

**Attitudes and perceptions regarding tobacco,
alcohol or cannabis use among people with and
without mental disorders**

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Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library**, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

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I hereby certify that this thesis is in the form of a series of published papers of which I am a joint author. I have included as part of the thesis a written statement from each co-author, endorsed by the Faculty Assistant Dean (Research Training), attesting to my contribution to the joint publications.

Louise Thornton

Date

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List of citations for papers included in this thesis

Paper 1: Thornton, L., Baker, A. L., Johnson, M. P., & Lewin, T. J. (in press). Attitudes and perceptions towards substances among people with mental disorders: A systematic review. *Acta Psychiatrica Scandinavica*, DOI: 10.1111/j.1600-0447.2012.01861.x.

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Paper 3: Thornton, L., Baker, A. L., Johnson, M. P., & Kay-Lambkin, F. (2011). Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*, 4, 105-115.

Paper 4: Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. (2012). Reasons for substance use among people with mental disorders. *Addictive Behaviors*, 37, 427-434.

Paper 5: Thornton, L. K., Johnson, M. P., Baker, A. L., & Kay-Lambkin, F. J. (in submission). Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol or cannabis. *Qualitative Health Research*.

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Date

Abstract

Co-occurring substance use and mental disorders are a major health problem. Substance use disorders are very common among people with mental disorders, cost health care systems large amounts of money and have been consistently linked to a number of adverse consequences among this population. It is clear therefore that effective intervention and preventative strategies are needed to address these co-occurring disorders and it is suggested that a clear understanding of people's attitudes and perceptions regarding substances is needed to develop such strategies. Very little research investigating the substance related attitudes and perceptions among people with mental disorders exists.

The broad aim of this thesis was to generate a greater understanding of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with mental disorders. To address this aim the thesis presents five papers. *Paper 1* describes a systematic review of current literature investigating attitudes and perceptions towards tobacco, alcohol and cannabis among people with mental disorders. The review aimed to identify the strengths, weaknesses and gaps in this literature. *Paper 2* and *Paper 3* describe a study of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with psychotic disorders. This study elicited both quantitative and qualitative data and aimed to identify any similarities and differences between participants' reasons for tobacco, alcohol and cannabis use. It also aimed to generate some initial insights regarding the perceived effectiveness of anti-tobacco public health campaigns among people with mental disorders. *Paper 4* describes a study which investigated reasons for tobacco, alcohol and cannabis use among people with depression or a psychotic disorder. It aimed to identify similarities and differences in

reasons for substance use between people with different mental disorders. *Paper 5* describes a qualitative study of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with a psychotic disorder, current symptoms of depression or without a mental disorder. The study aimed to generate insights regarding a range of substance related attitudes and perceptions by employing a flexible interview schedule that allowed issues important to the participants to be raised.

The concluding chapter of this thesis reviews and synthesizes the main findings of these five papers and discusses their implications for future research and the development of effective intervention and prevention strategies. The findings of this thesis suggest that attitudes and perceptions regarding tobacco, alcohol and cannabis differ considerably. While all three substances were found to be used to cope with stress and to relax, this reason was particularly important for tobacco use among people with and without mental disorders. Social factors were found to play an important role in the alcohol use of people with and without mental disorders, while cannabis was often used as a source of pleasure by people with and without mental disorders. The type of harm these substances were perceived to cause was also found to differ considerably.

Very few differences between the attitudes and perceptions of people with and without mental disorders, regarding tobacco, alcohol and cannabis, were found. However, among people with mental disorders specifically, mental health and substance use were perceived to interact. Anti-substance use campaigns were perceived to be ineffective by people both with and without mental disorders. Attitudes and perceptions towards tobacco, alcohol and cannabis were also found to differ between people with a psychotic disorder and people experiencing depression.

The findings of this research add considerably to our understanding of the attitudes and perceptions regarding tobacco, alcohol and cannabis use held among

people with mental disorders. The findings also suggest that it may be important to tailor intervention and prevention strategies regarding tobacco, alcohol and cannabis by substance type and perhaps type of mental disorder.

Overview

This thesis investigates the attitudes and perceptions regarding tobacco, alcohol and cannabis use among people with and without mental disorders. It is composed of an introduction, five papers and a final chapter providing a synthesis of the results and conclusions. At the time of submission four of the five papers have been accepted for publication in peer-reviewed journals.

The **Introduction** provides an overview of the major health problem of co-occurring substance use and mental disorders. It provides a rationale as to why it is important to investigate the attitudes and perceptions of people with and without mental disorders regarding substances and outlines the previous research that has been conducted in this area.

Paper 1, '*Attitudes and perceptions towards substances among people with mental disorders: A systematic review*' (Thornton, Baker, Johnson, & Lewin, in press) describes a systematic review of published literature investigating attitudes and perceptions towards tobacco, alcohol and cannabis use among people with mental disorders. The review identified a number of gaps and weaknesses in the current literature. It found that very few studies have investigated attitudes and perceptions among people with mental disorders, other than psychotic disorders, and few studies have compared attitudes and perceptions between people with and without mental disorders and between people with different types of mental disorders. No papers investigating the perceived harmfulness or knowledge of substances were identified and many papers did not report their results separately for different substances. Additionally, the review found the methodological quality of the included studies to be

relatively low. This paper has been accepted for publication in *Acta Psychiatrica Scandinavica*.

Paper 2 '*Reasons for substance use among people with psychotic disorders: Method triangulation approach*' (Thornton, Baker, Johnson, & Lewin, 2012a) and **Paper 3** '*Perceptions of anti-smoking public health campaigns among people with psychotic disorders*' (Thornton, Baker, Johnson, & Kay-Lambkin, 2011) describe a study of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with psychotic disorders. This study employed a mixed method design eliciting both quantitative and qualitative data via self-report questionnaires and semi-structured telephone interviews. *Paper 2* investigated reasons for substance use among people with psychotic disorders and is only the second study known to investigate reasons for tobacco, alcohol and cannabis use separately and simultaneously among people with mental disorders. It found reasons for tobacco, alcohol and cannabis use to differ significantly. This paper has been published in *Psychology of Addictive Behaviours*. *Paper 3* investigated perceptions of public health campaigns regarding tobacco use among people with psychotic disorders and is the first known to investigate exposure, acceptability and attitudes towards anti-tobacco public health campaigns among people with mental disorders. The paper found anti-tobacco campaigns were perceived to be relatively ineffective. This paper has been published in *Mental Health and Substance Use: Dual Diagnosis*.

Paper 4 '*Reasons for substance use among people with mental disorders*' (Thornton et al., 2012b) describes a study which investigated reasons for tobacco, alcohol and cannabis use among people with depression or a psychotic disorder. The study combined reasons for substance use data from five randomised controlled trials of treatments for co-occurring substance use and is one of the first studies to compare

reasons for substance use between people with different mental disorders. Patterns of reasons for substance use were found to differ between people with depression and people with psychotic disorders. This paper has been published in Addictive Behaviours.

Paper 5 *'Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis'* (Thornton, Johnson, Baker, & Kay-Lambkin, in submission) describes a qualitative study that investigated attitudes and perceptions of people with a psychotic disorder, current symptoms of depression or without a mental disorder. This study employed a semi-structured interview schedule that allowed issues important to the participants to be raised. Among people with and without mental disorders, five superordinate themes were identified: the social place of substance use; substance use to achieve positive effects; health and financial impacts of substance use; control over substance use; and the importance yet ineffectiveness of anti-substance use campaigns. Among people with mental disorders interactions between substance use and mental health was also an important issue raised. This paper was submitted to Qualitative Health Research (June, 2012).

The **Discussion** section of this thesis draws together, and synthesizes the results of the five included papers. The main findings of this thesis are discussed and resulting recommendations for the development of effective and appropriately targeted intervention and prevention strategies for co-occurring substance use and mental disorders are outlined.

Introduction

Co-occurring substance use and mental disorders are a major health problem. Substance use disorders are very common among people with mental disorders (Degenhardt & Hall, 2001; Flynn & Brown, 2008; Jenkins et al., 1997; Regier et al., 1990), cost health care systems large amounts of money (Dickey & Azeni, 1996; Ziedonis & Nickou, 2001) and have been consistently linked to a number of adverse consequences in this population (Carey, Carey, & Meisler, 1991; Healey, Peters, Kinderman, McCracken, & Morriss, 2008; Ziedonis & Nickou, 2001). Effective intervention and preventative strategies are needed to address these co-existing disorders. It has been suggested that a better understanding of people's attitudes and perceptions regarding substances is needed to develop such strategies (e.g. Baker, Turner, Kay-Lambkin, & Lewin, 2009; Chabrol, Duconge, Casas, Roura, & Carey, 2005; Giddings, Christo, & Davy, 2003; Kuntsche, Knibbe, Gmel, & Engels, 2006; Spencer, Castle, & Michie, 2002).

Substance use prevalence

In both the general population and among people with mental disorders, tobacco, alcohol and cannabis are three of the most widely used substances, excluding caffeine (Degenhardt & Hall, 2001; Degenhardt, Hall, & Lynskey, 2001). For this reasons this thesis focuses on the use of tobacco, alcohol and cannabis only. In the 2010 National Drug Strategy Household Survey (NDSHS), a comprehensive national survey of over 26,000 Australians aged 12 years and over, 15.1% of participants were found to be daily smokers, one of the lowest daily smoking rates among Organization for Economic Cooperation and Development (OECD) countries (Australian Institute of Health and

Welfare (AIHW), 2011b). Seventy-eight per cent of participants in the 2010 NDSHS were found to be recent drinkers of alcohol and 7.2% reported daily use of alcohol (AIHW, 2011b). Cannabis is the most commonly used illicit drug in Australia, with 10% of Australians in the 2010 NDSHS reporting cannabis use in the last 12 months, 13% of whom reported using cannabis every day (AIHW, 2011b).

Substance use disorders include all categories of disorders attributable to the use of psychoactive substances. They include: substance dependence, which involves a strong desire to use a substance, persistent use despite harmful consequences, increased tolerance and withdrawal; and substance abuse which is characterized by a pattern of substance use causing damage to one's health and well-being (American Psychiatric Association, 2000; National Centre for Classification in Health, 2002). While the 12 month prevalence of alcohol abuse and dependence in Australia has been estimated to be around only 4.3% (Slade et al., 2009), 38.6% of 2010 NDSHS participants reported using alcohol in the last 12 months at levels that put them at risk of an alcohol related injury. Twenty two per cent also reported they had undertaken a potentially harmful activity while under the influence of alcohol in the last 12 months (e.g. drove a vehicle, verbally abused someone, went to work) (AIHW, 2011b). It is estimated that 1% of Australians meet criteria for a cannabis use disorder (Slade et al., 2009).

Co-occurring substance use and mental disorders

Large population studies consistently indicate that substance use is much more common among people with mental disorders than in the general population (Degenhardt & Hall, 2001; Grant et al., 2004; Jenkins et al., 1997; Kessler, Chiu, Demler, & Walters, 2005; Regier et al., 1990; Teesson, Slade, & Mills, 2009). Teesson et al (2009), for example, analysed data from the 2007 National Survey of Mental

Health and Well-Being, a nationally representative study of 8,841 Australian adults aged 16 to 85 years, and found that 21.4% of people with an affective disorder and 33.5% of people with an anxiety disorder met criteria for a lifetime substance use disorder. Among treatment seeking patients, Grant et al., (2004), found rates of substance use to be even higher, with 40.7% of people with a mood disorder and 33.4% of people with an anxiety disorder found to also have an alcohol use disorder. Similarly, among people who screened positive for psychosis, Degenhardt and Hall (2001) found 59.9% reported regular tobacco use, 23.7% met criteria for an alcohol use disorder, and 16.2% met criteria for a cannabis use disorder. This is compared to only 8.2% of their participants without psychosis meeting the criteria for an alcohol use disorder and 3.3% of participants without psychosis meeting the criteria for a cannabis use disorder. Kavanagh et al. (2004) also found that 69.8% of Australians with a psychotic disorder reported current or prior tobacco use, 27.6% had a lifetime diagnosis of an alcohol use disorder and 22.8% a lifetime diagnosis of a cannabis use disorder. Cooper, Mancuso, Borland, Slade, Galletly and Castle (2012) found 66.6% of participants in the 2010 Australian Survey of High Impact Psychosis were current smokers.

Adverse consequences and costs of substance use

Use of tobacco, alcohol and cannabis are each associated with a range of adverse consequences. Tobacco smoking, for example, remains the leading cause of preventable death and illness in Australia and was estimated to be responsible for almost 8% of Australia's total burden of disease and 11.7% of deaths in 2003 (AIHW, 2011b). Tobacco use has been found to harm nearly every organ in the body and is associated

with premature death and a wide range of diseases including cardiovascular disease, stroke, chronic bronchitis and cancer (AIHW, 2010, 2011a, 2011b).

In 2003, 2% of the total burden of disease in Australia was attributable to excessive alcohol consumption, as were 2.6% of deaths. Alcohol use is also associated with negative consequences ranging from acute effects such as slurred speech and reduced motor-coordination, to chronic effects including liver disease, anaemia, and heart disease. Further, secondary effects of alcohol intoxication; such as motor vehicle accidents and alcohol-related violence add to the overall burden. Additionally, withdrawal from heavy alcohol use in itself can be life threatening (AIHW, 2010, 2011a, 2011b).

While in 2003 no deaths were attributable to cannabis abuse, cannabis abuse was found to be responsible for 5,206 (.02%) disability-adjusted life years which is a measure of disease burden expressed as the number of 'healthy' years lost due to ill-health, disability and premature death. Negative consequences associated with cannabis use range from reduced motivation and impaired judgement to delusions, paranoia, nausea, persistent cognitive impairment and chronic lung problems. Regular cannabis use is also associated with extreme levels of anxiety and panic attacks even when the person is not under the influence of the drug (AIHW, 2010, 2011a, 2011b).

In addition to the physical and social problems associated with tobacco, alcohol and cannabis use in the general population (AIHW, 2011b), these substances have each been linked to reduced medication effectiveness and exacerbation of psychiatric symptoms, especially positive psychotic symptoms among people with mental disorders (Cooper et al., 2012; Ziedonis & Nickou, 2001). Substance use is also associated with increased rates of suicide, suicide attempts, relapse and hospitalization, homelessness or housing instability, poor social functioning, increased risk of victimization and poor

medication compliance among people with mental disorders (Carey et al., 1991; Degenhardt & Hall, 2001; Healey et al., 2008; Maniglio, 2009; Ziedonis & Nickou, 2001). People with psychotic disorders have a life expectancy of 16-19 years less than the general population, and cigarette smoking has been shown to be the major cause (Cooper et al., 2012). Studies have also shown that relatively minor substance use among people with mental disorders can result in adverse consequences (Gregg, Haddock & Barrowclough, 2009).

The negative consequences associated with tobacco, alcohol and cannabis use also extend to the wider community. Tobacco smoking, for example is estimated to have cost Australian society \$31.5 billion in 2004-05, while alcohol consumption is estimated to have cost Australian society \$15.3 billion in 2004-05 (AIHW, 2011b). Additionally, people with co-occurring substance use and mental disorders tend to have high usage of expensive services, like psychiatric hospitalizations (Mangrum, Spence, & Lopez, 2006; Ziedonis & Nickou, 2001) and cost health care systems disproportionate amounts of money (Dickey & Azeni, 1996; Kavanagh et al., 2004; Mangrum et al., 2006; Ziedonis & Nickou, 2001). Additionally, exposure to second hand smoke was estimated to be responsible for 603,000 deaths worldwide in 2004, or 1.0% of worldwide mortality (Öberg, Jaakkola, Woodward, Peruga, Pruss-Ustun, 2011)

Existing interventions

Given the high prevalence, adverse consequences and high treatment costs associated with co-occurring substance use and mental disorders it is important that effective evidence based intervention and preventative strategies are employed. Integrated interventions, which combine mental health and substance use interventions into one clinical program, have been found to be the most effective form of treatment

for co-existing substance use and mental disorders (Drake, 2008; Drake, Mercer-McFadden, Mueser, McHugo, & Bond, 1998; Drake, Mueser, Brunnette, & McHugo, 2004). While a number of integrated treatments for these co-existing disorders have been developed and have demonstrated positive outcomes, research indicates they have not yet reached optimal effectiveness (Cleary, Hunt, Matheson, Siegfried, & Walter, 2008; Drake, 2008; Drake et al., 2004). A recent review of these treatments found, for example, that only integrated interventions employing group counselling, contingency management or residential treatment showed consistent positive effects on substance use and that none of the reviewed treatments produced consistent results on mental health outcomes (Drake, 2008). A recent Cochrane Review (Cleary et al., 2008) is even less supportive of current treatments for co-occurring substance use and mental disorders, finding no consistent evidence to support any one treatment intervention over standard care. However, they did find some support for the effectiveness of cognitive behaviour therapy (CBT) plus motivational interviewing (MI) and MI alone in reducing substance use among people with mental disorders. Additionally, very few studies have examined the efficacy of interventions for co-occurring mental disorders and tobacco, alcohol or cannabis use specifically, as opposed to substance use in general. This is important, as treatments may be differentially effective according to type of substance. For example, a study by Baker, Turner, Kay-Lambkin and Lewin (2009) found that brief integrated interventions worked well for alcohol misuse among people with severe mental disorders, with 68.9% of participants reducing their alcohol use by 50% or greater. On the other hand, brief interventions were found to be less effective for cannabis use, with 50% of participants reducing their cannabis use by 50% or greater. For this reason this thesis investigates tobacco, alcohol and cannabis separately whenever possible.

While very few trials specifically assessing the efficacy of smoking cessation interventions among people with mental disorders exist, a number of reviews have suggested that a flexible, tailored, open-ended approach, involving a combination of pharmacotherapy and counselling is most appropriate when encouraging smoking cessation among this population (Aublin, Rollema, Svensson, & Winterer, 2012; Fagerstrom & Aublin, 2009). On the other hand, a Cochrane Review of interventions for smoking cessation and reduction among individuals with schizophrenia only found evidence to support the efficacy of bupropion over a placebo, and of contingency reinforcement with money, to increase smoking cessation and reduce levels of smoking over a short period of time (Tsoi, Porwal, & Webster, 2010).

A series of systematic reviews conducted by Baker and colleagues have investigated trials of psychological interventions for alcohol misuse among people with mental disorders (Baker, Hiles, Thornton, Hides, & Lubman, in press; Baker, Thornton, Hiles, Hides, & Lubman, 2011). Among people with depression or an anxiety disorder, MI and CBT interventions were found to be effective for treating alcohol misuse (Baker et al., 2011). Among people with psychotic disorders, assessment interviews, brief MIs and longer CBT interventions were found to be effective (Baker et al., in press). Although both reviews reported that brief interventions were effective in reducing alcohol use, longer interventions were associated with greater improvements in mood, functioning and alcohol use outcomes. Similarly, in a systematic review of treatments for cannabis use among people with psychotic and depressive disorders, Baker, Hides and Lubman (2010a) concluded brief interventions may be effective for reducing cannabis use, but that longer or more intensive interventions may be more effective, especially among heavier users of cannabis or those with more chronic mental disorders. Additionally, integrated interventions are suggested to be more effective than

parallel treatments and MI and CBT interventions appear to be the most promising treatment approaches for co-occurring cannabis use and mental health problems. They also suggest effective treatment of a person's mental health problem with standard pharmacology may be associated with reductions in cannabis use.

Public health strategies

In addition to the provision of effective interventions, an important part of addressing substance use in a population is implementing public health strategies aiming to prevent substance use, encouraging cessation and reduced use (NSW Department of Health, 2007). Results from research regarding the effectiveness of anti-substance use public health strategies, e.g. mass media campaigns and social marketing interventions indicate that there is still considerable room for improvement (Hill, 2004). When properly designed, evidence suggests mass media campaigns can be effective at changing peoples' beliefs, attitudes, intentions and even behaviours (Palmgreen & Donahew, 2006). Indeed many mass media campaigns regarding substance use have been found to increase knowledge, but to date appear to have had little impact on actual behaviour (Hill, 2004). A recent review of alcohol policy research gave mass media campaigns a zero rating for effectiveness (Babor et al., 2003). In their review, Babor et al. (2003) found that while some studies demonstrated changes in knowledge, or campaign awareness and recall, there was little change in alcohol consumption. Similarly, the World Health Organization's review of strategies for reducing substance abuse found little evidence that mass media campaigns have been successful or cost effective (WHO, 2002).

On the other hand, a review of the effectiveness of social marketing interventions (Gordon, McDermott, Stead, & Angus, 2006) found there was strong

evidence of success in preventing smoking and that these approaches can positively affect alcohol misuse. There was weaker evidence to support the effectiveness of social marketing interventions for smoking cessation. In another review, Loxley and colleagues (Loxley et al., 2004) found evidence of the outcome effectiveness of mass media campaigns for tobacco cessation, evidence supporting the implementation of mass media campaigns for alcohol and evidence warranting further research for mass media campaigns for illicit drugs including cannabis. Similarly, evaluations of a number of anti-smoking campaigns in Australia report changes in smoking behaviour and attitudes (Hassard, 2000a, 2000b; Loxley et al., 2004; Pierce et al., 1986; Pierce, Macaskill, & Hill, 1990; Shanahan & Elliott, 2009). For example, an evaluation of the effectiveness of health warnings on cigarette packs in Australia found 66% of smokers had noticed the health warnings, and 14% had refrained from smoking at least once as a result (Borland., 1997). Similarly, the Australian Government's National Tobacco campaign found a statistically significant reduction of 1.5% in the estimated prevalence of adult smoking over the time of the campaign (Hassard, 2000a, 2000b).

Evaluations of anti-substance use campaigns and public health interventions also suggest they may be less effective among people from marginalised groups, such as Aboriginal and Torres Strait Islander (ATSI) populations, people with fewer years of education, people who are unemployed and people of lower socio-economic status (Hassard, 2000a, 2000b; Shanahan & Elliott, 2009). The effectiveness of anti-substance use campaigns and public health interventions among people with mental disorders has not been previously investigated.

Attitudes and perceptions towards substances

Why investigate attitudes and perceptions towards substances?

As illustrated above, co-occurring substance use and mental disorders present a complex and significant challenge to prevention and intervention strategies (Teesson et al., 2009), and considerable room for improvement of current intervention and preventative strategies for these co-occurring disorders exists. Understanding the potential causes of, and factors influencing, substance use among people with mental disorders, and how these factors might differ in the general population, is crucial for the development of improved identification, intervention and preventative strategies. Such an understanding could allow researchers to identify potential barriers to the success of interventions and determine if targeted prevention and intervention strategies may be warranted (Chisolm et al., 2010; Pattanayak, Sagar, & Jain, 2012; Peadon et al., 2010).

Prior research in the area of co-occurring substance use and mental disorders has investigated genetic, environmental, psychological and neurobiological factors. A number of competing theories and frameworks have been developed to explain the aetiology of substance use among people with mental disorders, however available theories address only a limited range of factors that may influence substance use among this population. The reasons for the high prevalence of substance use among this population remains poorly understood (Asher & Gask, 2010; Lawn et al., 2002; Mueser, Drake, & Wallach, 1998; Ziedonis & Nickou, 2001). It has been suggested that the high rates of comorbidity between substance use and mental disorders may be a result of shared risk factors (Cooper et al., 2012; de Leon et al., 2007). Evidence from human and animal studies suggest, for example, that genetic factors play a prominent role in both substance abuse and mental disorder vulnerability. Studies suggest at least 40% of the

vulnerability for addiction and 24%-58% of the vulnerability for depression can be attributed to genetic factors (National Institute on Drug Abuse, 2010). Evidence also suggests the dopaminergic system may play an important role in substance use and mental disorders, and environmental factors such as family disruption, poor parental monitoring, low socio-economic status and, in particular, stress have been associated with both substance abuse and mental disorders (National Institute on Drug Abuse, 2010; Rosario, Schrimshaw, & Hunter, 2011; Tomkins & Sellers, 2001; West, 2006; Ziedonis & Nickou, 2001).

