815	.692
Skin problems	.246	.210				.512	.378

Shaded rows show items not meeting factor loading criteria

Table 4. Initial factor structure from survey five

	Component					Communality
	1	2	3	4	5	
Heavy periods	.840					.723
Severe period pain	.822	.115		.119		.707
Premenstrual tension	.666	.187		.139	.157	.531
Irregular monthly periods	.632		.106			.415
Episodes of intense anxiety (eg panic attacks)		.816				.677
Depression	.133	.740		.153		.595
Palpitations		.618			.140	.419
Difficulty sleeping	.210	.482	.136	.423		.475
Haemorrhoids (piles)			.711			.518
Constipation	.104		.665	.198	.152	.520
Leaking urine			.520		.117	.303
Other bowel problems		.168	.377		.322	.278
Headaches/migraines	.104			.708	.110	.529
Back pain			.205	.626		.445
Severe tiredness	.122	.315	.199	.622		.541
Allergies, hayfever, sinusitis			-.226	.361	.624	.574
Urine that burns or stings		.102	.193		.598	.417
Vaginal discharge or irritation	.176		.395		.499	.442
Skin problems	.268	.192			.331	.232

Shaded rows show items not meeting factor loading criteria

Final Five Factor Structures for All Five Survey

Table 5. Final factor structure for survey two*

	Component					Communality
	1	2	3	4	5	
Severe period pain	.795					.676
Heavy periods	.791					.664
Irregular periods	.641					.445
Premenstrual tension	.561					.457
Episodes of intense anxiety		.827				.726
Depression		.708				.578
Palpitations		.699				.555
Haemorrhoids			.737			.564
Constipation			.687			.567
Other bowel problems			.672			.497
Headaches/migraines				.790		.650
Back pain				.733		.595
Urine burns or stings					.820	.710
Vaginal discharge/irritation					.732	.620

* Forced five factor structure

Table 6. Final factor structure for survey three*

	Component					Communality
	1	2	3	4	5	
Heavy periods	.837					.711
Severe period pain	.827					.710
Premenstrual tension	.628					.487
Irregular periods	.594					.362
Episodes of intense anxiety		.844				.727
Depression		.725				.575
Palpitations		.698				.524
Constipation			.718			.587
Haemorrhoids			.717			.519
Other bowel problems			.605			.406
Urine that burns or stings				.848		.724
Vaginal discharge or irritation				.694		.561
Headaches/migraines					.781	.635
Back pain					.754	.603

* Forced five factor structure

Table 7. Final factor structure for survey four*

	Component					Communality
	1	2	3	4	5	
Heavy periods	.837					.720
Severe period pain	.825					.716
Premenstrual tension	.637					.493
Irregular periods	.626					.399
Episodes of intense anxiety		.839				.726
Depression		.732				.585
Palpitations		.662				.486
Haemorrhoids			.744			.544
Constipation			.721			.588
Other bowel problems			.578			.379
Back pain				.774		.632
Headaches/migraines				.761		.618
Urine that burns or stings					.841	.713
Vaginal discharge or irritation					.695	.556

* Forced five factor structure

Table 8. Final factor structure for survey five*

	Component					Communality
	1	2	3	4	5	
Heavy periods	.846					.729
Severe period pain	.829					.715
Premenstrual tension	.673					.531
Irregular monthly periods	.640					.419
Episodes of intense anxiety (eg panic attacks)		.838				.715
Depression		.736				.582
Palpitations		.663				.479
Haemorrhoids (piles)			.756			.576
Constipation			.707			.579
Other bowel problems			.571			.384
Back pain				.764		.618
Headaches/migraines				.763		.617
Urine that burns or stings					.868	.462
Vaginal discharge or irritation					.628	.517

* Forced five factor structure

APPENDIX O CHAPTER 5 EXPLORATORY FACTOR ANALYSES FOR PERCEIVED ACCESS TO HEALTH CARE

Statistical Analysis

Exploratory factor analysis was conducted to determine if there was an underlying factor structure for women's perceived access to medical care. This analysis used data from surveys two through five for all respondents. The response categories for perceived access were as follows: 1=poor, 2=fair, 3=don't know, 4=good, 5=very good, and 6=excellent. The response category "don't know" was placed near the midpoint between "fair" and "good" to address any uncertainty as to its meaning in relation to the other response categories.