High rates of comorbidity are also suggested to be the result of mental disorders increasing a person's chances of developing a substance use disorder. The self-medication hypothesis, for example, posits that specific substances are used by people with mental disorders to alleviate particular distressing internal states (Khantzian, 1997; Mueser et al., 1998). The alleviation of dysphoria model is more general, suggesting people often use substances to alleviate dysphoria, and that as people with mental disorders are prone to feeling bad or dysphoric, they may also be more prone to use psychoactive substances (Leshner, 1998; Mueser et al., 1998).

It has also been proposed that substance use may precipitate mental disorders in some individuals. Cannabis use, for example, has been implicated as a factor that may contribute to the development of psychosis (Gordon, 2008; Gregg, Barrowclough, & Haddock, 2007; Ziedonis & Nickou, 2001). Cannabis use has been found to induce temporary psychotic states among people with no prior history of psychosis, and among people at risk of psychosis, has been associated with earlier onset of psychosis (Gordon, 2008). Cannabis use has also been found to worsen the psychotic symptoms of people with a current psychotic disorder (Jane-Llopis & Matytsina, 2006).

While this research has improved our understanding of the factors influencing substance use among people with mental disorders, a clear understanding of the attitudes and perceptions of people with mental disorders regarding substances is missing from this literature. However such an understanding is necessary for a better understanding of substance use among this population (e.g. Baker et al., 2009; Chabrol et al., 2005; Giddings et al., 2003; Kuntsche et al., 2006; Spencer et al., 2002). Evidence suggests substance related attitudes may play an important role in determining substance use behaviour. The theory of planned behaviour, for example, is one of the most widely used frameworks for understanding health behaviours (Ajzen, 1985) and posits that behaviour can be predicted by a person's intention to perform that behaviour. In turn it is proposed that a person's intentions can be predicted by their attitudes towards performing that behaviour, the subjective norm and the degree of control they perceive themselves to have over that behaviour. Studies have found evidence supporting the utility of the theory of planned behaviour for explaining and predicting tobacco, alcohol and cannabis use intentions and behaviour (Armitage, Conner, Loach, & Willetts, 1999; Mcmillan & Conner, 2003).

In addition to general (positive or negative) attitudes towards substances, researchers have examined areas including the perceived harmfulness of substances, knowledge of substances, perceptions of anti-substance use messages and campaigns and reasons for substance use (e.g. Clark, Scott, & Cook, 2003; Fowler, Carr, Carter, & Lewin, 1998; Gregg et al., 2007; Jukic, Pino, & Flaherty, 1997; Pattanayak et al., 2012; Shanahan & Elliott, 2009). However, the majority of this research has been conducted among people without mental disorders.

General attitudes

Tobacco, alcohol and cannabis use remain relatively acceptable within Australian society. In the 2010 NDSHS 15.3% of Australians aged 14 years and over reported that they approve of regular tobacco use by an adult and a further 22.5% reported that they neither approved or disapproved of regular tobacco use. Similarly, 44.8% of the NDSHS sample approved of regular alcohol use by an adult. Cannabis was found to be the least socially acceptable substance with only 8.1% of the NDSHS sample reporting they approved of regular cannabis use (AIHW, 2011b).

Perceptions of harm

Just as consumers' decisions to use particular products are influenced by the products' perceived harm and safety, a factor that can influence people's substance use is the degree of harm that substance is perceived to cause (Smith, Curbow, & Stillman, 2007). Studies in the general population that have compared the perceived harmfulness of tobacco, alcohol and cannabis have most commonly found tobacco to be perceived as the most harmful substance of the three (Clark et al., 2003; Hall & Nelson, 1996; Roy, Wibberley, & Lamb, 2005). Clark, Scott and Cook (2003), for example, in an Australia-wide survey of 2,306 young adults, found that tobacco was associated with a perception of causing damage to your body, while alcohol and cannabis were perceived not to be a problem if used occasionally. Approximately 60% of participants thought tobacco was very or quite dangerous, while 50% thought the same of cannabis and 37% the same of alcohol. Among users however, cannabis was perceived as the most benign substance. While half the users of tobacco thought it was dangerous and a third of drinkers thought alcohol was dangerous, only one in five (20%) cannabis users thought it was dangerous. In contrast, Johnson, Boles, Kleber, Vaughan, and McVeigh's (2000) study of

American teenagers found cannabis was perceived as the most harmful substance, while a large study of adults from New South Wales, Australia found that 43% of people perceived alcohol as the substance responsible for the most drug related deaths (Jukic et al., 1997).

Few studies have investigated perceived harmfulness of substances among people with mental disorders. Existing studies have either investigated substance use in general, or tobacco use alone. Alvidrez, Kaiser and Havassy (2004) conducted qualitative interviews investigating the drug use perspectives of 24 people with severe mental disorders. Participants described numerous negative consequences of drug use, including exacerbation of psychiatric symptoms. A few participants perceived drug use to be the primary cause of their mental disorder. Many participants also described positive effects of drug use, especially reduction of depression and anxiety, with many describing use of cannabis as a medication rather than an illicit drug. Pattanayak et al. (2012) investigated the perceived health risks and attitudes regarding tobacco among people with bipolar disorder in India and found participants perceived their risk of getting cancer as significantly lower than smokers without a mental disorder of the same age.

Knowledge

How much knowledge a person has of a substance may also influence how motivated they are to use, or stop using, a substance. Information regarding knowledge of particular substances in the population might allow public health and education campaigns to be targeted more effectively at gaps in knowledge. However, very few studies have investigated knowledge of substances, even in the general population (Bertram, Flaherty, & Everingham, 1996; Hall & Nelson, 1996; Jukic et al., 1997; Qi &

Mei, 2009; Smith et al., 2007). Most of these studies have asked participants to list as many diseases or ill effects caused by each substance as they can. This method only measures knowledge of the risks associated with substance use and it is suggested that examining both the risks and benefits of substance use are very important if a broad understanding of knowledge of a substance is to be gained (Halpern-Felsher, Biehl, Kropp, & Rubinstein, 2004). Despite this weakness, the research in the general population that has compared knowledge of tobacco, alcohol and cannabis has consistently found participants' knowledge regarding cannabis to be much poorer than their knowledge of tobacco and alcohol. Bertram et al., (1996) for example, found Vietnamese speaking Australians were able to list more problems associated with alcohol and tobacco use than for cannabis use, while Hall and Nelson (1996) found only 62% of their participants were able to list health problems associated with cannabis, compared to 95% and 96% for alcohol and tobacco. Additionally, Hall and Nelson's (1996) participants were more uncertain about the health problems caused by cannabis, with 27% of participants stating they did not know whether there were any health effects associated with cannabis use. Jukic et al., (1997) also found that 21% of their participants did not know if there were any health problems associated with cannabis use and 5% said there were none. This is compared to 1% who did not know of any health problems associated with tobacco use, 1% who said there were none and less than 1% who could not list any health problems associated with alcohol use (Jukic et al., 1997).

While people in the general population have been found to have better knowledge of tobacco and alcohol than cannabis, research (Qi & Mei, 2009; Smith et al., 2007) indicates there is still a significant need for continued tobacco and alcohol education, especially among people with mental disorders. Pattanayak et al., (2012)

found that the majority of their participants with bipolar disorder were unable to name more than one or two health risks associated with tobacco, and many significant tobacco health risks were not mentioned (e.g. diabetes, hypertension) or mentioned by only a few participants (cardiovascular disease, mentioned by 4% of participants).

Acceptance of public health campaigns

Information regarding exposure to and acceptance of public health campaigns regarding substances could help prevention strategies to be better targeted and more effective. Breen and Jones (2003) investigated the types of safe-drinking messages young adults perceive to be believable and effective. They found that young adults perceived safe-drinking messages containing threats (physical or social) about another person (e.g. ‘When your friend drinks to excess they could fall over and cause serious injury to themselves’) to be significantly more believable and effective than messages aimed to threaten, or appeal to, themselves (e.g. ‘When you drink to excess you could fall over and cause serious injury to yourself’). Evaluations of the graphic health warnings on tobacco products in Australia found that 92% of smokers and 97% of recent quitters in the general population found the health warnings to be either very or somewhat believable (Shanahan & Elliott, 2009). Sixty per cent of the general population perceived health warnings as very or quite effective at communicating the health effects of smoking. These evaluations also suggest however that tobacco campaigns are less credible and perceived to be less effective among people from disadvantaged groups. Less than 50% of participants who had fewer years of education or who were unemployed reported that they thought the health warnings were believable. Additionally, people with fewer years of education, who were unemployed and living in households with annual incomes less than AU\$40,000 perceived the

warnings to be less effective than people with more years of education, who were employed and those living in households with annual incomes greater than AU\$40,000 (Shanahan & Elliott, 2009). Pattanyak et al.(2012), conducted the only study identified to investigate acceptance of anti substance use public health campaigns among people with mental disorders. They found that while the majority of their participants with bipolar disorder could recollect and describe the health warnings that appear on Indian tobacco products, more than half of them agreed with statements that the warnings are exaggerated, should not be taken seriously, and were not meant for them.

Reasons for substance use

Although a number of studies have investigated reasons for substance use among people with mental disorders, most have been limited to samples of people with psychotic disorders (e.g. Addington & Duchak, 1997; Forchuk et al., 2002; Fowler et al., 1998; Pencer & Addington, 2008). In addition, most of these studies do not report results separately for different substances. Only one study has investigated reasons for tobacco, alcohol and cannabis use separately and simultaneously (Fowler et al., 1998). Gregg, Barrowclough and Haddock (2007) reviewed 11 articles investigating reasons for alcohol, cannabis or amphetamine use among people with psychotic disorders. While studies differed widely, dysphoria relief was found to be the most frequently endorsed reason for substance use and relief of psychotic symptoms and medication side effects were the least frequently endorsed reasons for use. Similarly, Fowler, Carr, Carter and Lewin (1998) found that tobacco and cannabis were primarily used by participants with psychotic disorders to relieve dysphoria and for their intoxicating effects, while alcohol was used most frequently for dysphoria relief and social reasons. Carey and colleagues (Carey, Maisto, Carey, Gordon, & Correia, 1999a; Carey, Purnin,

Maisto, Carey, & Barnes, 1999b), also found that people with psychotic disorders described using alcohol and other drugs primarily for reduction of negative emotional and cognitive states and the augmentation of positive states (Carey et al., 1999b). They also found that drinking alcohol for social reasons, such as social facilitation, was important to people with psychiatric disorders and that nicotine was primarily used to help with negative affect (Carey et al., 1999a). On the other hand, Carey et al.'s (1999a; Carey et al., 1999b) participants also described that the use of alcohol and illicit drugs exacerbated their psychotic symptoms. In contrast, research suggests tobacco may be frequently used by people with psychotic disorders to self-medicate negative psychotic symptoms and medication side effects (e.g. Forchuk et al., 2002; Kumari & Postma, 2005). Lawn, Pols and Barber's (2002) study investigated reasons for smoking among people with schizophrenia, depression, bipolar or a personality disorder. They also found smoking was reported to be a way in which people with mental disorders coped with stressful situations and that they self-medicated.

Weaknesses of the literature

Research regarding people's attitudes and perceptions towards substances is limited, especially among people with mental disorders. Very few studies have investigated the areas of perceived harmfulness of substances, knowledge of substances or exposure and acceptance of public health campaigns among this population, and while a number of studies have investigated reasons for substance use among people with mental health disorders, most have only done so among people with psychotic disorders. Additionally, most studies do not report results separately for different substances and few have compared substance related attitudes and perceptions between people with and without mental disorders and between people with different mental

disorders. Furthermore, the majority of research in this area has employed only quantitative methodologies (Alvidrez et al., 2004; Bradizza & Stasiewicz, 2003; Clark et al., 2003; Forchuk et al., 2002; Hall & Nelson, 1996; Healey et al., 2008; Jukic et al., 1997). Those qualitative papers that have investigated substance use among people with mental disorders have often only investigated the use of illicit substances, substances in general, or tobacco alone (e.g. Alividrez et al., 2004; Asher & Gask, 2010; Carey et al., 1999a; Carey et al., 1999b; Lawn et al., 2002; Lobbana, Barrowclough, Jeffery, Bucci, Taylor, Marllinson, Fitzsimmons, & Marshall, 2010).

The lack of qualitative research investigating attitudes and perceptions regarding tobacco, alcohol and cannabis is a major weakness. Qualitative methods can produce more detailed and rich descriptions of participant experiences and phenomena, which can be useful when investigating new and complex areas such as co-occurring substance use and mental disorders. Interpretative qualitative methodologies, such as Interpretive Phenomenological Analysis (IPA), may be particularly well suited to this complex area as these methods recognize that people often struggle to express what they are thinking and feeling. Interpretative qualitative methodologies aim to understand the meaning of what respondents say, recognizing that those meanings are often not transparently available, and must be obtained through sustained engagement with the text and a process of interpretation. IPA studies also produce detailed findings which can and have been used to suggest and guide changes in practice in health settings (Smith, Flowers, & Osborn 1997; Smith & Osborn 2003).

Qualitative methods can also supplement quantitative work by validating the findings of quantitative studies or exploring complex areas not suitable for quantitative inquiry (Neale, Allen, & Coombs, 2005). Many researchers recommend integrating both quantitative and qualitative methods when conducting research (e.g. Blake, 1989;

Creswell, Fetter, & Ivankova, 2004; Stange & Zyzanski, 1989). Creswell et al (2004), for example, state that integrating both quantitative and qualitative methods can allow for a more complete analysis of an area, as neither approach alone is able to capture both the trends and details of an area. For this reason this thesis employs a method triangulation design to examine the attitudes and perceptions regarding substances of people with and without mental disorders. Across the five studies conducted as a part of this thesis, quantitative, qualitative and mixed method designs have been employed in an attempt to allow for a more complete understanding of participants' attitudes and perceptions regarding tobacco, alcohol and cannabis use.

Aims of the thesis

The broad aim of this thesis was to generate a greater understanding of attitudes and perceptions regarding tobacco, alcohol and cannabis use among people with mental disorders. Specifically this thesis aimed to:

- i) Identify the gaps in the existing literature investigating substance related attitudes and perceptions among people with mental disorders (*Paper 1*);
- ii) Identify similarities and differences in attitudes and perceptions regarding tobacco, alcohol and cannabis by investigating attitudes and perceptions towards these three substances separately and simultaneously among people with and without mental disorders (*Paper 2, Paper 4, Paper 5*);
- iii) Identify similarities and differences in the attitudes and perceptions of people with and without mental disorders and people with different

types of mental disorders regarding tobacco, alcohol and cannabis
(*Paper 4, Paper 5*);

- iv) Broaden current knowledge of substance related attitudes and perceptions among people with mental disorders beyond reasons for substance use (*Paper 3, Paper 5*); and to
- v) Inform the development of more effective and appropriately targeted intervention and prevention strategies for people with co-occurring substance use and mental disorders (*Paper 2, Paper 3, Paper 4, and Paper 5*).

Paper 1

Attitudes and perceptions towards substances among people with mental disorders: A systematic review

Introduction to Paper 1

A clear understanding of the attitudes and perceptions held by people with mental disorders may be necessary to the development of effective and appropriately targeted interventions for co-occurring substance use and mental disorders (Gregg et al., 2007). In response, this thesis aims to generate a greater understanding of attitudes and perceptions regarding tobacco, alcohol and cannabis use among people with mental disorders. The one review previously conducted in this area included only studies that reported reasons for substance use among people with psychotic disorders (Gregg et al., 2004). Paper one aimed to identify the gaps in the literature regarding attitudes to and perceptions of tobacco, alcohol and cannabis among people with mental disorders. To do so, a systematic review of the published literature investigating attitudes and perceptions regarding tobacco, alcohol or cannabis use among people with mental disorders was conducted. In order to add significantly to the overall body of knowledge in this area papers involving participants with any mental disorder and papers investigating a range attitudes and perceptions regarding tobacco, alcohol or cannabis were included in this review. The review generates valuable information regarding our current knowledge in this area and provides an information base upon which the subsequent research presented in this thesis builds.

Attitudes and perceptions towards substances among people with mental disorders: A systematic review

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Abstract

Objective: To develop effective interventions for people with co-existing mental disorders (MD) and substance use it may be beneficial to understand their attitudes and perceptions of substances.

Methods: A systematic literature search regarding attitudes and perceptions towards tobacco, alcohol or cannabis among people with MD was conducted. Studies' methodological quality was assessed using the Newcastle-Ottawa Scale.

Results: 21 papers were included in the review and found to have generally low methodological quality. Papers investigated reasons for substance use, substance use expectancies, substances' perceived effects and reasons for quitting . People with psychotic disorders reported using substances primarily for relaxation and pleasure. Among people with mood disorders alcohol was used primarily for social motives and tobacco for negative affect reduction.

Conclusions: For substance use interventions among people with MD to be more effective, it may be necessary to tailor interventions specifically for this population and customize by substance type. Gaps in the literature regarding attitudes and perceptions towards substance use among people with MD were identified, which future research should aim to address. These include designing and conducting methodologically rigorous research, investigating perceived harmfulness and knowledge of substances, and broadening recruitment of participants to include people with MD other than psychosis.

Keywords:

Review, Mental Disorders, Tobacco, Alcohol drinking, Cannabis.

Introduction

Among people with mental disorders, tobacco, alcohol and cannabis are the three most widely used substances (Degenhardt et al., 2001). Their use in this population is linked to adverse consequences including symptom worsening, reduced medication effectiveness, increased hospitalization rates, suicide and suicide attempts, and increased risk of victimization (Carey et al., 1991; Healey et al., 2008; Maniglio, 2009; Ziedonis & Nickou, 2001). Approximately 50% of people with mental disorders meet criteria for a lifetime substance use disorder (Degenhardt & Hall, 2001; Jenkins et al., 1997; Regier et al., 1990) and co-existing mental and substance use disorders are expensive for health care systems (Dickey & Azeni, 1996; Ziedonis & Nickou, 2001). Given the high prevalence, adverse consequences and high treatment costs associated with these co-existing disorders it is important that effective interventions are employed.

While a number of treatments for co-existing mental and substance use disorders have been developed, research indicates they are not yet optimally effective (Cleary et al., 2008; Drake et al., 2004; Drake, O'Neal, & Wallach, 2008), and different treatment approaches may be more effective for different substances (Baker et al., 2009). To improve these interventions, researchers have suggested it may be important to gain an understanding of people's attitudes and perceptions regarding substances (e.g. Baker et al., 2009; Chabrol et al., 2005; Clark et al., 2003).

The majority of research investigating attitudes and perceptions towards substances has been conducted within the general population. Clark, Scott and Cook (2003) and Roy, Wibberley & Lamb (2005), for example, found tobacco was perceived as more harmful than alcohol and cannabis among young adults in the general

population. Additionally, knowledge of cannabis has been found to be much poorer than knowledge of tobacco and alcohol (Bertram et al., 1996; Jukic et al., 1997).

A number of studies have investigated reasons for substance use among people with mental disorders, primarily people with psychotic disorders. Gregg, Barrowclough and Haddock (2007), for example, reviewed 11 articles investigating reasons for alcohol, cannabis or amphetamine use among people with psychotic disorders. While studies differed widely, dysphoria relief was found to be the most frequently endorsed reason for substance use. Relief of psychotic symptoms and medication side effects were the least frequently endorsed reasons for use. Despite the high prevalence of smoking among people with psychotic disorders, Gregg et al.'s (2007) review did not investigate reasons for tobacco use. In addition, they did not investigate other attitudes to or perceptions of substances. Their review also included studies that reported reasons for substance use in general, as opposed to reporting reasons for use separately for individual substances, and only included papers involving participants with psychotic disorders and not other mental disorders.

Aims of the Study

The current review aimed to systematically review literature investigating a range of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with a range of mental disorders. It aimed to identify gaps that exist in this literature and to inform future research and the development of more effective interventions in this area.

Method

In June 2010 a systematic literature search was conducted using the databases Embase and Medline. Individual searches in attitudes and perceptions (search terms: attitude, benefit, expectancies, harm, harmfulness, knowledge, motivation, motive, perception, perceived, reason, reason for substance use, relapse), substance (search terms: tobacco, alcohol, cannabis) and mental disorder (search terms: anxiety, anxiety disorders, bipolar, depression, depressive disorder, mental disorder, psychotic disorders, psychosis and schizophrenia) were conducted and combined. No date limits were placed on the searches which were limited to 'human' and articles written in English. The combined search produced a total of 1,078 papers.

Included papers were required to: report at least one measure of participant's attitudes or perceptions regarding tobacco, alcohol and/or cannabis; to report results separately for individual substances; and to report attitudinal or perception data among people with a clear, current mental disorder diagnosis. By reviewing the titles, abstracts and reference lists, 116 potentially relevant papers were identified. The first author reviewed these articles and their reference lists in full and identified 21 papers to be included in the review. Studies were excluded if they did not report original data e.g. review articles. A second author (AB) checked the extracted data. The full study selection process is shown in Figure 1.1.

The methodological quality of included studies was assessed using the Newcastle-Ottawa Scale (NOS) in which studies are awarded up to 9 stars for methodological quality across three sections: selection; comparability; and exposure (Wells et al., 2008). Studies received a star for 'selection' if: (a) a diagnostic interview was used to define cases; (b) cases were a representative sample of all eligible cases (e.g. random sample); (c) controls were derived from the same population as cases; and

(d) if they explicitly stated controls did not have a mental disorder. Studies received a star for 'comparability' for each confounding factor (maximum of two) they controlled for. Studies received a star for 'exposure' if: (a) they used a structured interview and assessors were blind to case/control status; (b) they used the same method for cases and controls; and (c) the non-response rates did not differ between groups. It should be noted that studies without control groups (i.e. non-comparative studies) could only receive up to two stars for methodological quality, if they used a diagnostic interview to define cases and if they used a representative sample. Two authors (LT and AB) independently rated the studies using the NOS. Any disagreements on these rating were resolved via discussion with a third author (TL).