Exploratory factor analyses of eight items were run on all four surveys using the principal components method with a varimax rotation. The pairwise method was used to exclude missing data. Results from all four surveys were used when deciding which variables should be included in the final factor analyses. Exclusion criteria included: any variable that did not have a factor loading of 0.50 on at least one factor for at least two surveys; variables that had cross-loadings on two or more factors of greater than 0.30 for at least two surveys; and variables that had a communality score of less than 0.30 on at least two surveys. These criteria have been previously recommended as minimum factor loadings for practical significance in large sample sizes.[268]

Results

Initial Factor Analyses

Tables 1a through 4a contain the initial factor structures derived from surveys two through five. Two factors were extracted from the initial factor analyses with Eigenvalues > 1.0 for surveys two, three and four. However, the initial factor structure for survey five resulted in only one factor being extracted with an Eigenvalue > 1.0, with a second factor having an Eigenvalue=.996. A two factor structure was forced upon the remaining analyses.

The two underlying factors in three of the surveys represented women's perceived access to general medical care and that of after-hours or hospital medical care. Across the four surveys there was one item, "access to a GP that bulk bills", that met the exclusion criteria for all four surveys by having a communality score of less than 0.30

on all four surveys and not having a minimum factor loading of .50 on surveys two and three. Another item, “hours when a GP is available”, was also problematic for surveys two, three and four where it had cross-loadings of greater than 0.30 on the two factors. Therefore, this item was not included in the factor analyses that were re-run with the seven remaining items for the four surveys.

Results of re-running the factor analyses can be seen in Tables 1b through 4b. Based on these analyses another item, “access to medical specialists”, ended up with cross-loadings of greater than .30 on the two factors in all four surveys. Therefore, this item was removed and the analyses were re-run, resulting in the final factor structures.

Final factor analyses

The final factor structures can be seen in Tables 5 through 8. The two factor structure accounted for 65.44%, 66.47%, 68.71%, and 68.46% of the total variance in the data at surveys two, three, four, and five, respectively. There indicators of factorability were good for all surveys’ final factor structure, with all Bartlett’s Test of Sphericity significant at a level of $p < 0.01$, and Kaiser-Meyer-Olkin Measures of Sampling Adequacy of 0.82, 0.82, 0.83, and 0.84 for surveys two, three, four, and five, respectively.

There were significant ($p < 0.001$) Pearson’s correlation coefficients among all the items at each survey. Correlation coefficients ranged from 0.28 - 0.56 at survey two, 0.30 - 0.56 at survey three, 0.32 - 0.59 at survey four, and 0.35 - 0.58 at survey five.

Perceived access to general medical care

Four items loaded highly on the general medical care factor, which accounted for over 49% of the total variance for each survey. This included the times “number of GPs you have to choose from”, “ease of seeing the GP of your choice”, “access to a female GP”, and “ease of obtaining a pap test”. The factor loadings of these items ranged from 0.70 - 0.78 at survey two, 0.69 - 0.78 at survey three, 0.69- 0.80 at survey four, and 0.69 - 0.79 at survey five. Communality scores for the items loading on this factor ranged from 0.52 - 0.69 across the surveys. For survey five there was cross-loadings of greater than .30 on the item “ease of obtaining a pap test”. However, considering this was only an issue at one survey, the item was kept in and the final factor structure was maintained.

Perceived access to after-hours or hospital medical care

Across all four surveys, the second factor accounted for over 14% of the total variance. A total of two items loaded highest on the after-hours or emergency medical care factor. The item “access to a hospital if you need it” had factor loadings ranging from 0.84 - 0.86 across the surveys. The other item, with a factor loading range of 0.84 - 0.85 across surveys two through five was “access to after-hours medical care”. The communality scores for these two items ranged from 0.76 - 0.78 across the surveys.

Table 1a. Initial factor analysis for survey 2

	Component		Communality
	1	2	
Access GP choice recoded	.763	.198	.622
Access Num GPs recoded	.754	.243	.628
Access female GP recoded	.736	.166	.569
Access GP hours recoded	.670	.349	.571
Access pap test recoded	.652	.148	.447
Access bulk bill recoded	.471	.274	.297
Access hospital recoded	.158	.846	.740
Access after hours recoded	.257	.761	.645
Access medical specialists recoded	.304	.725	.618

Shaded rows show items not meeting factor loading or communality criteria

Table 1b. Second factor analysis for survey 2

	Component		Communality
	1	2	
Access GP choice recoded	.770	.224	.643
Access Num GPs recoded	.760	.270	.650
Access female GP recoded	.739	.191	.583
Access pap test recoded	.703	.161	.520
Access hospital recoded	.162	.848	.746
Access after hours recoded	.213	.774	.645
Access medical specialists recoded	.306	.731	.628