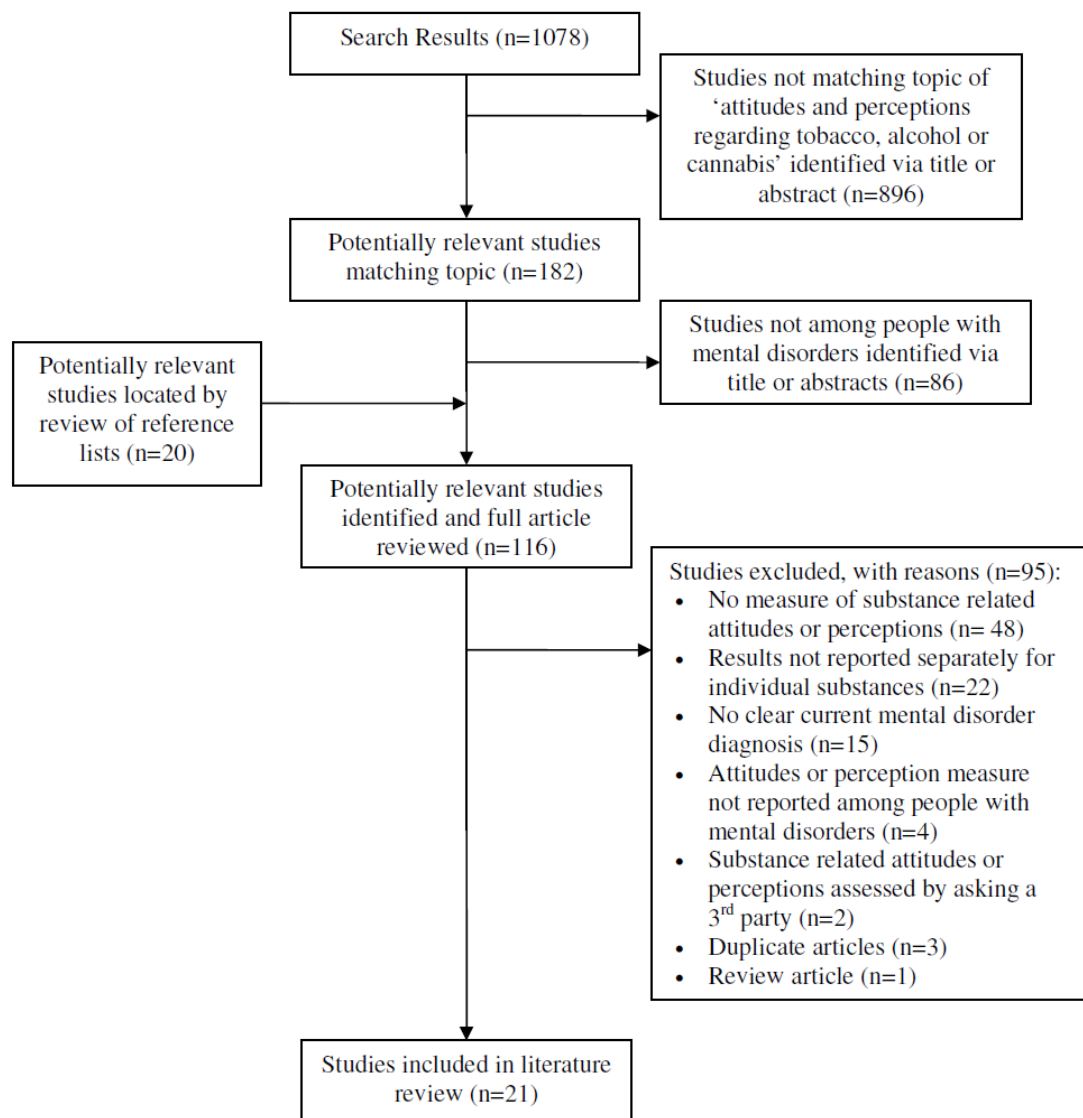


Figure 1.1. Study Selection Process

Results

Methodological quality

Twenty-one studies were included in the current review, including 12 which compared attitudes and perceptions across two or more groups. Of these 12 comparative

studies, two were awarded 3/9 stars using the NOS, eight received 4/9 stars, one received 5/9 stars and one received 6/9 stars (see Table 1.1). One non-comparative study (Warner et al., 1994) used both a representative sample and a diagnostic interview to define cases and received 2/2 stars, three non-comparative studies received 1/2 stars and five received 0/2 stars (see Table 1.1). Overall, fewer than half the studies used a diagnostic interview to determine mental disorder diagnosis and only three studies were found to have used a representative sample. Fifteen studies did not report the non-response rates of their samples, five comparative studies did not match or control for potential confounding factors and none were blinded.

Twelve studies had sample sizes fewer than 100, 15 involved participants of whom less than 35% were female (with three having no female participants), one had no male participants and three studies did not describe their results separately for people with different mental disorders (see Table 1.2). The three included studies that employed qualitative methods did not adequately describe their analytic process (Baker et al., 2002a; Forchuk et al., 2002; Fowler et al., 1998). As a result, it was unclear if these studies used one or multiple persons to rate participants' qualitative responses, and if these ratings were completed independently, both of which effects the credibility and trustworthiness of these data (Golafshani, 2003).

Table 1.1. Methodological quality of included studies

| Studies | Comparative study (Y/N) | Newcastle – Ottawa Scale criteria | | | | | | | | |
|-----------------------------|----------------------------|--|-----------------------------|-----------------------|------------------------|-------------------------|-------------------------------------|---------------------------|-------------|-------------------|
| | | Selection | | | | Comparability | | Exposure | | |
| | | Case definition | Representativeness of cases | Selection of controls | Definition of controls | Controls for one factor | Controls for 2 nd factor | Ascertainment of exposure | Same method | Non-response rate |
| Abrams and Kushner (2004) | N (experimental design) | - | - | n/a | n/a | n/a | n/a | n/a | n/a | NR |
| Addington and Duchak (1997) | N | * (SCID DSM-III-R) | - | n/a | n/a | n/a | n/a | n/a | n/a | NR |
| Baker et al.,(2002a) | N | - | - | n/a | n/a | n/a | n/a | n/a | n/a | R |
| Baker et al.,(2007) | N | * (DIP ICD-10) | - | n/a | n/a | n/a | n/a | n/a | n/a | R |
| Barr et al., (2008) | Y | - | - | - | * | * | * | - | * | - NR |
| Boyd et al., (2001) | Y | * (DIS DSM-IV) | - | * | * | * | - | - | * | - NR |
| Buckner and Schmidt (2009) | Y | * (ADIS-IV) | - | * | * | - | - | - | * | - NR |
| Currie et al., (2001) | Y | * (IDD DSM-IV) | - | * | * | - | - | - | * | - NR |
| Forchuk et al., (2002) | N | - | - | n/a | n/a | n/a | n/a | n/a | n/a | NR |
| Fowler et al., (1998) | N | * (SCID DSM-III-R) | - | n/a | n/a | n/a | n/a | n/a | n/a | R |
| Goswami et al., (2004) | Y | - | * | * | * | - | - | - | - | - NR |
| Green et al., (2007) | Y | - | - | - | * | * | * | - | * | - R |
| Green et al., (2007) | Y | - | - | - | * | * | * | - | * | - R |
| Gurpegui et al., (2007) | Y | - | - | - | * | * | * | - | * | - NR |
| Nishith et al., (1997) | Y | * (SCID DSM-III-R) | - | * | * | - | - | - | * | - NR |
| Pencer and Addington (2008) | Y | *(SCID DSM-IV) | - | * | * | * | * | - | * | - NR |
| Schaub et al., (2008) | Y | - | - | - | * | * | * | - | - | - NR |
| Schofield et al., (2006) | N | - | - | n/a | n/a | n/a | n/a | n/a | n/a | NR |
| Spencer et al., (2002) | N | - | - | n/a | n/a | n/a | n/a | n/a | n/a | R |
| Waldrop et al., (2007) | Y | * (SCID DSM-IV-TR) | - | * | * | - | - | - | * | - NR |
| Warner et al., (1994) | N | * (DSM-III-R criteria, diagnostic interview not specified) | * | n/a | n/a | n/a | n/a | n/a | n/a | NR |

*: Study awarded a Newcastle-Ottawa Scale star for criteria, -: Study not awarded a Newcastle-Ottawa Scale star for criteria, n/a: Newcastle-Ottawa Scale criteria did not apply to the study, SCID: Structured Clinical Interview for DSM, DSM III-R: Diagnostic and Statistical Manual of Mental Disorders, Third edition, Revised, DIP ICD-10: Diagnostic Interview for Psychoses for the International Classification of Diseases, Tenth edition, ADIS-IV – Anxiety Disorders Interview Schedule for DSM-IV, IDD: Inventory to Diagnose Depression, DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, Fourth edition, DSM-IV-TR: Diagnostic and Statistical Manual of Mental Disorders, Fourth edition, Text revision, NR: Non-response rates not reported, R: Non-response rates reported.

Table 1.2. Details of included studies

| Study (location) | Sample | Topic | Results | Limitations |
|---------------------------------------|--|--|--|---|
| Abrams and Kushner (2004), (US) | N =41, 61% female Age: 21-55 (M = 33) Outpatients Diagnosis: Social phobia. Excluded: Participants with depression, bipolar, psychotic disorder or alcohol abuse/dependence. | Expectancies • Questionnaire (AEQ) | Alcohol • Men who had expected to consume a moderate dose of alcohol, but actually consumed non-alcoholic beverages, with stronger tension-reduction alcohol outcome expectancies experienced a greater drop in their fear of negative evaluation, and mental distress, than those with weaker tension-reduction alcohol outcome expectancies | Reduced generalizability due to small sample size. Participants were social drinkers only. No diagnostic interview used. |
| Addington and Duchak (1997), (Canada) | N=41, 17% female Age: 19-64 (M = 35) Outpatients Diagnosis: 95% schizophrenia, 5% schizoaffective disorder and substance abuse or dependence. | Reasons for use • Questionnaire (SRS) | Alcohol • Most frequently endorsed reasons: To relax (82%), increase pleasure (77%), to get high (74%), to relive depression (71%), to be more talkative (61%), to go along with group (56%) • Illness related reasons: Decrease suspiciousness (29%), decrease feeling cause by med (24%), decrease voices (24%) Cannabis • Most frequently endorsed reasons: Increase pleasure (95%), to get high (95%), to relax (81%), decrease depression (81%), to go along with the group (71%), to give one more interests (62%), to give one more thoughts (57%) • Illness related reasons: to relieve depression (81%), decrease suspiciousness (29%), decrease slowed-down feeling caused by medication (24%), decrease voices (40%) | Reduced generalizability due to small sample size and low numbers of female participants. |
| Baker et al. (2002a), (Aus) | N = 160, 25% female Age: 16-70 (M = 31) Inpatients Diagnosis: 38% schizophrenia, 29% mood disorder, 13% other, 20% no DSM-IV Axis I diagnosis, 16% DSM-IV Axis II diagnosis. Other: Current abuse or dependence of alcohol or other drugs, or the use of any illicit drug on a weekly basis in the month prior to interview, or alcohol consumption exceeding recommended NHMRC levels. Capable of interview and likely to reside in the local geographical region for the next 12 months. | Reasons for use • Free response | Alcohol • Most frequently endorsed reasons: Dysphoria relief (47.3%), drug intoxication effects (35.2%), and social (14.3%) • Illness related reasons: Illness/medication (2.2%) Cannabis • Most frequently endorsed reasons: Intoxication effects (56.9%), dysphoria relief (19.6%), unspecified other reasons (13.7%) social (8.8%). • Illness related reasons: Illness/medication (1.1%) | Reduced generalizability due to low numbers of female participants. Diagnostic interview used for substance use disorders only. Diagnostic interview not used for psychiatric diagnosis. Reduced validity of reasons for use data as analysis of free response data not reported in full. |
| Baker et al. (2007), | N= 298, 48% female Age: 18-64 (M = 37) | Reasons for use and reasons for quitting | Tobacco • Highest rated reasons for smoking (mean RSQ scores): Stress | Reduced generalizability as the sample was drawn from |

| Study (location) | Sample | Topic | Results | Limitations |
|------------------------------|--|--|--|---|
| (Aus) | Outpatients Diagnosis: Psychotic disorder. Other: Aged over 18 years, daily consumption of at least 15 cigarettes, has expressed an interest in quitting smoking. Excluded: Participants with medical conditions that would preclude use of NRT, participants with acute psychosis or evidence of cognitive impairment. N = 94 (61 subjects, 33 matched controls), 34% female Age: M = 46 | <ul style="list-style-type: none"> Questionnaire (Modified RSQ; RFQ) | reduction (2.56), stimulation (2.01), and addiction (1.88) <ul style="list-style-type: none"> Highest rated reasons for quitting (mean RFQ scores): Self control (2.64), health concerns (2.61), immediate reinforcement (2.38), and social influence (1.11) | community members and included only people willing to quit smoking. Different recruitment strategies were employed across the two sites of the study. |
| Barr et al. (2008), (Canada) | Inpatients Diagnosis: Subjects – 74% schizophrenia, 26% schizoaffective disorder. Other: Both groups - current daily smoking. Controls – health associated workers. Excluded: Subjects with a recent history of substance abuse, epilepsy or other neurological illness. Controls with a history of loss of consciousness, or significant illness in themselves or first-degree relatives. N = 142, 100% female Age: 18-52 (M = 30) | Reasons for use <ul style="list-style-type: none"> Questionnaire | Tobacco <ul style="list-style-type: none"> Highest rated reasons for use in order among subjects: Enhancement of pleasurable feelings and relaxation, sociability, craving, increased need for energy or stimulation, sedation and anxiety reduction, sensorimotor manipulation then habit Highest rated reasons for use in order among controls: Sociability, enhancement of pleasurable feelings, craving, sedation and anxiety reduction Other results: Subjects reported smoking significantly less frequently for sociability than controls Subjects reported smoking significantly more frequently for sensorimotor manipulation and increased need for stimulation As antipsychotic drug dose increased, patients rated sensorimotor manipulation and need for stimulation as more important reasons for smoking | Reduced generalizability due to small sample size, low numbers of female participants and the inclusion of participants with restricted access to cigarettes. No use of diagnostic interview. |
| Boyd et al. (2007), (US) | Inpatients and outpatients Diagnosis: 31 Alcohol and other drug (AOD) disorder only, 30 comorbid AOD disorder and Axis I psychiatric disorder, 23 other Axis I psychiatric disorder only and 58 no psychiatric disorder. Other: Women residing in rural areas. Ethnicity: 100% African American. | Expectancies <ul style="list-style-type: none"> Questionnaire (Revised AEQ) | Alcohol <ul style="list-style-type: none"> Highest rated alcohol expectancies (mean AEQ subscale scores): Global positive change (AOD disorder only: 10.5, comorbid AOD and psychiatric disorder: 15.1), increased social assertiveness (AOD disorder only: 5.6, comorbid AOD and psychiatric disorder: 7.8), physical and social pleasure (AOD disorder only: 6.9, comorbid AOD and psychiatric disorder: 6.6), relaxation and tension reduction (AOD disorder only: 5.6, comorbid AOD and psychiatric disorder: 6.4) Total AEQ scores (AOD disorder only: 35.9, comorbid AOD and psychiatric disorder: 45.2, psychiatric disorder only: 13.3, no disorder: 15.2) Other results: Women with AOD disorders reported significantly higher alcohol | Reduced generalizability due to restricted sample of only rural living, African American women. Alcohol expectancies not reported separately for people with different types of Axis I disorders. |

| Study (location) | Sample | Topic | Results | Limitations |
|----------------------------------|--|---|--|--|
| Buckner and Schmidt (2009), (US) | <p>N =107 (28 subjects, 79 controls), 43% female Age: 18-22 (M = 19)</p> <p>Outpatients</p> <p>Diagnosis: Subjects- social anxiety disorder. Controls – No social anxiety disorder.</p> <p>Other: Past 3 month marijuana use.</p> <p>Ethnicity: 84% Caucasian, 6% mixed race, 5% Hispanic/Latino, 2% African American 1% American Indian, and 1% other.</p> <p>Excluded: participants who denied lifetime marijuana use.</p> | <p>Expectancies</p> <ul style="list-style-type: none"> • Questionnaire (MEEQ) | <p>expectancies than women without AOD disorders.</p> <p>Cannabis</p> <ul style="list-style-type: none"> • Subjects with social anxiety disorder had significantly higher expectancies of cognitive and behavioural impairment, and global negative effects as a result of cannabis use than controls without social anxiety disorder • Cognitive and behavioural impairment and global negative expectancies were found to mediate the relationship between social anxiety disorder and cannabis problems | <p>Reduced generalizability as study participants were undergraduates and there was deliberate oversampling of participants with high social interaction anxiety scores.</p> |
| Currie et al. (2001), (Canada) | <p>N =161, 29% female</p> <p>Age: 18-74 (M = 37)</p> <p>Inpatients and Outpatients</p> <p>Diagnosis: 44% No current or past major depression, 28% past but not current major depression, 28% current major depression.</p> <p>Other: Seeking treatment for alcohol dependence, regular daily smoking.</p> <p>Excluded: Participants still drinking or with less than 14 days sobriety.</p> | <p>Reasons for use</p> <ul style="list-style-type: none"> • Questionnaire (RFSS; Temptation Inventory) | <p>Tobacco</p> <ul style="list-style-type: none"> • Highest rated motives among people with current major depression (mean RFSS scores): Negative affect reduction (Males: 7.2, Females: 8.3), addiction (Males: 7.2, Females: 7.9), pleasure (Males: 6.7, Females: 6.4), food substitution (Males: 3.6, Females: 4.2) • Highest rated motives among people with past major depression (mean RFSS scores): Negative affect reduction (Males: 7.3, Females: 7.4), addiction (Males: 6.5, Females: 5.3), pleasure (Males: 6.1, Females: 5.4), stimulating (Males: 3.8, Females: 3.1) • Highest rated motives among people with no history of major depression (mean RFSS scores): Negative affect reduction (Males: 6.8, Females: 5.6), addiction (Males: 6.4, Females: 4.5), pleasure (Males: 6.1, Females: 4.9), habit (Males: 4.0, Females: 2.5) • Other results: • Participants with a history of depression were significantly more likely to smoke for negative affect reduction than people with no depressive history • Participants with current depression were significantly more likely to smoke for negative affect reduction and food substitution than people with past or no history of depression • Women with current depression were significantly more likely to smoke for addiction and habit than women with past or no history of depression • Participants with a past history of depression felt significantly more tempted to smoke in situations involving negative emotions | <p>Reduced generalizability due to low numbers of female participants and exclusion of participants who were currently using alcohol. Employed a cross-sectional design to examine the impact of a history of depression on smoking motives.</p> |

| Study (location) | Sample | Topic | Results | Limitations |
|---------------------------------|---|--|---|--|
| Forchuk et al. (2002), (Canada) | N = 100, 28% female Age: 17-65 (M = 36) Inpatients and outpatients Diagnosis: Schizophrenia. Other: Current smokers. | Reasons for use • Open-ended questions and questionnaire | and in positive situations than people with no depressive history • Participants with current depression were also significantly more tempted to smoke in negative affect situations and in positive situations than participants with past or no depressive history Tobacco • Highest rated motivators (mean questionnaire scores): Sedative effect (2.32), control of negative symptoms (2.10), addiction (2.09), and control of side effects (1.85) • Illness related reasons (mean questionnaire scores): Control of negative symptoms (2.10), control of side effects (1.85) • Reasons for starting smoking: Because of friends (41.5%), to look older (25.6%), to relax (17%) • Reasons for current smoking: Because of addiction (41%), to relax (20%), enjoyment (15%), to pass the time (12%), smoking is a crutch (8%) | Reduced generalizability but to low numbers of female participants. No diagnostic interview used. Analysis of qualitative open ended questions not described. |
| Fowler et al. (1998), (Aus) | N = 194, 27% female Age: M = 36 Outpatients Diagnosis: Schizophrenia. Excluded: Participants with mental retardation, major mood disorder, organic brain disease or injury, acute psychotic symptoms, participants not aged between 18 and 60 years and participants being treated in the private sector. | Reasons for use • Open ended questions | Tobacco • Most frequently endorsed reasons: Dysphoria relief (69%), intoxication effects (62%) Cannabis • Most frequently endorsed reasons: Dysphoria relief (62%), intoxication effects (41%) Alcohol • Most frequently endorsed reasons: Dysphoria relief (58%), social reasons (58%) • Illness related reasons • 0-9% across all drug types • Other results: • Abusers of alcohol and cannabis during last 6 months were more likely than users to nominate illness and medication related reasons for substance use (Alcohol: 14.3% vs. 2.6%, Cannabis: 16% vs. 0%) | Reduced generalizability due to low numbers of female participants and exclusion of participants being treated in the private sector. Reduced reliability of results as analysis of open-ended questions is not fully described. |
| Goswami et al. (2004), (India) | N = 44 (22 subjects, 22 controls), 0% female Age: 18 – 50 (Subjects, M = 34. Controls, M = 33) Outpatients Diagnosis: Subjects – Schizophrenia with psychoactive substance abuse/dependence for at least a month prior. Controls – Schizophrenia without | Reasons for use and perceived effects of substances • Questionnaires (SRS; Perceived Effects Scale) | Alcohol • Most frequently endorsed reasons among people with comorbid schizophrenia and substance abuse: Decrease depression (78%), to decrease hallucination (67%), to decrease suspiciousness (56%), to relax (56%), to increase sleep (56%) • Illness related reasons: To decrease depression (78%), to decrease hallucinations (67%), to decrease suspiciousness (56%), to decrease anxiety (22%), to decrease side effects of medication (11%) | Reduced generalizability due to small sample size and no female participants. Did not investigate reasons for use and perceived effects of substances among controls. |

| Study (location) | Sample | Topic | Results | Limitations |
|----------------------------|---|---|---|---|
| | <p>psychoactive substance abuse/dependence</p> <p>Excluded: Subjects with substance induced psychotic disorders, patients not on neuroleptic therapy in dose range (chlorpromazine 400-800mg/d or equivalent), patients who were grossly uncooperative.</p> | | <ul style="list-style-type: none"> Perceived effects: Alcohol perceived to decrease anxiety, depression and socialization <p>Cannabis</p> <ul style="list-style-type: none"> Most frequently endorsed reasons among people with comorbid schizophrenia and substance abuse: To increase pleasure (100%), satisfy curiosity (80%), to get high (80%), to relax (80%), to decrease anxiety (60%) Illness related reasons: To decrease anxiety (60%), to decrease depression (40%), to decrease hallucinations (40%), to decrease suspiciousness (40%), to decrease side effects of medication (20%) Perceived effects: Cannabis was perceived to decrease hallucinations and increase energy | |
| Green et al. (2004), (Aus) | <p>N = 92 (45 subjects, 47 controls), 0% female</p> <p>Age: 18-55 (subjects: M = 29, controls: M = 31)</p> <p>Outpatients</p> <p>Diagnosis: Subjects – 67% schizophrenia, 24% schizoaffective disorder. Controls - No diagnosis of psychotic disorder, no history of psychiatric treatment.</p> <p>Other: Consume at least 3 ‘cones’ of cannabis a week for one of the previous 3 months.</p> <p>Excluded: Participants with a diagnosis of developmental or cognitive disorder and participants who did not live within 20km of the Brisbane central business district.</p> | <p>Reasons for use</p> <ul style="list-style-type: none"> Structured Interview | <p>Cannabis</p> <ul style="list-style-type: none"> Most frequently endorsed reasons (at baseline): Social activity/it is offered (subjects: 38%, controls: 49%), mood alteration (subjects: 36%, controls: 26%), anxiety or depression (subjects: 27%, controls: 11%), availability (subjects: 24%, controls: 15%), boredom (subjects: 22%, controls: 17%), habit (subjects: 11% controls: 38%), relaxation (subjects: 2%, controls: 34%) Illness related reasons: Anxiety/depression (subjects: 27%, controls: 11%), use for psychotic symptoms or side effects (subjects and controls: 0%) Most frequently endorsed positive effects (at baseline): Mood alteration (subjects: 42%, controls: 34%), relaxation (subjects: 27%, controls: 53%) cognitive enhancement (subjects: 20%, controls: 32%), interaction (subjects: 20%, controls: 26%) Other results: Subjects were significantly more likely than controls to report cannabis use for anxiety and depression Subjects were significantly less likely than controls to report cannabis use for habit and relaxation at baseline and follow-up Subjects were significantly more likely than controls to report cannabis use for boredom at follow-up Subjects were significantly less likely than controls to endorse relaxation as a positive effect of cannabis use at baseline and follow-up | <p>Reduced generalizability due to small sample size and no female participants. No diagnostic interview used. Non-random sampling. High non-participation rates.</p> |
| Green et al. (2007) (Aus) | <p>Same sample as Green et al. (Green et al., 2004).</p> | <p>Expectancies</p> <ul style="list-style-type: none"> Structured Interview | <p>Cannabis</p> <ul style="list-style-type: none"> Negative cannabis use expectancies were inversely correlated with frequency of cannabis use at follow-up | <p>Reduced generalizability due to small sample size and no female participants. High non-</p> |

| Study (location) | Sample | Topic | Results | Limitations |
|---------------------------------|--|--|---|---|
| Gurpegui et al. (2007), (Spain) | <p>N= 273 (173 subjects, 100 controls), 16% female (subjects), 56% female (controls)</p> <p>Age: Subjects M = 36, controls M = 39</p> <p>Outpatients</p> <p>Diagnosis: Subjects – schizophrenia. Controls – 29% non-psychotic psychiatric morbidity.</p> <p>Other: Current smoking.</p> <p>Excluded: Controls with schizophrenia or bipolar disorder.</p> | <p>Perceived effects of smoking and reasons for use</p> <ul style="list-style-type: none"> • Questionnaire | <p>• Negative expectancies were more predictive of cannabis use among subjects with psychosis</p> <p>• Positive expectancies were more predictive of cannabis use in controls</p> <p>Tobacco</p> <ul style="list-style-type: none"> • Most frequently endorsed perceived effects: Calmness (subjects: 75%, controls: 38%), cheerfulness (subjects: 49%, controls: 11%), alertness (subjects: 43%, controls: 9%), concentration (subjects: 33%, controls: 8%), sociability (subjects: 16%, controls: 12%), agility (subjects: 14%, controls: 2%) • Main reasons for smoking: pleasure (subjects: 42%, controls: 26%), calmness (subjects: 21%, controls: 7%), entertainment (subjects: 14%, controls: 4%), habit (subjects: 10%, controls: 20%), need (subjects: 9%, controls: 4%), don't know (subjects: 3%, controls: 1%), addiction (subjects: 0%, controls: 38%) • Other results: • Except for a socializing effect, subjects with schizophrenia reported subjective effects more frequently than controls. • Subjects reported smoking significantly more frequently for calmness than controls • Controls reported smoking for addiction significantly more frequently than subjects • PANSS depressive factor scores were significantly higher among people who reported an effect of cheerfulness • PANSS anxiety scores were significantly higher among people who reported a calmness effect from smoking • PANSS negative factor scores were significantly lower among people who reported a sociability effect from smoking • Subjects with >3 hospitalisations reported an alertness effect from smoking significantly more frequently than people with <3 hospitalisations <p>Alcohol</p> <ul style="list-style-type: none"> • Highest rated reasons for use (mean DMM scores): Socialization (Subjects with alcohol and drug disorders: 14.56, drug disorder: 9.50, alcohol disorders: 12.67, controls: 9.04), coping (Subjects with alcohol and drug disorders: 12.78, drug disorders: 7.50, alcohol disorders: 10.93, controls: 7.44), pleasure enhancement (subjects with alcohol and drug disorders: 14.28, drug disorders: 7.50, alcohol disorders: 10.20, controls: 7.68) • Highest rated expectancies (mean AEEQ scores): Physical and | <p>participation rates (50% among subjects). No diagnostic interview used.</p> <p>Reduced generalizability due to low numbers of females in subject group and the control group consisting of medical patients (58%), subjects' relatives (37%) and staff (5%). Results were not analysed separately for controls with and without psychiatric comorbidities. No diagnostic interview used.</p> |
| Nishith et al. (1997), (US) | <p>N = 75, 45% female</p> <p>Age: 19-61 (M = 35)</p> <p>Outpatients</p> <p>Diagnosis: Subjects - 67% current or lifetime comorbid psychiatric and substance use disorder including: 29% mood disorder, 9% anxiety disorder, 21% mood and anxiety disorder, 7% other disorder. Controls -33% current</p> | <p>Reasons for use and expectancies</p> <ul style="list-style-type: none"> • Questionnaire (AEEQ-abridged version; DMM) | <p>Alcohol</p> <ul style="list-style-type: none"> • Highest rated reasons for use (mean DMM scores): Socialization (Subjects with alcohol and drug disorders: 14.56, drug disorder: 9.50, alcohol disorders: 12.67, controls: 9.04), coping (Subjects with alcohol and drug disorders: 12.78, drug disorders: 7.50, alcohol disorders: 10.93, controls: 7.44), pleasure enhancement (subjects with alcohol and drug disorders: 14.28, drug disorders: 7.50, alcohol disorders: 10.20, controls: 7.68) • Highest rated expectancies (mean AEEQ scores): Physical and | <p>Reduced generalizability due to small sample size. Did not examine reasons for use and expectancies separately for mood and anxiety disorders due to small sample size.</p> |

| Study (location) | Sample | Topic | Results | Limitations |
|-----------------------------------|---|--|--|--|
| | <p>of lifetime psychiatric diagnosis only including: 8% mood disorder, 7% anxiety disorder, 16% depression and anxiety, 3% other disorder.</p> <p>Ethnicity: 85% Caucasian, 8% African-American, 4% Hispanic.</p> <p>Excluded: Patients with an organic mental disorder, schizophrenia, mood disorders with psychotic features, patients who were acutely suicidal and/or needed hospitalization.</p> | | <p>social pleasure (Subjects with alcohol and drug disorders: 7.31, drug disorder: 4.70, alcohol disorders: 7.00, controls: 4.83), global positive changes (Subjects with alcohol and drug disorders: 10.06, drug disorder: 3.10, alcohol disorders: 6.69, controls: 3.30), increased social assertiveness (Subjects with alcohol and drug disorders: 7.12, drug disorder: 2.50, alcohol disorder: 4.15, controls: 4.30), relaxation and tension reduction (Subjects with alcohol and drug disorders: 6.81, drug disorder: 3.00, alcohol disorders: 5.69, controls: 3.43)</p> <ul style="list-style-type: none"> • Other results: • Patients with a history of alcohol use disorder endorsed drinking for social, coping and enhancement motives significantly more than people with no history of an alcohol use disorder • Patients with a history of alcohol use disorder endorsed significantly higher positive expectancies than patients with no history of alcohol use disorder | |
| Pencer and Addington (2008), (US) | <p>N = 70 (35 subjects, 35 matched controls), 20% female</p> <p>Age: 15-20 (M = 18)</p> <p>Outpatients</p> <p>Diagnosis: Subjects - 49% Schizophreniform, 26% Psychotic disorder NOS, 20% Schizophrenia, 3% Schizoaffective disorder, 3% Substance-induced psychotic disorder. Controls – No current of past Axis I psychiatric disorder.</p> <p>Ethnicity: Subjects – 77% Caucasian. Controls – 66% Caucasian.</p> | <p>Reasons for use</p> <ul style="list-style-type: none"> • Questionnaire (SRS) | <p>Alcohol</p> <ul style="list-style-type: none"> • Most frequently endorsed reasons: to relax (subjects: 56%, controls: 57%), increase pleasure (subjects: 44%, controls: 54%), to become more talkative (subjects: 38%, controls: 36%), to go along with the group (subjects: 31%, 29%), to get high, (subjects: 31%, controls: 25%) to relieve depression (subjects: 31%, controls: 7%) • Illness related reasons: Relieve depression (subjects: 31%, controls: 7%), decrease suspiciousness (subjects: 6%, controls: 4%), to decrease voices (subjects: 3%, controls: 0%), decrease slowed down feeling caused by medication (subjects: 6%, controls: 0%) <p>Cannabis</p> <ul style="list-style-type: none"> • Most frequently endorsed reasons: To get high (subjects: 62%, controls: 85%) to increase pleasure (subjects: 54%, controls: 46%), to relax (subjects: 50%, controls: 69%), to go along with the group (subjects: 39%, controls: 31%), to relieve depression (subjects: 39%, controls: 0%), to give one more thoughts (subjects: 31%, controls: 23%) • Illness related reasons: To relieve depression (subjects: 39%, controls: 0%), decrease voices (subjects: 4%, controls: 0%), decrease slowed down feeling caused by medication (subjects: 12%, controls: 0%) | <p>Reduced generalizability due to small sample size and low numbers of female participants.</p> |
| Schaub et al. | N = 72 (36 subjects, 36 matched | Reasons for use | Cannabis | Reduced generalizability due to |

| Study (location) | Sample | Topic | Results | Limitations |
|--------------------------------------|--|---|--|---|
| (2008), (Switzerland) | controls), 8% female Age: M = 30 Outpatients Diagnosis: Subjects -Schizophrenia. Controls - no previous or current psychiatric treatment. Other: Current cannabis use. Excluded: Patients with other diagnoses and/or any substance use disorder other than cannabis, patients with displaying acute psychotic symptoms or acute cannabis intoxication at time of assessment. | • Questionnaire | <ul style="list-style-type: none"> Most frequently endorsed reasons: to relax (subjects: 89%, controls: 81%), to be high (subjects: 83%, controls: 83%), increase pleasure (subjects: 72%, controls: 42%), sleep better (subjects: 69%, controls: 58%), reduce boredom (subjects: 64%, controls: 28%), increase emotions and feelings (subjects: 58%, controls: 53%), be more creative (subjects: 56%, controls: 39%) Illness related reasons: reduce feelings of depression (subjects: 42%, controls: 28%), decrease my hallucinations (subjects: 19%, controls: 0%), decrease side effects of medication (subjects: 8%, controls: 0%) Other results: Participants with schizophrenia endorsed cannabis use 'to reduce boredom' significantly more frequently (64%) than controls (28%) | small sample size and low numbers of females. No diagnostic interview used. Did not screen controls for presence of psychosis. Cannabis use is widespread and legal sanctions are rare in Switzerland. The results may not generalize to other countries. |
| Schofield et al. (2006), (Aus) | N =101, 11% female Age: 16-50 (M =25) Outpatients Diagnosis: Schizophrenia spectrum disorders. Other: Cannabis use in past 6 months. Excluded: Patients with Bipolar disorder, patients reporting use of intravenous amphetamines in last 4 months. | Reasons for use • Questionnaire (SRS) | Cannabis <ul style="list-style-type: none"> Most frequently endorsed reasons: To relax (86%), something to do with friends (81%) relieving boredom (79%) improves sleep (58%) reduce anxiety (49%), feel good about self (39%) Illness related reasons: Reduce anxiety (49%), reduce medication side effects (15%), decrease voices (11%), and reduce paranoia (8%) | Reduced generalizability due to low numbers of female participants. No diagnostic interview used. |
| Spencer et al. (2002), (Aus) | N =69, 26% female Age: 18-58 (M = 31) In- and outpatients Diagnosis: 49% Schizophrenia, 12% Bipolar disorder, 9% Psychotic disorder NOS, 7% Schizoaffective disorder, 23% Other psychotic disorder. Excluded: Patients who had not used drugs or alcohol in the last year. | Reasons for use • Questionnaire (Modified DMQ) | Alcohol and Cannabis <ul style="list-style-type: none"> Cannabis users had significantly greater mean scores for conformity and acceptance motives, coping with unpleasant affect and enhancement motives than alcohol users | Reduced generalizability due to small sample size and low numbers of female participants. No diagnostic interview used. Compared reasons for use by drug type but did not report reasons for use separately for alcohol and cannabis. Did not examine the factor loadings of the DMQ separately for different substances. |
| Waldrop et al. (2007), (US) | N =72, 53% female Age: M = 33 (Alcohol group), M = 35 (Cocaine group) Inpatient/outpatient status not stated Diagnosis: 16 comorbid alcohol dependence and PTSD, 18 alcohol dependence only, 23 comorbid cocaine | Reasons for use • Questionnaire (IDTS) | Alcohol <ul style="list-style-type: none"> Subjects with PTSD reported using alcohol significantly more often in negative situations than controls PTSD subjects were significantly more likely than controls to use alcohol in response to negative situations, unpleasant emotions and physical discomfort | Reduced generalizability due to small sample size. Excluded people with MDD in the alcohol group. |

| Study (location) | Sample | Topic | Results | Limitations |
|----------------------------|---|--|---|---|
| Warner et al. (1994), (US) | dependence and PTSD and 25 cocaine dependence only. Excluded: Participants in alcohol group with MDD. N =79, 19% female Age: 18-65 (M = 39) Outpatients Diagnosis: 58% Schizophrenia, 8% Schizoaffective, 34% Bipolar. Ethnicity: 92% Caucasian, 4% Hispanic, 4% Black. | Perceived effects of substances • Questionnaire | Alcohol • % of participants reporting symptom to be made worse, or stay the same, by use: Anxiety (73.3%), depression (70%), insomnia (60%), feeling bad physically (66.6%), paranoia (77.7%) and hallucinations (66.6%) • % of participants reported symptom to be improved by use: Medication side effects (55.5%) Cannabis • % of participants reporting symptom to be made worse, or stay the same, by use: Paranoia (83.3%) and hallucinations (83.3%) • % of participants reporting symptom to be improved by use: Anxiety (100%), depression (90%), insomnia (87.5%) and feeling bad physically (85.7%) | Reduced generalizability due to small sample size and low numbers of female participants. |

AOD: Alcohol and other drugs, SRS: Stated Reasons Scale, RSQ: Reasons for Smoking Questionnaire, RFQ: Reasons for quitting questionnaire, AEQ: Alcohol Expectancies Questionnaire, NAEQ: Negative alcohol expectancy questionnaire, RFSS: Reasons for Smoking Scale, DMM: Drinking Motives Measure, AEEQ: Alcohol Effect Expectancies Questionnaire, IDTS: Inventory of Drug Taking Situations, MEEQ: Marijuana Effects Expectancies Questionnaire.

Attitudes and perceptions towards substances

Eighteen of the 21 studies included in the review investigated reasons for substance use, five examined substance use expectancies, one examined reasons for quitting and three examined the perceived effects of substance use. Eleven studies were conducted in North America, seven in Australia, two in Europe and one in India (see Table 1.2). Where studies reported their results in terms of mean scores on reasons for use questionnaires, higher scores indicated participants reported using substances more frequently for that reason.

Expectancies

Alcohol

Four studies investigated alcohol use expectancies among people with mental disorders. Boyd et al. (2007) and Nishith et al. (1997) found participants with comorbid mental and alcohol use disorders most commonly expected global positive changes, increased physical and social pleasure and increased social assertiveness as a result of their alcohol use. Participants with comorbid alcohol disorders reported higher positive expectancies of alcohol use than participants with mental disorders only.

Abrams and Kushner (2004) conducted an experiment in which participants consumed a placebo, which they thought was a moderate dose of alcohol. They found that male socially phobic participants who expected that alcohol would reduce tension reported a greater drop in anxiety than those who had less expectation that drinking alcohol would reduce their experience of tension.

Waldrop, Back, Verduin and Brady (2007) compared people with comorbid alcohol dependence and PTSD to those with alcohol dependence only. They found

people with PTSD reported using alcohol significantly more often in response to negative situations, particularly unpleasant emotions and physical discomfort, than people without PTSD.

Cannabis

Two studies investigated cannabis use expectancies among people with anxiety and psychotic disorders. Buckner and Schmidt (2009) found negative cannabis expectancies were positively associated with social anxiety. Participants with social anxiety disorder had significantly higher expectations that cannabis use would cause cognitive and behavioural impairment and have global negative effects than people without social anxiety disorder. Green et al. (2007) found negative cannabis expectancies were inversely associated with cannabis use among people with psychotic disorders and that negative cannabis expectancies were more predictive of this reduced use among people with psychotic disorders than controls.

Reasons for use

Alcohol

Psychotic disorders. Four studies investigated reasons for alcohol use among people with psychotic disorders. Pencer and Addington (2008) and Addington and Duchak (1997) found the most commonly endorsed reason for alcohol use was 'to relax' (56% and 82%, respectively), followed by drinking to increase pleasure, to become more talkative and to go along with the group. Fowler et al. (1998) and Goswami et al. (2004), in contrast, found dysphoria relief (58%) and 'to decrease depression' (78%) were the most frequently endorsed reasons for alcohol use

respectively, followed by social reasons (Fowler et al., 1998), and drinking to reduce positive psychotic symptoms (Goswami et al., 2004).

Participants also reported using alcohol for reasons related to their mental illnesses. However, the percentages of participants endorsing these motives differed widely across studies. Between 31% and 78% of participants endorsed drinking to relieve depression, followed by drinking to decrease psychotic symptoms (3-67%) (Addington & Duchak, 1997; Goswami et al., 2004; Pencer & Addington, 2008), reasons related to their mental illness (14%) (25) and side effects of their medication (2-25%) (Addington & Duchak, 1997; Fowler et al., 1998).

Pencer and Addington (2008) compared reasons for alcohol use between participants with and without psychosis. Both groups reported drinking alcohol most commonly to relax, to increase pleasure, to be more talkative and to go along with the group. However, participants with psychosis endorsed drinking alcohol to relieve depression, positive psychotic symptoms and medication side effects more than controls. This difference was not statistically tested.

Mood and anxiety disorders. One study investigated reasons for alcohol use among outpatients with comorbid mood or anxiety and alcohol use disorders. Nisith et al. (1997) found drinking alcohol for socialization motives had the highest mean reason for alcohol use score, followed by coping and enhancement motives. These motives were endorsed significantly more frequently compared to people without a history of alcohol use disorder.

Unspecified mental disorders. One study investigating reasons for alcohol use did not report data separately for different types of mental disorders. Among psychiatric inpatients, Baker et al (2002a) found dysphoria relief was the most frequently endorsed motive for alcohol use (47.3%), followed by drug intoxication effects and social

reasons. Only 2.2% endorsed drinking for reasons related to their mental illness or medication side effects.

Cannabis

Psychotic disorders. Seven studies investigated reasons for cannabis use among people with psychotic disorders. In most studies to get high (62-95%), to increase pleasure (54-100%) and to relax (50-89%) were the most frequently endorsed motives for cannabis use. This was followed by reasons such as to decrease depression, to satisfy curiosity, to go along with the group and to decrease anxiety (Addington & Duchak, 1997; Fowler et al., 1998; Goswami et al., 2004; Schaub et al., 2008; Schofield et al., 2006). In contrast, Green et al. (2004) found men with psychotic disorders used cannabis most frequently for a social activity and simply in response to being offered the drug (38%), followed by 'for mood alteration' and 'anxiety or depression'. Spencer et al. (2002) found cannabis was used significantly more frequently for conformity and acceptance motives, to cope with unpleasant affect and to enhance pleasure compared to alcohol.

The percentages of participants reporting cannabis use for reasons related to their mental illness varied widely between studies. Between 39% and 81% of participants with psychotic disorders reported using cannabis to relieve depression or dysphoria (Addington & Duchak, 1997; Fowler et al., 1998; Goswami et al., 2004; Pencer & Addington, 2008; Schaub et al., 2008), 60% reported using it to decrease anxiety in one study (Goswami et al., 2004) and 27% of Green et al.'s (2004) participants used cannabis to reduce anxiety or depression. Between 4% and 40% of participants reported using cannabis to decrease positive psychotic symptoms, while 0-24% reported using cannabis to help with side effects of their medication (Addington &

Duchak, 1997; Fowler et al., 1998; Goswami et al., 2004; Pencer & Addington, 2008; Schaub et al., 2008; Schofield et al., 2006).

Green et al (2004), Schaub et al (2008) and Pencer and Addington (2008) compared the reasons for cannabis use of people with psychotic disorders to those of control groups without mental disorders. Pencer and Addington (2008), and Schaub et al (2008) found both groups most commonly reported using cannabis to get high, to relax and to increase pleasure. Pencer and Addington (2008) did not statistically test any differences between groups, however, Schaub et al. (2008) found participants with schizophrenia endorsed using cannabis significantly more frequently to reduce boredom than controls. Green et al. (2004) found both groups most commonly used cannabis as a social activity and when it was offered. Participants with psychotic disorders were significantly more likely than controls to report using cannabis to alleviate anxiety, depression and boredom and significantly less likely to report using cannabis for habit and relaxation.

Unspecified mental disorders. Baker et al. (2002a) found the most frequently endorsed motives for cannabis use among people with mental disorders to be intoxication effects (57%) and dysphoria relief. One percent of their participants reported using cannabis for reasons related to their mental illness or medication side effects.

Tobacco

Psychotic disorders. Four studies investigated reasons for smoking among people with psychotic disorders. Barr, Procyshyn, Hui, Johnson and Honer (2008) found among inpatients with psychotic disorders indulgent motives, which included enhancement of pleasurable feelings and relaxation, had the highest mean reason for

tobacco use score, followed by social motives and craving. Additionally, as antipsychotic drug dose increased, patients rated sensorimotor manipulation and need for stimulation as more important reasons for smoking. Subjects with psychotic disorders smoked significantly less frequently for sociability, and significantly more for sensorimotor manipulation and for increased need for stimulation than controls.

In Forchuk et al.'s (2002) study, 'sedative effect' had the highest mean reasons for tobacco use score. This was followed by smoking to control negative symptoms, addiction and medication side effects. Open ended questions revealed 41% of participants had started smoking because of friends and 41% smoked currently because of addiction, followed by smoking to relax and for enjoyment.

Fowler et al. (1998) found 69% of their participants endorsed smoking for dysphoria relief, followed by smoking for tobacco's intoxication effects. Less than 10% of participants reported smoking for motives related to their mental illness.

In Baker et al.'s (2007) study, 'stress reduction' had the highest mean reasons for tobacco use score, followed by 'stimulation' and 'addiction'. This study also examined reasons for quitting and found 'self control' to have highest mean reasons for quitting score, followed by health concerns, immediate reinforcements and social influence.

Depression. One study investigated reasons for smoking among people with depression. Currie, Hodgin, el-Guebaly and Campbell (2001) compared reasons for smoking among people with current major depression, a past history of depression and no history of depression. Among people with current major depression they found negative affect reduction had the highest mean reasons for tobacco use score, followed by addiction, pleasure and food substitution. Participants with current or past depression were significantly more likely to report smoking for alleviation of negative affect, and

to be tempted to smoke in situations involving negative emotions, than people with no history of depression. Women with current major depression were significantly more likely to smoke for addiction and habit than women with a past history or no history of depression.

Perceived effects of substance use

Tobacco

Psychotic disorders. One study investigated the perceived effects of tobacco among people with psychotic disorders. Gurpegui et al. (2007) found the majority of their participants (75%) perceived tobacco to have a calming effect. This was followed by a perceived effect of cheerfulness and alertness. They also found participants who reported an effect of cheerfulness had significantly higher depression scores on the Positive and Negative Syndrome Scale (PANSS: Peralta & Cuesta, 1994), while participants who reported tobacco had a calming effect had significantly higher PANNS anxiety scores. Participants who reported tobacco had a sociability effect had significantly lower negative factor scores on the PANSS.

Alcohol

Psychotic disorders. Two studies investigated the perceived effects of alcohol among people with psychotic disorders. Goswami et al. (2004) found alcohol was perceived to decrease anxiety (by 89% of participants), depression and socialization. In contrast, Warner et al. (1994) found alcohol was perceived to increase, or not effect symptoms of anxiety (by 73% of participants), depression, feeling bad physically, paranoia and hallucinations. Alcohol was perceived by a slight majority of Warner et al.'s (1994) participants to alleviate the side effects of their medication.