Shaded rows show items not meeting factor loading or communality criteria

Table 2a. Initial factor analysis for survey 3

	Component		Communality
	1	2	
Access GP choice recoded	.781	.188	.645
Access Num GPs recoded	.755	.251	.634
Access female GP recoded	.750	.146	.584
Access GP hours recoded	.684	.335	.580
Access pap test recoded	.632	.245	.459
Access bulk bill recoded	.416	.164	.200
Access hospital recoded	.184	.847	.752
Access after hours recoded	.266	.754	.639
Access medical specialists recoded	.293	.736	.628

Shaded rows show items not meeting factor loading or communality criteria

Table 2b. Second factor analysis for survey 3

	Component		Communality
	1	2	
Access GP choice recoded	.775	.214	.646
Access female GP recoded	.773	.162	.624
Access Num GPs recoded	.759	.273	.651
Access pap test recoded	.692	.238	.535
Access hospital recoded	.189	.843	.747
Access after hours recoded	.209	.776	.646
Access medical specialists recoded	.303	.736	.634

Shaded rows show items not meeting factor loading or communality criteria

Table 3a. Initial factor analysis for survey 4

	Component		Communality
	1	2	
Access GP choice recoded	.792	.184	.662
Access Num GPs recoded	.755	.297	.658
Access female GP recoded	.738	.213	.590
Access GP hours recoded	.724	.307	.619
Access pap test recoded	.612	.319	.477
Access bulk bill recoded	.524	.106	.286
Access hospital recoded	.174	.870	.788
Access medical specialists recoded	.286	.756	.654
Access after hours recoded	.284	.741	.630

Shaded rows show items not meeting factor loading or communality criteria

Table 3b. Second factor analysis for survey 4

	Component		Communality
	1	2	
Access GP choice recoded	.789	.192	.660
Access female GP recoded	.787	.190	.656
Access Num GPs recoded	.780	.285	.690
Access pap test recoded	.691	.274	.553
Access hospital recoded	.189	.863	.780
Access after hours recoded	.224	.778	.656
Access medical specialists recoded	.330	.733	.646

Shaded rows show items not meeting factor loading or communality criteria

Table 4a. Initial factor analysis for survey 5

	Component	Communality
	1	
Access Num GPs recoded	.783	.612
Access GP hours recoded	.769	.591
Access GP choice recoded	.732	.536
Access female GP recoded	.723	.522
Access medical specialists recoded	.700	.490
Access pap test recoded	.690	.476
Access hospital recoded	.690	.475
Access after hours recoded	.689	.474
Access bulk bill recoded	.529	.280

Shaded rows show items not meeting factor loading or communality criteria

Table 4b. Second factor analysis for survey 5

	Component		Communality
	1	2	
Access female GP recoded	.784	.212	.660
Access GP choice recoded	.779	.200	.646
Access Num GPs recoded	.777	.299	.693
Access pap test recoded	.685	.302	.561
Access hospital recoded	.220	.853	.776
Access medical specialists recoded	.315	.762	.680
Access after hours recoded	.246	.760	.638

Shaded rows show items not meeting factor loading or communality criteria

Table 5. Final factor structure for survey 2

	Component		Communality
	1	2	
Access GP choice recoded	.779		.645
Access Num GPs recoded	.771		.653
Access female GP recoded	.748		.585
Access pap test recoded	.700		.516
Access hospital recoded		.855	.770
Access after hours recoded		.840	.757

Table 6. Final factor structure for survey 3

	Component		Communality
	1	2	
Access female GP recoded	.783		.628
Access GP choice recoded	.780		.646
Access Num GPs recoded	.766		.653
Access pap test recoded	.692		.537
Access hospital recoded		.846	.765
Access after hours recoded		.844	.759

Table 7. Final factor structure for survey 4

	Component		Communality
	1	2	
Access female GP recoded	.798		.660
Access GP choice recoded	.793		.659
Access Num GPs recoded	.791		.692
Access pap test recoded	.691		.557
Access hospital recoded		.857	.784
Access after hours recoded		.847	.770

Table 8. Final factor structure for survey 5

	Component		Communality
	1	2	
Access female GP recoded	.793		.662
Access GP choice recoded	.786		.647
Access Num GPs recoded	.782		.694
Access pap test recoded	.687	.304	.565
Access after hours recoded		.843	.768
Access hospital recoded		.842	.773

Shaded rows show items not meeting factor loading or communality criteria