Cannabis

Psychotic disorders. Two studies investigated perceived effects of cannabis among people with psychotic disorders. Goswami et al. (2004) found cannabis was perceived to increase energy by 80% of participants and to decrease hallucinations. Warner et al. (1994) found participants perceived cannabis to reduce anxiety (100%), improve symptoms of depression, insomnia and feeling bad physically, and to worsen or have no effect on paranoia and hallucinations.

Discussion

In order to develop effective and appropriately targeted treatments for substance use among people with mental disorders, an understanding of how substances are viewed by this population is vital. This review is an important step towards developing that understanding, as it is the first to systematically review the literature examining attitudes and perceptions of people with mental disorders regarding tobacco, alcohol or cannabis. While the populations and methodologies employed differed considerably between studies, a number of patterns regarding participants' attitudes and perceptions towards tobacco, alcohol or cannabis were found. These may help to inform the development of more effective substance use interventions among people with mental disorders, especially among people with psychotic disorders.

A number of differences between the attitudes and perceptions towards substances of people with co-existing mental and substance use disorders and healthy controls, or those with substance use or mental disorders only, were found. People with co-existing mental and substance use disorders were found to have more positive alcohol use expectancies than people with mental disorders (Boyd et al., 2007) and alcohol problems only (Nishith et al., 1997; Waldrop et al., 2007), while people with

mental disorders were found to have more negative expectancies of cannabis use, and to be influenced more by the negative effects of cannabis use, than people without mental disorders (Buckner & Schmidt, 2009; Green et al., 2007). People with mental disorders (specifically psychotic disorders) were also found to report using substances more frequently to relieve negative affect, anxiety, psychotic symptoms, medication side effects and boredom than non-psychiatric controls. These results suggest that to be optimally effective substance use interventions should be specifically targeted to and customized for people with mental disorders. For example, substance use interventions among people with mental disorders may be more effective if they were to highlight the negative effects of cannabis use or to assist people with co-existing mental disorders and alcohol use problems to find alternative ways in which they can gain the positive effects they expect to receive from alcohol, for example.

Among people with psychotic disorders, relaxation (e.g. ‘to relax’, ‘stress reduction’ and ‘sedative effects’) and pleasure (e.g. ‘to increase pleasure’) emerged as important reasons for tobacco, alcohol and cannabis use (Addington & Duchak, 1997; Baker et al., 2007; Barr et al., 2008; Forchuk et al., 2002; Goswami et al., 2004; Pencer & Addington, 2008; Schaub et al., 2008; Schofield et al., 2006). These were two of the most frequently endorsed motives for substance use in the majority of studies investigating reasons for use. Participants also commonly described using tobacco because of cravings and addictions (e.g. Baker et al., 2007; Barr et al., 2008), alcohol for social reasons (e.g. Fowler et al., 1998; Pencer & Addington, 2008) and cannabis for intoxication effects (e.g. ‘to get high’) (e.g. Pencer & Addington, 2008; Schaub et al., 2008). Among people with mood and anxiety disorders, alcohol was primarily used for social motives (Nishith et al., 1997), while tobacco was reported to be used most

frequently for negative affect reduction, and addiction among people with depression (Currie et al., 2001).

These results suggest it may be important for substance use interventions among people with mental disorders, especially psychotic disorders, to assist patients to find other ways in which they can relax and gain pleasure from their lives. It may also be useful for nicotine replacement therapy to be offered as a part of smoking interventions to help with cravings. Similarly, it may be helpful for alcohol use interventions to address drinking in social situations and for cannabis use interventions to discuss alternative sources of pleasure to that gained from cannabis intoxication effects.

Tobacco, alcohol and cannabis were also found to be used by people with psychotic disorders to self medicate symptoms of their mental illness, especially negative affect and anxiety. Participants with psychotic disorders who reported more severe depression symptoms also reported that tobacco made them more cheerful, while participants with higher anxiety reported tobacco calmed them (Gerpegui et al., 2007). Conflicting results were found in the two included studies that investigated the perceived effects of alcohol and cannabis, which may have been because Warner et al. (1994) and Goswami et al. (2004) employed different measures, reported their results differently and sampled different populations (participants with psychotic disorders (Warner et al., 1994) vs. participants with both psychotic disorders and substance use disorders (Goswami et al., 2004)).

Additionally, while relief of depression and dysphoria were found to be important reasons for tobacco, alcohol and cannabis use among people with psychotic disorders, the percentages of participants endorsing substance use for these reasons differed considerably between studies. This may have been because included studies employed a range of different methods to measure reasons for substance use (e.g. free

response, questionnaires and structured interviews) and most of the questionnaires used contained different numbers of items and covered different motive domains (e.g. some questionnaires included items regarding illness related motives for use and others did not). Despite these differences participants consistently reported they were more likely to use tobacco, alcohol or cannabis to relieve symptoms of depression or anxiety, than psychotic symptoms or side effects of their medications (Addington & Duchak, 1997; Fowler et al., 1998; Goswami et al., 2004; Pencer & Addington, 2008; Schaub et al., 2008).

These results suggest it may be important for interventions among people with psychosis to address alternative strategies to cope with negative affect and anxiety. For a minority, it may also be important to investigate how they could better manage their psychotic symptoms without resorting to substance use. These results concur with those of Thornton, Baker, Johnson and Lewin (Thornton et al., 2012a) who found tobacco was perceived as an effective and immediate way in which people with psychotic disorders could exert some control over their symptoms. It is therefore important that future research investigates how people with psychotic disorders might gain the benefits they report to receive from substance use in other, safer, ways.

While adding to our understanding of how people with mental disorders perceive substances, this review also highlights the weaknesses and large gaps that exist in this body of literature. The majority of studies included in this review were conducted among people with psychotic disorders. Only seven studies involved participants with other mental disorders, including three that did not report their results separately for different mental disorders (Baker et al., 2002a; Boyd et al., 2007; Nishith et al., 1997). Additionally, as can be seen in Figure 1.1, 22 studies were excluded from the current review because they did not report their results separately for individual substances.

Several studies, together with the findings of this review, suggest attitudes and perceptions towards substances may differ among people with different types of mental disorders and substances (Clark et al., 2003; Thornton et al., 2012a; Thornton et al., 2012b). It is therefore important that research investigates attitudes and perceptions regarding substances separately for different types of mental disorders.

No studies investigating the perceived harmfulness or knowledge of substances were identified in the current review. Just as consumers' decisions to use particular products are influenced by its perceived harm and safety, a factor that can influence whether a person will use, or stop using a substance is the degree of harm it is perceived to cause (Smith et al., 2007). Similarly a person's knowledge of the effects substances can have on their bodies may influence their decision to use, or stop using, a substance. Future research should aim to address these gaps.

Three studies employing qualitative methods were included in this review. This relative lack of qualitative research is a weakness of this literature, as qualitative data can add rich and detailed descriptions of participants' perceptions and experiences (Denzin & Lincoln, 2003). Additionally, none of these studies adequately described the analytic process undertaken, which reduced the credibility and trustworthiness of their qualitative data (Golafshani, 2003). Indeed the validity, reliability and generalizability of the results of many of the included studies were adversely affected by their poor methodological quality.

To improve upon previous research and address gaps in the literature it is suggested future research investigating attitudes and perceptions regarding tobacco, alcohol and cannabis among people with mental disorders should aim to be methodologically rigorous. At a minimum, studies should use a diagnostic interview to determine mental disorder diagnosis, attempt to recruit a representative sample and

control for potentially confounding factors such as age, sex, employment, education and socio-economic status (SES). These factors have been found to be associated with varying levels of substance use (AIHW, 2011b; Shanahan & Elliott, 2009; Thornton et al., 2012b) and could be associated with differences in attitudes and perceptions towards substances. Low SES, fewer years of education, unemployment and being a male aged under 25 years have been found to be associated with perceiving anti-substance use health warnings to be less effective and believable, for example (Shanahan & Elliott, 2009). Methodological quality of studies in this area might also be improved through the development of standardized questionnaires, appropriate for use among people with mental disorders, which facilitate direct comparisons between substances regarding attitudes and perceptions.

This review adds to our understanding of the attitudes and perceptions of people with mental disorders regarding tobacco, alcohol and cannabis, especially among people with psychotic disorders. There is considerable need for effective interventions for substance use among people with mental disorders and the results of this review serve to highlight a number of ways in which these interventions might be improved. To be optimally effective, it is suggested interventions should be targeted specifically for people with mental disorders and customized by substance type. It may also be important that substance use interventions are customized by type of mental illness. However, further research investigating the attitudes and perceptions of people with mental disorders other than psychotic disorders is needed.

Paper 2

Reasons for substance use among people with psychotic disorders: Method triangulation approach

Introduction to Paper 2

As identified in *Paper 1*, very little qualitative research investigating attitudes and perceptions regarding tobacco, alcohol or cannabis use among people with mental disorders has been conducted (Thornton et al., in press). This is a major weakness of the literature as qualitative methods can add rich descriptions and detailed knowledge of participants' experiences (Neale et al., 2005; Smith, 2003). Additionally, only one study was identified that compared substance related attitudes and perceptions between different types of substances (Fowler et al., 1998). If intervention and preventative strategies are to be appropriately targeted it is important that we understand in what ways, if any, people's perceptions regarding substances differ according to substance type.

Paper 2 aimed to identify any similarities and differences in the attitudes to and perceptions of tobacco, alcohol or cannabis use among people with psychotic disorders. To improve upon previous research, a decision was made to address reasons for tobacco, alcohol and cannabis use separately in this study. It was also determined that a mixed method design, employing both quantitative and qualitative methods, would be the most appropriate way to achieve the study's aim. This approach allows both the trends in reasons for substance use and detailed individual accounts to be examined, potentially leading to a more thorough understanding of the research question.

Paper 2 describes a study that compared reasons for tobacco, alcohol or cannabis use among people with psychotic disorders using quantitative survey data and qualitative telephone interviews. The paper improves upon previous research and contributes significantly to the overall body of knowledge regarding reasons for substance use as it is one of the first to investigate and compare participants' reasons for

using tobacco, alcohol or cannabis. Additionally the qualitative data generated in this study adds rich detail and elucidates the quantitative data collected.

Reasons for substance use among people with psychotic disorders: Method triangulation approach

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Abstract

Background: Substance use disorders (SUD) are common among people with psychotic disorders and associated with many negative consequences. Understanding reasons for substance use in this population may allow for the development of more effective prevention and intervention strategies.

Aims: We examined reasons for tobacco, alcohol or cannabis use among people with psychotic disorders.

Method: Sixty-four participants with a diagnosed psychotic disorder completed a self-report reasons for use questionnaire. A subset of eight participants completed semi-structured qualitative interviews.

Results: Both the qualitative and quantitative data indicated that reasons for use of tobacco, alcohol and cannabis differed considerably. Tobacco was primarily used for coping motives, alcohol for social motives, and cannabis for pleasure enhancement motives.

Conclusions: Prevention and intervention strategies targeting co-existing psychotic disorders and SUD may improve in effectiveness if they addressed the perceived beneficial effects of tobacco use and the strong social pressures influencing alcohol use and encouraged cannabis users to seek alternative pleasurable activities.

Keywords:

Reasons for substance use, Psychosis, Tobacco, Alcohol, Cannabis

Introduction

Approximately 50% of people with psychotic disorders meet criteria for a substance use disorder (SUD) (Degenhardt & Hall, 2001; Jenkins et al., 1997; Regier et al., 1990). Tobacco, alcohol and cannabis are the three most widely used substances in this population, and studies consistently find that 50-90% of people with psychotic disorders smoke tobacco (Forchuk et al., 2002; Kavanagh et al., 2004; Ziedonis & Nickou, 2001), 25-50% abuse or are dependent on alcohol (Cuffel, 1992; Kavanagh et al., 2004; Ziedonis & Nickou, 2001) and 12-35 % abuse or are dependent on cannabis (Kavanagh et al., 2004; Mueser et al., 1990).

These high rates of SUDs are of concern as they have been consistently associated with adverse outcomes for this group, including symptom worsening (Carey et al., 1991), reduced medication effectiveness, increased rates of hospitalization (Ziedonis & Nickou, 2001) and disproportionately large health care costs (Dickey & Azeni, 1996; Ziedonis & Nickou, 2001). There is a need therefore for effective evidence based interventions addressing this comorbidity (Wade, Harrigan, Harris, Edwards, & McGorry, 2006). In order for interventions to be effective, however, we must improve our understanding of why people with psychotic disorders use these substances (Chabrol et al., 2005; Kuntsche et al., 2006; Spencer et al., 2002).

In a review of 11 articles investigating self reported reasons for substance use among people with psychotic disorders, Gregg, Barrowclough and Haddock (2007) found that dysphoria relief was the most frequently endorsed reason for substance use in the majority of studies. Similarly, Fowler, Carr, Carter and Lewin (1998), in the only study to directly compare reasons for tobacco, alcohol and cannabis use, found that tobacco and cannabis were primarily used to relieve dysphoria and for their intoxicating

effects, whereas alcohol was used most frequently for dysphoria relief and for social reasons. Carey and colleagues (1999a; 1999b), in some of the only qualitative research conducted in this area, also found people with psychotic disorders reported using alcohol and other drugs primarily for reduction of negative emotional and cognitive states and for the augmentation of positive states (Carey et al., 1999b). They also found that drinking alcohol for social reasons, such as social facilitation, was important for people with psychiatric disorders, and that nicotine was primarily used to help with negative affect (Carey et al., 1999a).

A number of studies have found substances, especially cannabis, to be frequently used to increase pleasure and for intoxication. Addington and Duchak (1997) and Pencer and Addington (2008), for example, found alcohol and cannabis were primarily used by people with psychotic disorders to relax, to increase pleasure as well as to 'get high', while all participants using cannabis in Goswami, Mattoo, Basu and Singh's (2004) study of people with schizophrenia reported using it to increase pleasure.

Overall, the least frequently endorsed reasons for alcohol and cannabis use reported in studies investigating reasons for substance use among people with psychotic disorders have been relief of psychotic symptoms and/or medication side effects (e.g. Addington & Duchak, 1997; Fowler et al., 1998; Pencer & Addington, 2008). In Carey et al.'s (1999b) study participants reported that use of alcohol and other drugs actually exacerbated their psychotic symptoms. In contrast, research suggests that tobacco may be frequently used by people with psychotic disorders to self-medicate negative psychotic symptoms and medication side effects (e.g. Forchuk et al., 2002; Kumari & Postma, 2005).

One weakness in many studies that have investigated reasons for substance use among people with psychotic disorders is that they do not report results separately for

different substances (e.g. Dixon, Haas, Weiden, Sweeny, & Frances, 1991; Gearon, Bellack, Rachbeisel, & Dixon, 2001; Gregg et al., 2009). Research has found that treatments for substance use among people with mental disorders may not be equally effective for all substances. Baker, Turner, Kay-Lambkin and Lewin (2009), for example, found that brief motivational interviewing for people with co-existing mental health and SUDs were more effective at reducing alcohol use than cannabis use. To develop effective, targeted interventions for substance use in this population, it is important to better understand differences in reported reasons for substance use. The current study is only the second known to simultaneously investigate reasons for tobacco, alcohol and cannabis use (see Fowler et al., 1998). It aims to address the largely unanswered question of whether reasons for tobacco, alcohol and cannabis use differ among people with psychotic disorders.

The current study also aims to improve upon previous research by being the first to combine both quantitative and qualitative methodologies. This approach allows us to examine both trends in reasons for substance use and detailed individual accounts of reasons for use. It is expected that the addition of the qualitative data will add rich detail, and elucidate the quantitative data collected (Blake, 1989; Creswell et al., 2004; McKibbin & Gadd, 2004; Smith, 2003; Smith et al., 1997).

Method

Participants and procedure

A self-report assessment battery was posted to 246 registrants on the Australian Schizophrenia Research Bank (ASRB) (Loughland, Carr, & Lewin, 2001; Loughland et al., 2010), which contains data on people with a clinical diagnosis of schizophrenia and related disorders. Registrants who had been infrequently invited to participate in other

research were targeted. Potential participants were asked to return the completed assessment battery if they wished to participate, and to complete a consent to contact form if they were interested in participating in the qualitative part of the study. A reminder letter was sent to potential participants who had not returned the assessment battery within one month.

Upon receipt of the consent to contact form, potential interviewees were contacted by telephone in order to explain the qualitative part of the study and to arrange a time to conduct the interview. Qualitative data were collected by the first author via one-to-one semi-structured telephone interviews. The interview schedule asked open ended questions regarding current and past use of tobacco, alcohol and cannabis, perceived harmfulness and addictiveness of these substances, exposure to public health campaigns and reasons for substance use. Interviews were digitally recorded and transcribed verbatim after gaining participants' verbal consent at the beginning and end of the telephone interview. Participants were reminded that they could stop or pause the interview, or withdraw from the study, at any point and that their information would remain confidential except as required by law.

Interviews were conducted independently from the self report assessment battery, using a subset of eight participants. Priority was given to those who reported past or current use of tobacco, alcohol and cannabis so that their perceptions of the three substances could be compared. Qualitative study participants were offered \$20 reimbursement for their time.

Measures

Substance use

The Fagerstrom Test for Nicotine Dependence (FTND: Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991), Alcohol Use Disorder Identification Test (AUDIT: Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) and Cannabis Use Disorder Identification Test (CUDIT: Adamson & Sellman, 2003) were used to assess levels of hazardous substance use and disorder (Adamson & Sellman, 2003; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Dawe, Loxton, Kavanagh, & Mattick, 2002; Etter, Duc, & Perneger, 1999; Weinberger et al., 2007). These measures have been shown to be valid and reliable measures. Studies suggest the FTND, AUDIT and CUDIT have acceptable levels of internal consistency (.61-.70, .80-.94, and .84, respectively) (Adamson & Sellman, 2003; Conigrave, Saunders, & Reznik, 1995; Dawe et al., 2002; Etter et al., 1999; Heatherton et al., 1991). Scores on the FTND have been found to be strongly associated with quitting self-efficacy and self-perceived dependence on cigarettes and scores of 7 or more are recommended as indicators of probable nicotine dependence (Etter et al., 1999; Heatherton et al., 1991). The AUDIT displays moderate to high correlations with other self-report measures of alcohol misuse, is a better predictor of future alcohol-related medical and social problems than any biochemical markers and scores of 8 or more are recommended as indicators of hazardous and harmful alcohol use and probable alcohol dependence (Conigrave et al., 1995; Dawe et al., 2002). A CUDIT cut-off score of 8 has been found to positively identify 73.3% of individuals with a current cannabis use disorder, compared to a frequency measure of cannabis use, is better at identifying cannabis abuse or dependence and is recommended as an indicator of probable cannabis use disorder (Adamson & Sellman, 2003).

Reasons for use

The Drug Use Motives Questionnaire (DUMQ) has been used previously by members of our research team to assess reasons for use among participants with co-

occurring substance use and psychosis (Baker et al., 2006a; Baker, Bucci, Lewin, Richmond, & Carr, 2005) or depression (Kay-Lambkin, 2006; Kay-Lambkin, Baker, Lewin, & Carr, 2010; Kay-Lambkin, Baker, Kelly, & Lewin, 2011) , although its psychometric properties have not been formally reported. The DUMQ was adapted from the Drinking Motives Questionnaire (DMQ: Cooper, Russell, Skinner, & Windle, 1992), which presents participants with 15 potential reasons for using alcohol, covering three motivational dimensions: social (e.g. to celebrate); coping (e.g. to forget worries); and pleasure enhancement (e.g. like the feeling). These drinking motives have been found to predict different aspects of alcohol use and abuse (Cooper et al., 1992; Read, Wood, Kahler, Maddock, & Palfai, 2003; Stewart & Chambers, 2000). The DUMQ uses separate sets of comparable questions to assess drug use motives for alcohol and other substances. In addition, two items have been added to each set (relating to reduction in mental health symptoms and reduction in medication side effects) to increase the scale's relevance to people with mental disorders. In the current study, participants were asked to rate how often (1= Never/Almost Never, 2= Sometimes, 3= Often, 4=Almost Always) they used each of the targeted substances for each particular reason.

To assess the psychometric properties of the DUMQ, we undertook a series of confirmatory factor analyses using both separate and pooled data from the two clinical studies in which it was previously used (Baker et al., 2006a; Baker et al., 2005; Kay-Lambkin, 2006; Kay-Lambkin et al., 2010; Kay-Lambkin et al., 2011), comprising 643 sets of ratings for the 17 items (327 for alcohol use motives, 218 for cannabis use motives, and 98 for amphetamine use motives). The primary comparison in each of these analyses was between a three-factor model in which the two additional items were linked to the original coping factor and a four-factor model in which they were assigned to a separate illness motives factor. Overall, the four-factor model was considered to be

adequate [Comparative Fit Index = 0.89, Root Mean Square Error of Approximation = 0.08] and was marginally superior to the three-factor model [$\chi^2_{\text{diff}}(3) = 44.90, p < 0.001$]. The relative advantage of the four-factor model was higher in the sample with co-occurring psychosis (261 sets of ratings) compared with the one with co-occurring depression (382 sets of ratings), and was also marginally higher in the cannabis and amphetamine use analyses relative to the alcohol use analyses. Consequently, we recommend usage of the 15 item version of the DUMQ (Cooper et al., 1992) in general samples and the 17 item version in clinical and mixed samples, particularly where illness and medication related effects are likely to be more pronounced (usage of a four-factor model, with the additional items loading on a separate factor, also facilitates easier comparisons with other studies). Within the pooled data set, each of the four DUMQ subscales displayed satisfactory internal consistency (Social, $\alpha = .78 - .83$; Coping, $\alpha = .77 - .84$; Pleasure Enhancement, $\alpha = .83 - .86$; and Illness motives, $\alpha = .47 - .61$).

Analyses

Because participants in the current study differed in their patterns of substance use (e.g. some were currently using only one substance, others using two or three, see Table 1.1), the data were transposed such that the N for each analysis was equal to the number of times the DUMQ was completed (N= 122: Tobacco, 41; Alcohol, 56; Cannabis, 25). As participants were potentially represented multiple times within each analysis, several participant characteristics were examined as possible covariates (e.g. gender, age and substance dependence) to partially control for any potential bias.

For the qualitative data, the analytic process followed the sequence that has been suggested by Smith and colleagues (1997, 2003) for researchers applying Interpretative

Phenomenological Analysis (IPA), as IPA is a technique that aims to explore how participants make sense of their own experiences. It is concerned with gaining a detailed understanding of an individual's personal perceptions of an object or experience rather than producing an objective statement of the object or event. Smith et al. (Smith et al., 1997; Smith & Osborn 2003) suggest that the optimal number of participants when employing IPA is 6-8 as this allows researchers to focus on the depth of a phenomenological experience. Interviews were conducted until data saturation was reached, i.e. until no new themes emerged with subsequent interviews. The interviews were transcribed verbatim and systematically analysed by two authors (LT and FKL), who independently reviewed transcripts searching for the main themes raised by participants. Themes identified by a number of participants were identified as superordinate themes and subordinate themes were generated to further characterise the superordinate themes (Smith, 2003; Smith et al., 1997; Smith & Osborn 2003). Any disagreements between the two authors' analyses were resolved via discussion.

Results

Quantitative

Of the 246 assessment batteries posted, 96 were returned. Seven were returned blank and 14 as 'address unknown'. Thus, 89 questionnaire packs were returned completed, a response rate of 38.36%. Of these, 64 (64/89, 71.91%) reported current use of tobacco, alcohol or cannabis (i.e. within the past six months) and completed the DUMQ for at least one substance. Table 2.1 shows the number of participants using each substance.

Table 2.1. Current substance use among people with psychotic disorders.

| Substance/s used | n | % |
|-------------------------------|----|--------|
| Tobacco only | 6 | 6.74 |
| Alcohol only | 18 | 20.23 |
| Cannabis only | 0 | 0 |
| Tobacco and alcohol | 15 | 16.85 |
| Tobacco and cannabis | 2 | 2.25 |
| Alcohol and cannabis | 5 | 5.62 |
| Tobacco, alcohol and cannabis | 18 | 20.23 |
| None | 25 | 28.08 |
| Total | 89 | 100.00 |

Participants ranged in age from 22 to 80 years, with a mean age of 43.70 (SD 12.67) and 65% were male. Comparison between the current sample and other volunteers registered on the ASRB (Loughland et al., 2010) found that the current sample was significantly older than ASRB volunteers (43.70 vs. 38.74, $t(487) = 3.63$, $p < 0.001$) but did not differ on gender distribution (65% (current sample) vs. 65.9% (ASRB) male, $\chi^2(1) = .04$, $p = .85$).

Participant characteristics of gender, age and substance dependence (measured by the AUDIT, CUDIT and FTND, see Table 2.2 for mean scores) were not significantly related to patterns of substance use. Age was also not significantly correlated with mean endorsement of reasons for use. However, females were found to endorse all reasons for substance use significantly more frequently ($M = 2.20$, $SD = 0.69$) than males ($M = 1.89$, $SD = 0.43$, $t(62) = -2.13$, $p = 0.04$). Participants' AUDIT total score was also found to be significantly and positively correlated with mean endorsement for all reasons for use ($r = 0.29$, $p = 0.04$). In order to control for potential bias, gender and SUD (yes/no) were included as covariates in subsequent analyses. SUD status was determined by scores of 7 or over on the FTND and scores of 8 or over on the AUDIT and CUDIT.

Table 2.2. Mean FTND, AUDIT and CUDIT scores among current users.

| Scale | n | Mean | s.d. |
|-------|----|-------|------|
| FTND | 40 | 6.40 | 2.11 |
| AUDIT | 54 | 8.96 | 6.46 |
| CUDIT | 16 | 13.50 | 8.68 |

A 3 (Substance: Tobacco, Alcohol and Cannabis) x 4 (Motive: Social, Pleasure Enhancement, Coping, Illness) mixed Analysis of Covariance (ANCOVA), with gender and dependence status as covariates, revealed no main effect of substance and a significant main effect of motive ($F(3,117) = 12.42, p < 0.001$). Scheffé follow-up contrasts (see Table 2.3) revealed that coping, pleasure and social motives were all endorsed significantly more frequently ($M = 2.123, SD = 0.07$; $M = 2.08, SD = 0.07$; $M = 1.979, SD = 0.07$ respectively) than illness motives ($M = 1.73, SD = 0.08$) across all substances. The ANCOVA also revealed a significant motive by substance interaction, $F(6,117) = 14.252, p < 0.001$.

Patterns of reasons for use of tobacco, alcohol or cannabis are displayed in Figure 2.1. Tobacco was used most frequently for coping motives, alcohol most frequently for social motives and cannabis most frequently for pleasure enhancement motives. Scheffé follow-up contrasts (Table 2.3) exploring the significant motive by substance interaction found that these patterns of reasons for use differed significantly. As shown in Table 2.3 and Figure 2.1, alcohol was used more frequently for social and pleasure motives than for coping and illness motives, while participants described the opposite pattern for tobacco. Patterns of reasons for tobacco and cannabis use also differed significantly with tobacco being used more for coping and illness motives than for pleasure enhancement motives, while cannabis was used most frequently for pleasure enhancement motives. As seen in Table 2.3, patterns of reasons for alcohol and

cannabis use differed significantly, in that alcohol was used more frequently for social motives than for pleasure and coping motives while participants described the opposite pattern of reasons for cannabis use.

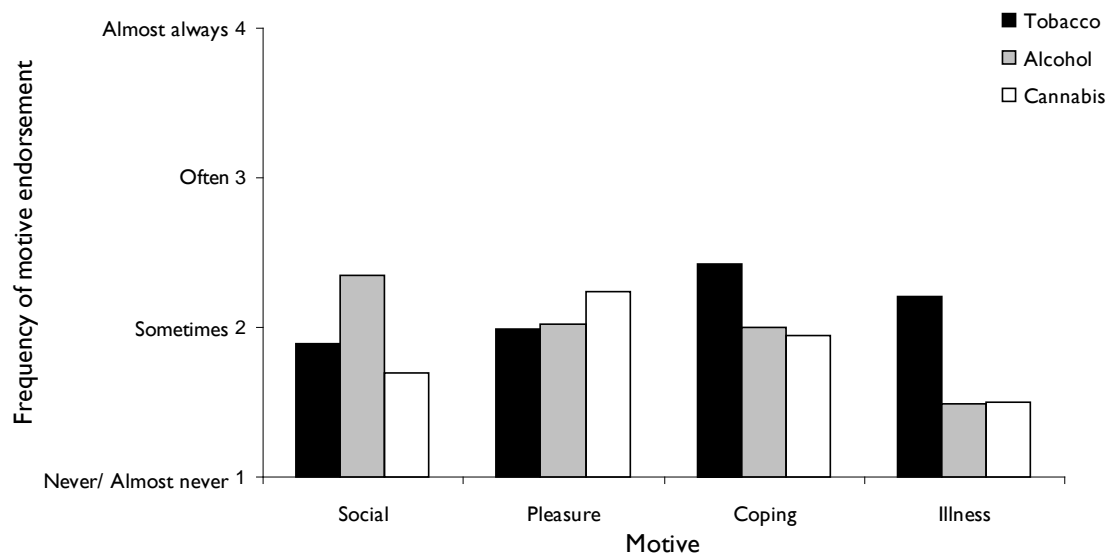


Figure 2.1 Patterns of reasons for tobacco, alcohol and cannabis use among people with psychotic disorders.

Table 2.3. Scheffé follow-up contrasts (n = 64).

| | <i>Social vs. Pleasure</i> | <i>Social vs. Coping</i> | <i>Social vs. Illness</i> | <i>Pleasure vs. Coping</i> | <i>Pleasure vs. Illness</i> | <i>Coping vs. Illness</i> |
|--|--------------------------------|--------------------------|---------------------------|----------------------------|---------------------------------|-------------------------------|
| | F | F | F | F | F | F |
| Contrasts between Motives | 2.78 | 5.09 | 9.13* | 0.53 | 17.34** | 30.86*** |
| Substance x Motive Interaction Contrasts | | | | | | |
| Tobacco vs. Alcohol | 8.95 | 38.48*** | 42.56*** | 14.64* | 16.45* | 3.56 |
| Tobacco vs. Cannabis | 7.34 | 2.78 | 5.46 | 20.37** | 18.36** | 1.40 |
| Alcohol vs. Cannabis | 29.87*** | 13.32* | 10.37 | 3.65 | 0.97 | 0.16 |

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Qualitative

A total of 76 participants returned consent to contact forms and eight individuals who indicated current or past use of tobacco, alcohol and cannabis were contacted to participate in the qualitative component of the study. All eight consented, and interviews lasted between 28 and 53 minutes. Three of these participants reported current use of all three substances. Two participants reported current use of alcohol and cannabis only, two reported current use of tobacco and alcohol only, including one who reported past use of cannabis, and one participant reported current use of tobacco and cannabis only.

Four superordinate themes regarding participants' reasons for substance use were identified and are reported in Table 2.4. Participants' names in the supporting extracts have been replaced with pseudonyms to preserve their anonymity and editorial omission by the authors are indicated by three dots (...)

Table 2.4. Superordinate and subordinate themes identified in the qualitative data.

| Superordinate themes | Subordinate themes |
|--|--|
| Substance use for intoxication | Substance use for pleasure Substance use for increased creativity |
| Substance use to cope | Substance use to cope with stress Substance use to escape reality Substance use to self medicate |
| Substance use for social reasons | Substance use because of social pressure Substance use because it's enjoyable in social situations |
| Impact of substance use on mental health | Positive effects of substance use on mental health Negative mental health effects of substance use |

Substance use for intoxication

Participants described using alcohol and cannabis in order to achieve a range of intoxication effects. They included the pleasurable, euphoric effects of being ‘drunk’ and ‘stoned’ and, for cannabis, an increased ability to think creatively.

Substance use for pleasure. Participants described often using alcohol and cannabis simply because of the enjoyable feeling of intoxication.

Uh alcohol, I like the feeling it gives me I suppose...I like the taste...so it sort of takes away inhibitions I think, it's a fun thing yep (Ken).

Because I like to get drunk...I like the feeling that being intoxicated gives me ...It gave me a good feeling, it made me feel good about myself...I don't know if you've ever been stoned, but when you start getting stoned it makes you very happy and laugh a lot it makes, it gives you a euphoric feeling (Max).

Individuals, like Ken and Max, described the pleasurable feelings alcohol and cannabis gave them as one of the main reasons they used these substances. From simply liking the taste of alcohol, to enjoying the euphoric feeling and lowered inhibitions, alcohol and cannabis intoxication was perceived as a positive experience by all participants.

Substance use for increased creativity. Across all interviews, cannabis use was perceived to improve mental abilities. Individuals described that it allowed them to disconnect from the constraints of reality and think more freely and creatively.

[Cannabis] just makes me think on tangents and things like that which I use it...I started to realise that you can actually use this to um put yourself or put your mind in a different sort of position where it can think about things and use or experiment with it to come up with better ideas (Adam).

Well I used to use cannabis because I was a musician and all that. And I used to think people who didn't use their minds and listen to music when they smoked cannabis were a bit weird. Like I sort of used it as an aid (Sam).

The experience of cannabis use, Adam believed, helped him think on tangents. It gave him a cognitive flexibility to be more creative. In the same way, listening to music while intoxicated allowed Sam to hear the music in what he believed to be a deeper way in his 'mind'.

Substance use to cope

Participants frequently described using substances to help them cope. In some instances, substances were used to help participants to relax, as an immediate, transient way in which they might relieve stress. On the other hand, participants also described using substances to help them cope with distressing aspects of their mental health symptoms. In particular, tobacco, alcohol and cannabis were reportedly used by participants to allow them to escape from reality and the patterns of problematic thinking they regularly engaged in. This was especially true for people who experienced depressive symptoms.

Substance use to cope with stress. All tobacco users interviewed described using tobacco, and the ritual of smoking, as a way to help them cope with stress.

Yeah a habit, but it's something. The whole sort of process of sitting down and rolling a cigarette then smoking it. I don't know. There's something about it, I don't know...The whole proves it's just like calming I guess (Adam).

Individuals described positive effects not only from the tobacco smoking itself, but from the process of smoking, which added to individuals' experiences of relaxation

and relief of stress. Relaxation gained from both the ritual of substance use and the substance itself was also attributed to cannabis.

It's a breathing exercise that can go with it you know, you breathe it in, you hold it for a few seconds, you breathe it out, and you relax. You do that for a cone which should last say 15 minutes for me, I'm feeling very relaxed and feeling quite happy and mellow and feeling much more calmer if you know what I mean (June).

Similarly, having a drink of alcohol was frequently mentioned as an efficient and effective way of relieving stress:

It lifts a bit the weight off my shoulders...um just you know you feel a bit you know stressed at the end of the day or things you have to do and you have a drink and you can sort of feel as though that weight's lifted off your shoulders (Sam).

Substance use to escape reality. Alcohol and cannabis also reportedly helped individuals to cope by allowing them to forget and escape their current situation, symptoms and worries:

[Cannabis] was an escape from reality...it was an escape from the pain and hurt that I felt when I was awake...it, it takes your mind away from the real world...it just numbs you to, to the real world (Max).

It makes me forget my worries and that...Like when you get real worried and that. Like you know, and I find that when I have a few drinks it sort of relieves, you know, you're not as worried as you once were...Well like I don't have many friends. I've only got one friend where I am and um yeah like there's nothing else to do. I don't know any people here (Matt).

Participants like Matt, who describe using alcohol to forget problems and to help deal with loneliness and boredom, reported feeling weighed down by all the daily

problems they had to face. Alcohol and cannabis use, they described, allowed them to escape their often stressful existence periodically, providing a great deal of relief.

Substance use to self medicate. Individuals reported consciously and deliberately using tobacco, alcohol and cannabis to self-medicate symptoms of their mental illness such as negative affect and in some cases positive psychotic symptoms. Tobacco especially was used by a number of participants to self medicate negative affect and was seen, by some, as being more effective in doing so than prescribed medications, due to tobacco's immediate and observable effects.

It's a high addictive antidepressant and you know it works better than an anti-depressant cos it gives you that instant effect that you've had some sort of mood relaxant and um whereas you know anti-depressants that you get from the doctors don't do the same thing...gives you the feeling that you're doing something about it (Sam.)

As Sam describes, tobacco was identified as an effective way in which participants might exert some positive control over their own lives. Use of tobacco also allowed individuals to exert control over their psychotic symptoms. The impact of tobacco was reported, in one case, to be noticeable to friends who could identify changes in positive psychotic symptoms (described as 'getting very high about things') which got worse when cigarette use was stopped.

Its something that I can do when I'm alone to relax and to take my mind off my specific or the apparent intensity of personal...monitoring, which sometimes seems like all day every day...My Dad said...that if you can stop cigarettes for 3 months, without smoking, prove reasonably that you have, he'll give me \$1000 ...and I did try to take that on at one point...a friend of mine said to me I was getting very high about things, like daily routines and activities...I was going through the roof...so it was my mental health and

just that I'd been...or had been in an old pattern too like every day I'd have my cigarette and its hard to quickly or suddenly abruptly stop it (Wayne).

Despite large monetary incentives, for Wayne the positive feedback from his friend that he was better to be around when using tobacco was a strong enough motivator to keep him smoking cigarettes.

To a lesser degree participants also described using alcohol and cannabis to help them cope with mental illness symptoms, such as mania and negative affect:

To calm myself, well I had a lot of mania and it tends to calm the mania...I drink until it puts me to sleep basically, so in a way it's a medication all over again ... To settle myself down, to stay on a nice level plane, whereas I'm normally either manic or morbid and the pot tends to calm it down. Like I smoke constantly so it's a self-medication is the best way to put it...I'd be on a whole lot bigger medications if I didn't have the pot (Nadine).

Because people don't feel good about themselves in their day to day lives they have to get drunk in order to feel good (Max).

Substance use for social reasons

Individuals described that their tobacco, alcohol and cannabis use was frequently influenced by social factors which fell into two groups: substance use that was influenced by social pressure from peers, family or society; and substance use because it was enjoyable in a social situation.

Substance use because of social pressure. A strong desire to be a part of a group and social pressure exerted by family, friends and even society, were described as important factors that were responsible for a number of individuals' substance use. For example, the need to belong strongly influenced initiation of tobacco use among all individuals interviewed.

Pretty much at the time I just wanted to be exactly, I wanted to be part of a family and a group (Nadine).

Like the others, Nadine described commencing tobacco use as a teenager as a way to fit in with friends or family. It presented an opportunity to get a sense of belonging.

This view was reinforced by June who described that despite the unpleasantness of the experience she continued to smoke because of her need to feel a part of the group.

...I was 17, wanted to be grown up, and everyone was smoking them, it made me have head spins and not feel real well in the belly but I persisted smoking and eventually got hooked too (June).

The need to belong was not the only social pressure described to influence individuals' tobacco use.

I think I do it to get more breaks at work...yeah I think it would be harder for them to give up when they get sort of special treatment, like they get breaks and stuff (Sam).

Sam also described how the accepted social practice of smokers taking regular smoke breaks at work was a factor that had continued to keep him from giving up. Similarly, participants described how the ingrained culture of cigarette smoking in mental health hospitals can play a large role in long term tobacco use.

I then I had my first trip to [Mental Health Inpatient Unit] and I had gone from smoking one a month to a pack a day... and then I just gone addicted. And the first time I was in there I think I was 16...I was just used to it after I was in there for two weeks and I tried to quit and I just can't, I think it might be psychological but it links back to what happened in hospital (Adam).

Alcohol use was identified as the social norm within Australia and individuals indicated that their use of alcohol was highly influenced by this.

Oh it's socially acceptable...probably seen as a bit of an outcast if you don't drink. I think a lot of people drink even if they don't really like it...A lot of my friends sort of growing up, some people who alcohol don't agree with, they still drink because their brothers and their fathers and everyone drinks and if they didn't sort of have a beer they were considered a little weird (Sam).

Sam related that there is a degree of pressure to engage with the alcohol culture, and expressed the view that alcohol use is not only accepted, but more often expected, of adults within Australian society.

Interviewees also reported using cannabis because it allowed them to socialize with other people.

It has like a culture to it I guess sort of too...Culture like um there's groups of friends and people that get together you know, I just sort of enjoy the company, an altered state perhaps (Wayne).

Using cannabis not only allowed individuals the opportunity to socialize but also gave them the opportunity to gain a sense of belonging, to be a part of a sub-culture of society and one that was not related to their mental illness.

Substance use because it's enjoyable in social situations. Individuals described that they would often use alcohol in a social situation because drinking alcohol was more enjoyable when shared among people.

I like to share a wine with a friend (June).

Yeah I like to have a beer, its social that's probably a big, its social. I like it cos it's social. I can go out and if we are going to do something we can have a beer together or whatever. If a friend comes round we can cook tea have a bottle of wine or something...I think that's the main reason, I don't really

drink on me own and beers just stay in the fridge for a long time until someone comes round we might have a beer together (Ken).

Sharing a beer or wine with friends was described as a fun social activity that many participants enjoyed, with Ken in the extract above indicating that he would rarely drink alcohol if he wasn't sharing the experience with a friend.

Impact of substance use on mental health

Individuals described that all three substances had strong effects on their mental health. While individuals identified only positive mental health effects of tobacco use, alcohol and cannabis were associated with a range of severe negative effects on their mental health.

Positive effects of substance use on mental health. Individuals reported they would use tobacco to improve their mental health.

A bit of a stress relief against depression...yeah right sort of relieves it a little bit (Sam).

As Sam describes in the above extract, and as discussed earlier, tobacco was perceived by many individuals as an effective way to relieve negative affect.

Similarly one individual, Nadine, felt that cannabis use improved the symptoms of her mental illness, allowing her to function more normally in society and help her control her mental illness.

The pot tends to calm me down...it does what other medications just don't do for me...so it makes me normal I suppose you'd put it (Nadine).

Negative mental health effects of substance use. On the other hand, alcohol and cannabis were reported to have negative impacts on mental health. Cannabis was frequently identified as a risk factor for developing mental disorders and individuals

stated that their positive psychotic symptoms, particularly paranoia and hallucinations, increased following use of both alcohol and cannabis.

I don't get drunk like I see other people getting drunk. With me if I get too drunk, my aggression levels start to increase and I start to be more susceptible to paranoia...I don't black out or um stumble around or anything. I'm still in control of my body...but I start to lose grip of my mind...I start to get more paranoid and more aggressive and even hearing voices and things like that... I've spoken to friends that use it and ...none of them talk like me when I'm stoned...it affects them in a completely different way, and I mean if I smoke a cone for a week afterwards I've got heightened paranoia and um auditory hallucinations...so I can see from that personal experience that the cannabis is more damaging to me with my mental illness than the other drugs (Max).

Max, who was particularly self-aware of his psychotic symptoms, was able to describe how he felt he lost control over his symptoms when intoxicated with alcohol or cannabis and experienced more positive symptoms. He also described the experience of a number of individuals, that cannabis affected people with psychotic disorders differently to people without psychotic disorders.

Discussion

This study compared reasons for tobacco, alcohol or cannabis use among people with psychotic disorders and is the first known to do so using a method triangulation design. The quantitative results of this study provided valuable information concerning the reasons for substance use within this population, while the qualitative component provided valuable detail which enriched and provided further insight to the quantitative

results. Together, the results suggest that people with psychotic disorders use tobacco, alcohol and cannabis for different reasons.

Tobacco was primarily used by participants for coping motives (e.g. to forget your worries) and illness motives (e.g. to help with the symptoms of mental illness). These motives were the most frequently endorsed on the DUMQ for tobacco. This differed significantly from alcohol and cannabis, which were used more frequently for social and pleasure enhancement motives. The narratives provided by our participants elucidated that tobacco was frequently used to cope with stress, because of both the positive effects it had on their mental health, and it allowed them to exert some positive control over their life and symptoms. These results are consistent with previous research reporting beneficial effects of tobacco use among people with psychotic disorders such as coping with negative affect, psychotic symptoms and medication side effects (Fowler et al., 1998). This study's qualitative data, however, add unique insight and detail to this literature (Forchuk et al., 2002; Smith et al., 1997).

In what may be a life that seems out of control, especially with distressing psychotic symptoms and engagement with different treatment services and regimes, the use of tobacco, to exert some immediate and effective control over their lives, seems to be an especially important motivator for continued tobacco use among participants. These positive effects are likely to be significant barriers to smoking cessation within this population. Why would individuals with psychosis stop smoking when tobacco seemingly allows control of symptoms and results in positive feedback from friends? In such circumstances it is important that other healthier methods of obtaining the same symptom benefits be made available and combined with current treatments, such as nicotine replacement therapy.

As in other studies (e.g. Forchuk et al., 2002), our participants reported that their initiation of tobacco use was heavily influenced by social factors such as peer pressure and the need to belong. Participants also reported that the additional work breaks afforded to smokers was a reason they continued smoking. These findings highlight the pressing need to address the acceptability of cigarette use in society, to balance the rights of smokers with the consequent unintended misuse of these rights in the workplace and to address the fashionable perception of cigarettes among young people. One individual described how his tobacco dependence was started when he was admitted to a mental health inpatient unit. That a habit which could significantly reduce this person's lifespan and quality of life was started and supported in a hospital is concerning and supports the call for smoking bans in all mental health units (Wye et al., 2010).

Alcohol was primarily used by participants for social motives. Social motives were the most frequently endorsed on the DUMQ for alcohol. This differed significantly from tobacco and cannabis, which were used more frequently for coping and illness motives, and pleasure and coping motives, respectively. Individuals in the qualitative section also explained how alcohol use was strongly influenced by social pressures exerted by friends, family and even society. They perceived an expectation within the Australian culture that adults should drink alcohol and would be socially ridiculed if they did not. These findings support the position of Australia's National Alcohol Strategy (Ministerial Council on Drug Strategy, 2006) which also described alcohol use as the social norm within Australia and recognised a need to adopt long term cultural change regarding alcohol use as one of its primary aims. Our findings also confirm the research of Carey et al. (1999a) and Fowler et al.(1998) who have found social reasons to play an important role in the alcohol use of people with psychiatric disorders.

In lieu of policy or a major cultural shift in Australia, and given the adverse consequences associated with alcohol use in this population (Carey et al., 1991; Dickey & Azeni, 1996; Ziedonis & Nickou, 2001), interventions addressing alcohol use among people with psychotic disorders should address the social factors influencing alcohol use. Potentially, this might include strategies for managing social situations in which alcohol is offered or available, the development of assertiveness skills for communicating alternatives to drinking within the social group, and importantly, education about the dangers of alcohol use for people with psychotic disorders.

Cannabis was primarily used for pleasure by the study participants. Individuals in the qualitative phase frequently described using cannabis for pleasurable intoxication effects such as euphoria and increased creativity. Similarly, pleasure enhancement motives were the most frequently endorsed reasons for cannabis use on the DUMQ. In this way, cannabis use differed significantly from tobacco and alcohol use. This finding confirms those of Addington and Duchak (1997) and Goswami et al. (2004) who found that cannabis was used by almost all their participants with psychotic disorders to increase pleasure and to get high. Therefore, it may be important for intervention and preventative strategies to assist cannabis users with psychosis to develop other sources of pleasure and to combat boredom.

Additionally, it was often described that alcohol and cannabis were used for stress relief, as a cognitive avoidance strategy and for alcohol, to relieve negative affect. This corroborates and extends Addington and Duchak's (1997) finding that the majority of their participants with psychosis used alcohol (82%) and cannabis (81%) to relax. Likewise Gregg et al. (2007) found that dysphoria relief, which included reasons such as relief of boredom and to relax, as well as anxiety and depression relief, was frequently endorsed by people with psychotic disorders. As in previous research

(Addington & Duchak, 1997; Gregg et al., 2007; Pencer & Addington, 2008), alcohol and cannabis were found to be used infrequently to self-medicate psychotic symptoms and medication side effects. In fact, as in Carey et al.'s (1999b) study, individuals in the qualitative section of the study described that both substances exacerbated their positive psychotic symptoms.

Fowler et al. (1998), in the only other study to have compared reasons for tobacco, alcohol and cannabis use among people with psychotic disorders, found all three substances to be primarily used for dysphoria relief. In contrast patterns of reasons for substance use in the current study were found to differ significantly. Differences in findings between the studies may be associated with the methodology used to elicit reasons for substance use. Whereas participants in Fowler et al., (1998) study were restricted to listing only three reasons for their use, our study collected information regarding how frequently participants used for each of 17 reasons for use. This approach potentially allowed information regarding the broad spectrum of participants' reasons for use to be collected, as opposed to only the most salient reasons for use at the time of assessment. This result may also help to explain why intervention strategies have not been found to be equally effective for all substances (Baker et al., 2009). It may be necessary, therefore, for the intensity and focus of interventions addressing co-existing psychotic and substance use disorders to be tailored according to the specific substances being used, and reasons for use, in order to enhance their impact.

While the current study generated a number of important insights it did possess a number of limitations. Firstly, individuals on the ASRB are likely to be relatively high functioning (Loughland et al., 2001; Loughland et al., 2010), limiting the generalizability of the current study among the overall population of people with psychotic disorders. Registrants on the ASRB have been found, for example, to have an

average of 13 years education and a current IQ score of 102.68 (Loughland et al., 2010). Additionally, those registrants who chose to participate in the current study may have differed from those invited but who chose not to participate. As the researchers were unable to access any information about registrants who chose not to participate in the current study, it is unclear if differences between these two groups existed, or how they might have impacted the generalizability of the current results. However in terms of gender distribution, the current sample was found to be representative of the ASRB as a whole (Loughland et al., 2010).

The current study also had a low response rate. However, our response rate of 38.36% is in keeping with other postal surveys among people with psychotic disorders (e.g. Hodge & Jespersen, 2008). Replication of the study in larger samples is recommended, which will also facilitate more comprehensive analytical strategies, and overcome the inherent limitation in the current analyses associated with the inclusion of the same individuals in multiple (substance use) groups. However, many people with psychotic disorders are polydrug users and it is important to include this group in future studies.

Furthermore, alcohol use was linked very closely to Australian culture. It would be valuable to investigate the generalizability of the current results by examining reasons for tobacco, alcohol and cannabis use among people with psychotic disorders living in other countries.

To allow for the development of appropriately targeted interventions for co-occurring substance use and psychotic disorders, it is important to understand why people with psychotic disorders use substances and where reasons for use differ between substances. This study was uniquely placed to answer these questions as it was only the second study to directly compare reasons for tobacco, alcohol and cannabis use

and the first to supplement quantitative data regarding patterns of reasons for substance use with rich qualitative descriptions of individuals' reasons for use. This approach allowed us to gain a greater understanding of reasons for substance use among people with psychotic disorders and led us to suggest that people with psychotic disorders use tobacco, alcohol and cannabis for different reasons. We would encourage future research to use the current study to inform the development of more effective intervention and preventative strategies for co-existing psychotic and SUDs.

Paper 3

Perceptions of anti-smoking public health campaigns among people with psychotic disorders

Introduction to Paper 3

While a range of substance use treatment interventions have been developed and tested among people with mental disorders (Drake et al., 2004; Drake et al., 2008), the effectiveness and appropriateness of preventative measures such as public health campaigns have not been widely investigated among people with mental disorders. Pattanyak et al.(2012), conducted the only study identified to investigate acceptance of anti-substance use public health campaigns among people with mental disorders. They found that while the majority of their participants with bipolar disorder could recollect and describe the health warnings that appear on Indian tobacco products, more than half of them thought that the warnings were exaggerated, should not be taken seriously, and were not intended for them.

Paper 3 aimed to broaden current knowledge of substance related attitudes and perceptions among people with mental disorders beyond reasons for substance use by investigating participants' perceptions of anti-tobacco public health campaigns and knowledge of tobacco. As very little information regarding perceptions of anti-smoking campaigns among this population has been previously published, a mixed method approach was determined to be the best approach as this would generate both detailed individual accounts and information regarding any trends in people's perceptions of and exposure to anti-smoking campaigns.

Paper 3 describes a mixed method study that investigates exposure to and acceptance of anti-tobacco public health campaigns among people with psychotic disorders. It The paper adds significantly to the overall body of knowledge in this area as it generated some of the first published data regarding perceptions of anti-tobacco campaigns among people with mental disorders in Australia.

Perceptions of anti-smoking public health campaigns among people with psychotic disorders

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Abstract

Background: Among marginalised populations, such as people with psychotic disorders, smoking prevalence rates remain much higher than in the general population. Anti-smoking campaigns conducted in Australia have been found to be associated with change in smoking behaviour and attitudes in the general population. However, no previous research has examined the effectiveness of these campaigns among people with mental disorders, like psychotic disorders.

Aims: This study aimed to gain an understanding of how people with psychotic disorders perceive anti-smoking campaigns by examining knowledge of tobacco, exposure, acceptability, and attitudes regarding anti-smoking campaigns.

Method: A mixed method design was employed in which both quantitative and qualitative data were elicited. 89 participants with a diagnosed psychotic disorder completed a self-report assessment battery, eight of whom also completed semi-structured telephone interviews which were then analysed via Interpretative Phenomenological Analysis.

Results: Participants reported high exposure to anti-smoking campaigns and good knowledge regarding tobacco. They explained that while they remembered, understood and were even scared by anti-smoking campaigns, these campaigns had little impact on their smoking. Participants also described a number of positive mental health effects of smoking.

Conclusion: This study suggests that anti-smoking campaigns are not impacting upon smokers with psychotic disorders, despite high exposure and good knowledge of tobacco. In order to be more effective in the future, campaigns may need to specifically

target marginalised populations, including people with psychotic disorders and address barriers to cessation among this population.

Keywords:

Tobacco, public health campaigns, psychotic disorders, qualitative

Introduction

In Australia, policy decisions, taxation, legislation, public health campaigns, and interventions have had some success in lowering the prevalence of smoking among the general population. With current rates of daily smoking estimated to be between 16.6 and 20% (AIHW, 2008; ABS, 2009; AIHW, 2010), Australia has one of the lowest daily smoking rates in the world (AIHW, 2010). However, among marginalised sub-populations like Aboriginal and Torres Strait Islanders (ATSI), people of low socio-economic status (SES) and particularly among people with mental disorders (Forchuk et al., 2002; Kavanagh et al., 2004; Ziedonis & Nickou, 2001), prevalence rates remain much higher and tobacco smoking is still the single most preventable cause of death and illness in Australia (AIHW, 2008; AIHW, 2010).

The National Drug Strategy Household Survey of 2007 found that over one third (34.1%) of ATSI peoples reported they were current smokers, compared to less than one fifth (19.0%) of other Australians. Similarly, while 25.9% of people in the lowest SES quintile were current smokers, only 13.9% of people in the highest quintile smoked (AIHW, 2008). Among people with mental disorders, like psychotic disorders, smoking prevalence rates are even higher, with studies consistently finding that between 50-90% of people with psychotic disorders smoke tobacco (Forchuk et al., 2002; Kavanagh et al., 2004; Ziedonis & Nickou, 2001). To decrease the prevalence of daily tobacco use much further it has been suggested that intervention and preventative strategies need to focus on these high prevalence subgroups (Baker et al., 2006b).

Evaluations of a number of anti-smoking campaigns conducted in Australia have reported changes in smoking behaviour and attitudes in the general population (Hassard, 2000a, 2000b; Loxley et al., 2004; Pierce et al., 1986; Pierce et al., 1990; Shanahan &

Elliott, 2009). The Australian Government's National Tobacco Campaign, for example, was a major anti-smoking initiative launched in 1997 and aimed to assist smokers aged 18-40 towards quitting smoking. It promoted the message 'every cigarette is doing you damage'. Over the time of the campaign a statistically significant reduction of 1.5% in the estimated prevalence of adult smoking was found to have occurred (Hassard, 2000a, 2000b). Similarly, evaluations of the QUIT campaign that used TV advertising as its main element, found that smoking decreased in cities where the campaign was run (Loxley et al., 2004; Pierce et al., 1986; Pierce et al., 1990).

Evaluations of these types of campaigns, however, suggest they are less effective among people from marginalised populations (Hassard, 2000a; Shanahan & Elliott, 2009). Among ATSI populations, for example, evaluations of the National Tobacco Campaign found that number of quit attempts and intention to quit was lower than in the general population (Hassard, 2000a). Additionally, while ATSI populations were found to have good knowledge of the health effects of smoking, belief in a number of smoking myths was common, e.g. 'roll-your-own tobacco is not as bad as filtered cigarettes' and 'smoking during pregnancy is not harmful' (Hassard, 2000a).

Anti-smoking campaigns have also been found to be less effective among people with fewer years of education, who are unemployed and of lower SES (Shanahan & Elliott, 2009). Evaluations of the effectiveness of the graphic health warnings that appear on tobacco products in Australia found that 59-62% of people with an education above year 11 (i.e. people who completed their education aged approximately 16 years or older) or who were currently employed perceived the graphic warnings to be very believable (Shanahan & Elliott, 2009). On the other hand, among those who had only attended school to year 10 or less, or who were unemployed, less than 50% thought the warnings were very believable. Similarly, people with fewer years of education, who

were unemployed and living in households with annual incomes of less than AU\$40,000, perceived the graphic health warnings to be less effective than people who had more years of education, were currently employed and living in households with yearly incomes greater than AU\$41,000 (Shanahan & Elliott, 2009).

To date there is no published research that has investigated the effectiveness of anti-smoking campaigns among people with mental disorders. This is a major weakness in the literature, as prevention and cessation of smoking is just as important among people with mental disorders, as it is among the general population and other marginalised groups. In addition to the numerous negative health consequences of smoking such as cancer, chronic obstructive pulmonary disease, coronary heart disease and stroke (Fagerstrom, 2002), people with mental disorders, like psychotic disorders, experience many other adverse consequences from smoking. These include increased rates of hospitalization, symptom worsening (Carey et al., 1991; Ziedonis & Nickou, 2001), reduced effectiveness of their medication and premature death (Ziedonis & Nickou, 2001).

This study was a part of a larger investigation into the attitudes and perceptions of people with psychotic disorders regarding substance use. The current study aimed to fill gaps in our knowledge by examining exposure, acceptability and attitudes regarding anti-smoking campaigns and tobacco knowledge among people with psychotic disorders. It employed a method triangulation design, eliciting both quantitative and qualitative data, in order to gain a more detailed understanding of participants' attitudes and perceptions. This approach allows for much richer and comprehensive analysis, as neither a quantitative nor qualitative approach alone is able to capture both the trends and details of a topic (Smith, 1996; Smith et al., 1997; Smith & Osborn 2003; Stange & Zyzanski, 1989).

Method

Participants and procedure

A self-report assessment battery was sent to 246 registrants on the Australian Schizophrenia Research Bank (ASRB) (Loughland et al., 2001) which contains data on people with a clinical diagnosis of schizophrenia and related disorders. Registrants who had been infrequently invited to participate in other research were targeted. Potential participants were asked to return the completed assessment battery, and to complete a consent to contact form if they were interested in participating in the qualitative part of the study. A reminder letter was sent to potential participants who had not returned the assessment battery within one month.

Qualitative data were collected by the first author via one-to-one semi-structured telephone interviews addressing a range of participant attitudes and perceptions regarding substances, including exposure to and attitudes towards anti-smoking campaigns. Interviews were conducted independently from the self-report assessment battery, using a subset of eight participants who completed the consent to contact form and reported current or past use of tobacco. Qualitative participants were offered \$20 reimbursement for their time.

Measures

A dichotomous questionnaire item which asked participants if they remembered seeing, reading or hearing any public health campaigns, messages or education information regarding tobacco was used to assess exposure to anti-smoking campaigns. To assess participants' knowledge of the physiological and psychological effects of tobacco, a locally developed questionnaire was used. The questionnaire consisted of 12

dichotomous true/false items e.g. 'Small amounts of tobacco may decrease the risk of heart disease', 'Tobacco use can cause chronic bronchitis' and 'The active ingredients in tobacco reach the brain in just 7 seconds'. Participants were also asked when they had last smoked.

Qualitative analyses

The analytic process for the qualitative data followed the sequence that has been suggested by Smith and colleagues (1996; 1997; 2003) for researchers applying Interpretative Phenomenological Analysis (IPA). IPA is a technique that aims to explore how participants view the world and make sense of the topic under investigation. It aims to adopt an insider's perspective and thus is concerned with gaining a detailed understanding of an individual's personal perceptions of a topic, rather than producing an objective statement regarding it. Smith and colleagues (1997; 2003) suggest the optimal number of participants when employing IPA is 6-8 as this allows researchers to focus on the depth of a phenomenological experience. Each interview was transcribed verbatim and systematically analysed by two authors (LT and FKL) who independently reviewed each transcript searching for the main themes raised by participants before moving on to the next transcript. Themes raised by a number of participants were identified as subordinate themes. Linked concepts were then formalised into superordinate themes. Any disagreements between the two analyses were resolved via discussion. Interviews were conducted until data saturation was reached i.e. until no new themes emerged with subsequent interviews.

Results

Of the 246 assessment batteries posted, 96 were returned. Seven were returned blank and 14 returned as ‘address unknown’. Thus, 89 assessment batteries were returned completed, a response rate of 38.4%. Of the 89 participants, data are available for 88 participants regarding anti-smoking campaign exposure, for 83 participants regarding last use of tobacco and for 69 participants regarding knowledge of tobacco.

Quantitative results

Almost half (49.4%) of the sample reported current use of tobacco (i.e. use within the past six months). As can be seen in Table 3.1 the majority of current smokers had smoked tobacco within the past few days and only 15.7% of participants had never smoked tobacco.

Table 3.1. Last use of tobacco

| Last use of tobacco | <i>n</i> | % |
|------------------------|----------|-------|
| Never | 13 | 15.7 |
| More than 6 months ago | 29 | 34.9 |
| In the past 6 months | 0 | 0.0 |
| In the past month | 1 | 1.2 |
| In the past week | 0 | 0.0 |
| In the past few days | 40 | 48.2 |
| Total | 83 | 100.0 |

Eighty-two (93.2%) participants reported they had seen, read or heard a public health campaign regarding tobacco. Participants’ knowledge scores ranged from 5 out of 12 correct to all 12 correct, with a mean of 8.8 (SD = 1.6) or 72.3% correct. Ninety-one percent of participants’ knowledge scores represented a performance above chance i.e. scored at least 7 out of 12 correct. A one way between subjects Analysis of

Variance (ANOVA) found no significant differences between the knowledge scores of current, past and non-smokers. Similarly a 3x2 χ^2 analysis revealed no significant differences between current, past and non-smokers regarding exposure to anti-smoking campaigns.

Qualitative results

A total of 76 participants returned consent to contact forms and eight individuals who indicated current or past use of tobacco were contacted to participate in the qualitative component of the study. All eight consented, and interviews lasted between 28 and 53 minutes. For brevity, only two of the most relevant superordinate themes identified in the analysis of the qualitative interviews will be examined. The first theme, ‘ineffectiveness of anti-smoking campaigns’ was characterized by three subordinate themes: ‘limited impact of anti-smoking campaigns’; ‘disregard of anti-smoking messages’; and ‘relationship between motivation and campaign effectiveness’. The second superordinate theme ‘health impacts of tobacco’ was characterized by two subordinate themes: ‘tobacco’s negative physical health impact’; and ‘tobacco’s positive mental health impact’. In the supporting extracts participants’ names have been replaced with pseudonyms to preserve their anonymity and editorial omissions by the authors are indicated by three dots (...)

Ineffectiveness of anti-smoking campaigns

Limited impact of anti-smoking campaigns. Anti-smoking campaigns were perceived to have very little impact on people’s smoking. Participants frequently described being ‘bombarded’ or ‘flooded’ by anti-tobacco material. However, as Nadine and Ken express below, despite the ubiquitous nature of anti-smoking advertising, these

campaigns were perceived to do very little in the way of actually helping people to stop smoking.

Tobacco, oh commercials there's a fair amount of commercials going on there's a lot of shock and awe...One's sitting right in front of me and I'm still smoking a cigarette but yeah there is a lot of campaigns to scare people from smoking. (Nadine)

There are very strong in your face ads...they don't get you to give up cigarettes as strongly as I think the ads might like to think. (Ken)

Like Nadine and Ken, all but one of the individuals interviewed said that anti-smoking campaigns had not motivated them to cut down or stop smoking. The only way in which anti-smoking campaigns were viewed to be potentially effective was in the prevention of smoking initiation, as June described.

Hmm I think they can be effective on those never to take it up. (June)

Disregard of anti-smoking messages. Individuals revealed they would deliberately disregard the public health messages anti-smoking campaigns promoted, as June, Sam and Nadine describe.

Um well I know lots from the packets that you buy ... but the only one that I believe is that quitting will improve your health. I believe that, the others I don't believe. I think they're could be's not necessities... I think they could happen, they're not going to happen... Well they only might happen. Some people might give it up and have no troubles, some people might be genetically prone to it I think. Um so they're only could be's...and when I started smoking at 17 and about oh 1970 or something. Um I was quite aware that when I got into my 40's I would probably have lung problems and have to think serious about giving it up. So I was always aware of smoking as a

health hazard. Didn't stop me though....didn't think I would have problems until later in life so I could handle it then I would think. (June)

June recounted how she started smoking despite knowledge of the adverse health effects associated with it. Today, in an attempt to allay her cognitive dissonance, she tries to justify her smoking by questioning the veracity of the health warnings on cigarette packages and by holding on to the idea that the adverse health consequences of smoking 'might' not happen to her, or at least not until later in life when she feels she will be more prepared to deal with and accept those consequences.

Of course there's going to be a blind reality where people are going to say that it can happen but it may not happen to me. I know people that lived till they were 90, like they take the attitude on that they know people who lived till they were 90 and smoked all their life long...I think that they sort of, they are blinded to the facts...and have been for so long...And you know its like people who are still highly addicted and... was still socially acceptable when they were going through school and that. Once they are addicted to it, and not accepting reality of what's there (Sam).

Sam related how many people, despite being aware of the health consequences of smoking, are able to use contrary examples (e.g. 'I know people that lived till they were 90') in order to mitigate their smoking behaviour, ignoring the health message.

I couldn't say personally that's its working, cos its not working for me, as much as it scares me to look at these pictures ...[but] the craving, the cravings are almost impossible to get past...but even with those pictures sitting right in front of me because my body is asking me for that. Something inside me is screaming (Nadine).

For Nadine, she sees a distinction between finding the anti-smoking image anxiety provoking and behaviour change. The graphic image scares her, but because she

has not made the link between her own behaviour and the potential consequence, her smoking behaviour is not moderated as a result. In effect her cravings for tobacco were just too much for the campaigns to overcome. Furthermore, Matt believed that people with mental disorders would be particularly likely to ignore and disregard anti-smoking campaign messages.

People with mental illness they wouldn't, they'd pay no attention to [them] I wouldn't think, unless they're real paranoid. Or they probably just think it's a load of rubbish or, you know...Because like when you're delusional you don't, well I know that...I don't believe anything. (Matt)

Matt believed that psychotic symptoms like delusional beliefs could be a significant barrier to the effectiveness of anti-smoking campaigns. He suggested that, among this population, anti-smoking campaigns would be less effective and perceived to be less believable than among the general population.

Motivation and campaign effectiveness. Individuals identified there to be a strong relationship between a person's level of motivation to stop smoking and how effective an anti-smoking campaign is going to be.

You're sitting there watching it and an ad'll come on and triggers cigarette thoughts and...instead of putting you off, it would make you want to have a cigarette...but towards the end when I was getting in my head that I did want to give up then those ads actually, probably, well, you watch them and you go 'Oh I got to give up'. (Ken)

Participants described that if a person isn't already motivated to stop smoking, anti-smoking campaigns, as graphic as they are, are not going to be effective. In fact, for Ken and other participants these fear appeals acted as cues for initiating smoking cognitions and behaviour.

Health impacts of tobacco

While individuals associated tobacco with a wide range of physical health problems they also revealed that tobacco had positive effects on their mental health.

Negative physical health effects of tobacco. All individuals interviewed reported they believed tobacco to be extremely harmful to one's physical health. Tobacco was associated with death, cancer, lung, mouth and eye damage and problems involving the whole body.

Cigarettes would be the most physically harmful...like what cigarettes do to you and how harmful they are to the lungs and the mouth and all parts of the body, how they can cause eye damage and everything (Max)

Oh statistics show it causes the most deaths, tobacco related deaths are the most...Well it can cause anything really. Put those sort of chemicals in your body can cause arthritis and stuff. (Sam)

Max and Sam were typical of all participants, acknowledging tobacco as a noxious poison, far more physically harmful than other substances like alcohol and cannabis, and one that they knew was capable of killing them. Many individuals also had personal experiences of the physically harmful effects of tobacco.

My dad, as he's got a diseased lung...he smokes a lot and just watching him, cos he's a pack a day smoker, I don't want to be that. (Molly)

Oh I can't breathe properly for a start...I was in trouble...I smoked so much for those 10 years, 12 years and my mouth tasted like an ash tray for 3 weeks. After cleaning and eating and everything...So when I started not being able to breathe. It was time for me to give up, quick smart. (June)

As Molly and June describe, not only did participants have good knowledge of the health effects of smoking, many had already experienced these harmful effects first hand. For June, and other individuals who had stopped smoking or had previous quit attempts, it was only these personal experiences that were perceived to have motivated them to try to quit.

Positive mental health effects of tobacco. In contrast to its physical health effects, tobacco was perceived to have only positive effects on mental health. Individuals described deliberately using tobacco to relieve stress and negative affect.

It's a high addictive antidepressant and you know it works better than an anti-depressant cos it gives you that instant effect that you've had some sort of mood relaxant ...a bit of a stress relief against depression...yeah right sort of relieves it a little bit. Or gives you the feeling that you're doing something about it. (Sam).

Tobacco, as Sam explains, was consciously and deliberately used by individuals to relieve stress and self-medicate negative affect. It was seen as particularly efficacious because it had immediate effect and was perceived to be more effective than prescribed medication. It was also seen as a way in which individuals might exert some positive control over their own lives.

Discussion

Previous research has consistently found anti-smoking campaigns to be less effective among people from marginalised populations, such as ATSI peoples and those of low SES, than in the general population (Hassard, 2000a; Shanahan & Elliott, 2009). Adding to these results the findings of the current study suggest that public health campaigns regarding tobacco are also not working well for people with psychotic disorders.

Almost all participants reported seeing, reading or hearing an anti-smoking message in the quantitative section of the study and described in the qualitative section being ‘bombarded’ and ‘flooded’ by anti-smoking material. Participants were found, on average, to have good knowledge of tobacco. It was perceived as an extremely harmful substance and associated with a range of negative physical health effects such as lung, mouth and eye damage, cancer and death.

On the other hand, participants also described that anti-smoking campaigns had not affected their smoking. Participants reported they would deliberately ignore and disregard the anti-smoking messages being promoted, particularly given their perceived difficulty in managing their cravings for tobacco. In an attempt to rationalise their smoking, participants detached their smoking behaviour from its consequences. They used contrary examples, e.g. ‘I know people that lived till they were 90’, argued the negative health consequences ‘might’ not happen to them, and adopted a ‘buy now, pay later’ mentality, judging they will only experience the consequences of their smoking later in life, so they can continue to smoke now. Positively, individuals explained that anti-smoking campaigns might have the potential to be effective, but only among people who were already motivated to stop smoking or people who had never started smoking.

In summary, anti-smoking campaigns appear to be reaching people with psychotic disorders, increasing knowledge and awareness of the health effects of tobacco and even scaring them. However, it appears as though they are not achieving their ultimate goal of actually changing the smoking related attitudes and behaviours of people with psychotic disorders.

One of the reasons anti-smoking campaigns may not be effective among people with psychotic disorders is that additional barriers to cessation exist among this population (Forchuk et al., 2002; Smith, Singh, Infante, Khandat, & Kloos, 2002). In

interviews, participants described that they would often deliberately use tobacco to cope with stress and relieve negative affect and that often tobacco had a more immediate effect than prescribed medication. Furthermore, research has found that tobacco use among people with psychotic disorders can transiently improve some of their cognitive deficits (Forchuk et al., 2002; Smith et al., 2002; Ziedonis & Nickou, 2001). Such positive implications of smoking act as substantial barriers to cessation that may need to be addressed before anti-smoking campaigns can be effective among this population. Given these unique barriers to cessation and the additional consequences of tobacco use among people with psychotic disorders compared to the general population, anti-smoking campaigns developed in the future may need to be specifically targeted at people with psychotic disorders to effect smoking prevalence rates in this population.

Consistent with previous research the current sample were found to have levels of tobacco use far above that of the general population (Forchuk et al., 2002; Kavanagh et al., 2004; Ziedonis & Nickou, 2001). Half (49.39%) of the current sample of people with psychotic disorders reported they were current smokers, compared to 16.6% - 20% of people in Australia's general population (AIHW, 2008; ABS, 2009). This finding reinforces the need to focus prevention and intervention efforts upon people in this marginalised population of society (Baker et al., 2006b), and to pay due consideration to craving and withdrawal associated with such high levels of consumption. When one also considers the numerous adverse consequences this population experiences as a result of smoking, such as increased rates of hospitalization, symptom worsening (Carey et al., 1991; Ziedonis & Nickou, 2001), reduced effectiveness of their medication and premature death (Ziedonis & Nickou, 2001), the importance of developing effective preventative and public health strategies addressing tobacco use among people with psychotic disorders is clear.

While the current study generated a number of important insights it did possess a number of limitations. Individuals on the ASRB are likely to be relatively high functioning, limiting the generalizability of the current study among the wider population of people with psychotic disorders (Loughland et al., 2001). This study also had a low response rate, but one in keeping with response rates of other postal surveys among this population (e.g. Hodge & Jespersen, 2008).

This study is the first known to investigate exposure, acceptability and attitudes regarding anti-smoking campaigns and tobacco knowledge among people with psychotic disorders. While previous research has evaluated the effectiveness of anti-smoking campaigns among the general population and some other marginalised groups (Hassard, 2000a, 2000b; Pierce et al., 1986; Pierce et al., 1990; Shanahan & Elliott, 2009), it has not investigated the effectiveness of these campaigns among people with mental disorders. This study is a first step towards filling this gap, and in this way has the potential to inform the development of effective preventative and public health strategies for smoking among people with psychotic disorders.

The current findings suggest that to be effective, anti-smoking campaigns may need to be targeted specifically for people with psychotic disorders, and supported with similar messages from significant others in the individual's personal environment (e.g. family, friends and health professionals). Future campaigns may need to address barriers to cessation in this population and find new ways in which to motivate people with psychotic disorders to want to cut down or stop smoking. It may also be important to the success of anti-smoking campaigns in this population to find other ways in which people with psychotic disorders can obtain the cognitive and emotional benefits they gain from smoking and to better manage the cravings associated with nicotine withdrawal that represent a major concern to individuals with these disorders. In these

ways it is hoped the current study will eventually help reduce the disparity in smoking prevalence rates between people with psychotic disorders and other marginalised populations and the general population.

Paper 4

Reasons for substance use among people with mental disorders

Introduction to Paper 4

The results of papers one (Thornton et al., in press) and two (Thornton et al., 2012a) suggest that attitudes and perceptions towards tobacco, alcohol and cannabis may differ significantly, and that as a result effective intervention and preventative strategies may need to be tailored to specifically address each of these substances. The results of paper one also suggested that reasons for substance use may differ between people with different mental disorder diagnoses. However, given the paucity of research involving participants with mental disorders other than psychotic disorders, it is difficult to determine in what ways these reasons for substance use might differ and how interventions may need to be tailored.

Paper 4 aimed to identify any similarities and differences in the attitudes to and perceptions of people with different types of mental disorders regarding tobacco, alcohol and cannabis. It also aimed to extend the finding of papers one (Thornton et al., in press) and two (Thornton et al., 2012a) by examining and comparing reasons for tobacco, alcohol and cannabis use among people with mental disorders other than a psychotic disorder. To do so data were mined from five randomised controlled trials of treatments for co-occurring substance use and mental disorders in order to compare reasons for tobacco, alcohol or cannabis use between people with depression and people with a psychotic disorder. While it would have been interesting to have investigated reasons for tobacco, alcohol and cannabis use among people with a range of mental disorders e.g. anxiety and personality disorders, sufficient data were only available for people with psychotic disorders (including bipolar disorder) or depression.

This paper adds significantly to the overall body of knowledge in this area as it is one of the first studies to directly compare reasons for use of various substances among people with different mental disorders.

Reasons for substance use among people with mental disorders

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Abstract

Background: Comorbidity of mental disorders and substance use continues to be a major problem. To inform the development of more effective interventions for these co-existing disorders, this paper aimed to determine if there are clear variations in the reasons for tobacco, alcohol or cannabis use across people with different mental disorders.

Methods: Data from five randomized controlled trials on co-existing disorders that measured reasons for tobacco, alcohol or cannabis use using the Drug Use Motives Questionnaire, Reasons for Smoking Questionnaire or via free response are reported and combined. Two studies involved participants with depression, two involved participants with a psychotic disorder and one involved participants with a range of mental disorders. A series of logistic regressions were conducted to examine differences in reasons for tobacco, alcohol or cannabis use and to compare these reasons between people with psychotic disorders or depression.

Results: Participants had a mean age of 38 and just over half (60%) were male. Forty-six percent of participants had a psychotic disorder and 54% experienced depression. Data from 976 participants across the five studies were included in the analyses. Tobacco and alcohol were primarily used to cope, while cannabis was primarily used for pleasure. People with psychotic disorders were more likely than people with depression to use tobacco for coping, pleasure and illness motives. People with depression, in contrast, were more likely to use alcohol for these reasons and social reasons.

Conclusions: It may be important to tailor interventions for co-existing mental disorders and substance use by substance type and type of mental disorder. For

example, interventions might be improved by including alternative coping strategies for tobacco and/or alcohol use, by addressing the social role of alcohol and by helping people with mental disorders using cannabis to gain pleasure from their lives in other ways.

Keywords:

Mental disorder, reasons for substance use, tobacco, alcohol, cannabis

Introduction

Substance use is a major health problem among people with mental disorders (Baker et al., 2010b; Degenhardt & Hall, 2001; Healey et al., 2008; Ziedonis & Nickou, 2001). Approximately 50% of people with a mental disorder meet criteria for a lifetime substance use disorder. This is a concern as substance use has been consistently associated with adverse outcomes for this population. Tobacco, alcohol and cannabis use have each been linked to reduced medication effectiveness and exacerbation of psychiatric symptoms, especially positive psychotic symptoms (Ziedonis & Nickou, 2001). Substance use is also associated with increased rates of suicide, suicide attempts and poor medication compliance among people with mental disorders (Carey et al., 1991; Healey et al., 2008; Ziedonis & Nickou, 2001). These negative consequences extend to the wider community, as people with co-existing mental and substance use disorders tend to have greater use of costly services such as psychiatric hospitalization and emergency medical care (Dickey & Azeni, 1996; Mangrum et al., 2006; Ziedonis & Nickou, 2001).

Given the high prevalence, adverse consequences and high treatment costs associated with co-existing mental disorders and substance use, it is important that effective evidence based intervention and preventative strategies are employed. Integrated treatment approaches, which combine mental health and substance use interventions into one clinical program, have been found to be more effective than interventions addressing substance use and mental health separately (Drake et al., 1998; Drake et al., 2004; Drake et al., 2008; Mangrum et al., 2006). However, there is still considerable room for improvement. Reviews of integrated treatments have found few

consistent results supporting the efficacy of these approaches on mental health and substance use outcomes (Cleary et al., 2008; Drake et al., 2008).

Research also suggests that different treatment approaches may work better for different substances. Baker, Turner, Kay-Lambkin and Lewin (2009) found that while brief integrated interventions worked well for alcohol misuse among people with severe mental disorders, they were only somewhat effective for cannabis use. To improve the effectiveness of these interventions it has been suggested that it may be important to understand better why people with mental disorders use substances (Chabrol et al., 2005; Giddings et al., 2003; Kuntsche et al., 2006; Spencer et al., 2002).

A number of studies have investigated reasons for substance use among people with mental disorders, especially people with psychotic disorders (e.g. Gregg et al., 2007; Gregg et al., 2009; Pencer & Addington, 2008). Among people with psychotic disorders, relaxation, pleasure and dysphoria relief are some of the most frequently endorsed reasons for tobacco, alcohol and cannabis use. People also commonly describe using tobacco because of addiction, alcohol for social reasons and cannabis for intoxication effects (Addington & Duchak, 1997; Baker et al., 2006c; Forchuk et al., 2002; Fowler et al., 1998; Schaub et al., 2008; Thornton et al., 2012a). While relief of psychotic symptoms and medication side-effects are often the least frequently endorsed reasons for using substances (e.g. Forchuk et al., 2002; Fowler et al., 1998; Gregg et al., 2007; Thornton et al., 2012a), tobacco is frequently used by people with psychotic disorders to self-medicate psychotic symptoms and medication side effects (Forchuk et al., 2002; Kumari & Postma, 2005; Leonard & Adams, 2006; Thornton et al., 2012a). There is considerable evidence that tobacco use by people with psychotic disorders also has other beneficial effects, including transient improvements in sustained attention and

spatial working memory (Kumari & Postma, 2005; McChargue, Gulliver, & Hitsman, 2002; Smith et al., 2002).

Much less research has been conducted among people with depression. Among people with depression, alcohol is reported to be primarily used for social motives (Nishith et al., 1997), followed by coping motives. Coping motives, including alleviation of boredom, and negative affect have been found to be central to tobacco, alcohol and cannabis use among people with depression (Bizzarri et al., 2009; Currie et al., 2001; Grant, Stewart, & Mohr, 2009). The main weaknesses of this previous research are that few studies have compared reasons for use between different substances, nor have they very often compared reasons for use between people with different types of mental disorders.

For the development of effective and appropriately targeted interventions, a clearer understanding is needed regarding the reasons people with different mental disorders use specific substances and whether these reasons for use differ according to type of substance or mental disorder. The authors had access to data from five randomized controlled trials conducted by Dr Baker, Dr Kay-Lambkin and colleagues at the University of Newcastle, Australia, that measured reasons for substance use among people with mental disorders. As reasons for substance use were not the core focus of these trials, there has been limited analysis and reporting of these data. However, these data present a valuable opportunity to examine reasons for substance use among people with different mental disorders. This paper aimed to report reasons for substance use data from these five studies and to identify the most appropriate way to pool and analyse these data so that it might add to our understanding of how reasons for tobacco, alcohol and cannabis use may differ among people with different mental disorders. The paper also seeks to provide recommendations as to how interventions might be

improved, and specifically considers whether such interventions need to be targeted by type of substance or type of mental disorder to be optimally effective.

Based on previous literature, it was hypothesized that reasons for use reported across the five studies would differ between tobacco, alcohol and cannabis. While it was hypothesized that coping motives would be highly endorsed across all three substances, it was anticipated that social motives for use would be endorsed more frequently for alcohol, pleasure or intoxication effects would be endorsed more frequently for cannabis, and relief of psychotic symptoms or illness motives would be endorsed more frequently for tobacco than for the other two substances. It was also hypothesized that reasons for substance use would differ between people with different mental disorders, specifically between people with a diagnosis of a psychotic disorder and with a diagnosis of depression.

Method

This paper combined data from five randomized controlled trials conducted at the Centre for Brain and Mental Health Research, at the University of Newcastle, New South Wales, Australia. Study 1 recruited 274 treatment-seeking participants with comorbid depression and drug and alcohol problems (Kay-Lambkin et al., 2011). Study 2 (Baker et al., 2010b) had 285 treatment-seeking participants with comorbid depression and alcohol problems. Study 3 (Baker et al., 2006a) included 130 treatment-seeking participants with a comorbid psychotic disorder (including bipolar disorder, schizophrenia, schizoaffective disorder and other psychosis) and drug and alcohol problems. Study 4 (Baker et al., 2006c) involved 298 treatment-seeking smokers with a non-acute psychotic disorder. Study 5 (Baker et al., 2002a; Baker et al., 2002b) recruited 160 inpatients with comorbid depression, schizophrenia or personality

disorder and drug and alcohol problems. Table 4.1 displays the details of each study. All trials received regional ethics approval and used informed consent. Additionally, access to the de-identified data across the five studies was approved by the University of Newcastle Human Research Ethics Committee (H-2009-0141).

Table 4.1. Diagnoses and substances for which reasons for use were assessed in each study

| Study | N | Age | % Female | Diagnoses | Current substance use (% using in past month) | | | Reasons for use assessed | | | Reasons for use measure |
|---------------------------------|-----|--|----------|---|--|---------|----------|--------------------------|---------|----------|-------------------------|
| | | | | | Tobacco | Alcohol | Cannabis | Tobacco | Alcohol | Cannabis | |
| 1 Kay-Lambkin et al. (2011) | 274 | 19.8% under 30 48.3% 30-44 31.9% 45 and over | 42.6% | 70.5% Depression (SCID-IV-RV) 29.5% Sub-threshold depression (BDI II > 17) | 75.6% | 89.7% | 50.0% | | ✓ | ✓ | DUMQ |
| 2 Baker et al. (2010) | 285 | 9.2% under 30 35.5% 30-44 55.3% 45 and over | 46.8% | 71% Depression (SCID-IV-TR) 29% Sub-threshold depression (BDI II > 17) | 51.4% | 100% | 19.9% | | ✓ | | DUMQ |
| 3 Baker, Bucci et al. (2006) | 130 | 60% under 30 31.5% 30-44 8.5% 45 and over | 22.3% | 100% Psychotic disorder (DIP) | 92.3% | 88.5% | 69.2% | | ✓ | ✓ | DUMQ |
| 4 Baker, Richmond et al. (2006) | 298 | 26.2% under 30 48% 30-44 25.8% 45 and over | 47.7% | 100% Psychotic disorder (DIP) | 100% | 46% | 12.1% | ✓ | | | RSQ |
| 5 Baker et al. (2002) | 160 | 53.1% under 30, 35.7% 30-44, 11.2% 45 and over | 25.0% | 37.6% Schizophrenia 29.3% Mood disorder 16.6% Personality disorder, 13.4% Other 19.7% None (SCID-III-R) | 92.5% | 83.2% | 67.5% | ✓ | ✓ | ✓ | Free Response |

SCID-IV-RV: Structured Clinical Interview for DSM IV, Research Version

SCID-IV-TR: Structured Clinical Interview for DSM IV, Text Revision

DIP: Diagnostic Interview for Psychosis

SCID-III-R: Structured Clinical Interview for DSM III, Revised

DUMQ: Drug Use Motive Questionnaire

RSQ: Reasons for Smoking Questionnaire

Participants

Data from 1032 participants across the five studies were available. Over half (59.9%) were male and ages ranged from 15 to 73 years ($M=38.03$, $SD=12.13$). Most participants had a diagnosis of a psychotic disorder (45.6%) or depression (54%). A small percentage of participants (0.4%) had a diagnosis of an anxiety, personality or other mental disorder, and were excluded from all future analyses. Therefore, the final sample consisted of 976 participants with a diagnosis of a psychotic disorder or depression.

Measures

The full set of assessments employed across studies 1-5 have been reported elsewhere (Baker et al., 2006a; Baker et al., 2002a; Baker et al., 2010b; Baker et al., 2002b; Baker et al., 2006c; Kay-Lambkin et al., 2011). Of particular relevance to the current analysis are basic socio-demographic characteristics (age and gender), a clinical assessment to determine participants' diagnosis, and drug use motive instruments.

Drug Use Motives Questionnaire (DUMQ: Cooper et al., 1992)

Studies 1, 2, and 3 investigated reasons for alcohol and cannabis use using the DUMQ. This is a modified form of the Drinking Motives Questionnaire (DMQ: Cooper et al., 1992), which presents participants with 15 potential reasons for drinking alcohol and asks them to rate how often (1= Never/Almost Never, 2= Sometimes, 3= Often, 4=Almost Always) they drink for each reason. These reasons are grouped into three motivational domains: social (e.g. to celebrate); coping (e.g. to forget worries); and pleasure enhancement (e.g. like the feeling). Participants receive a score in each domain. For the DUMQ two items are added ('reduction in mental health symptoms' and 'reduction in medication side effects') to increase the questionnaire's relevance to

people with mental disorders. The DUMQ also allows the assessment of drug use motives for substances other than alcohol (Thornton et al., 2012a).

Confirmatory factor analysis of the DUMQ for alcohol, cannabis and amphetamines has supported a four factor model, comprising of social, pleasure and coping motives and an 'illness' motive made up of the two extra items, to be adequate and marginally superior to a 3 factor model in which the two extra items formed part of the coping motives domain. The four factor model has been found to be a particularly good fit among people with psychotic disorders compared to people with depression. Additionally, these four motive domains (social, pleasure, coping, illness) have been found to have satisfactory internal consistency (Thornton et al., 2012a).

Reasons for Smoking Questionnaire (RSQ: Pederson, Bull, Ashley, & MacDonald, 1996)

Study 4 assessed participants' reasons for smoking using the RSQ that was developed by Pederson et al, (1996) to measure reasons for smoking among a general population sample. Participants are required to answer 'yes' or 'no' to a list of 12 possible reasons for smoking. As in the DUMQ (Cooper et al., 1992; Thornton et al., 2012a), two additional items relating specifically to mental illness were added to this questionnaire. Factor analysis of this scale among people with mental disorders has derived 5 subscales from these 14 items: addiction; stress reduction; arousal; mental illness and partner smoking (Baker et al., 2007). Participants were also able to list any other reasons they smoked and the most important reason they smoked.

Free response

In study 5, participants were asked to give the three main reasons they used tobacco, alcohol and/or cannabis.

Procedure

Results from the individual scales used in the five studies were initially examined. The following procedure was then implemented to pool the data. To control for differences in age and gender distributions across studies (see Table 4.1), age and gender were included as covariates in all analyses. A decision was also made to include participants who did not meet criteria for a diagnosis of depression but had scored over 17 on the Beck Depression Inventory (BDI-II: Beck, Steer, & Brown, 1996) indicating moderate to severe depression. Several steps were also taken to enhance the comparability of the reasons for substance use data collected across the studies. The RSQ items (Pederson et al., 1996) and the free response answers given in study 5 were re-categorized into the four motive domains (social, pleasure, coping and illness) used in the DUMQ (Cooper et al., 1992), as the majority of data across the five studies was collected via this measure. Five independent researchers were provided with descriptions of each of the motive domains and categorized the items independently. A consensus as to which motive domain items should be categorized into was reached by at least 4 of the 5 researchers for 72% of the RSQ and free response items. Consensus between 3 of the 5 researchers was reached for a further 22% of items. For a final 6% the researchers did not initially reach a consensus. For these items, the first author, after discussion with the researchers, assigned the items to a motive domain.

In studies 4 and 5, only information regarding whether or not a participant endorsed a particular reason for use was available. To facilitate analysis of results across studies, the more detailed responses collected in the DUMQ regarding frequency of use for each reason were collapsed into 'yes' vs. 'no'. Participants from studies 1, 2 and 3 who reported using a substance 'never' or 'almost never' for a particular reason on the DUMQ received a 'no' endorsement rating for that reason. Participants who reported

using a substance ‘sometimes’, ‘often’ or ‘almost always’ for a particular reason received a ‘yes’ endorsement rating for that reason. In calculating the numbers of participants endorsing each of the 4 motive domains, participants endorsing at least one of the individual reasons categorized into each domain were counted.

Data analysis

To test the hypothesis that people with mental disorders would report using tobacco, alcohol and cannabis for different reasons a series of aggregate hierarchical logistic regressions were performed (i.e., ignoring diagnostic status) with motive endorsement status as the dependent variable. Separate hierarchical logistic regressions were conducted for each of the four motive domains, in which the predictor variables of age and gender were entered in the first step and substance type in the second. The reference categories of under 30, female, and alternatively cannabis and tobacco were used.

To test the hypothesis that reasons for substance use would differ between people with a diagnosis of a psychotic disorder and depression an additional series of hierarchical logistic regressions was conducted, involving separate analyses for each of the four motive domains by each substance type (tobacco, alcohol and cannabis). These used the predictor variables of age and gender in the first step and diagnosis in the second, with the reference categories of under 30, female, and depression. As participants differed in their patterns of substance use (e.g., some were using only one substance, others two or three) the data were transposed so that the N for each analysis was equal to the number of times participants completed the DUMQ, RSQ or provided free response data.

Results

Reasons for substance use by scale

Drug Use Motives Questionnaire (Cooper et al., 1992)

Participants' DUMQ results from studies 1, 2 and 3 were combined and are presented in Figure 4.1. Participants reported using alcohol and cannabis for different reasons. Alcohol was primarily used for coping motives ($M=2.80$, $SD=0.80$), closely followed by social motives ($M=2.71$, $SD=0.77$), while cannabis was primarily used for pleasure enhancement motives ($M=2.59$, $SD=0.80$), followed by coping motives ($M=2.55$, $SD=0.80$). For both substances, illness motives were the least frequently endorsed.

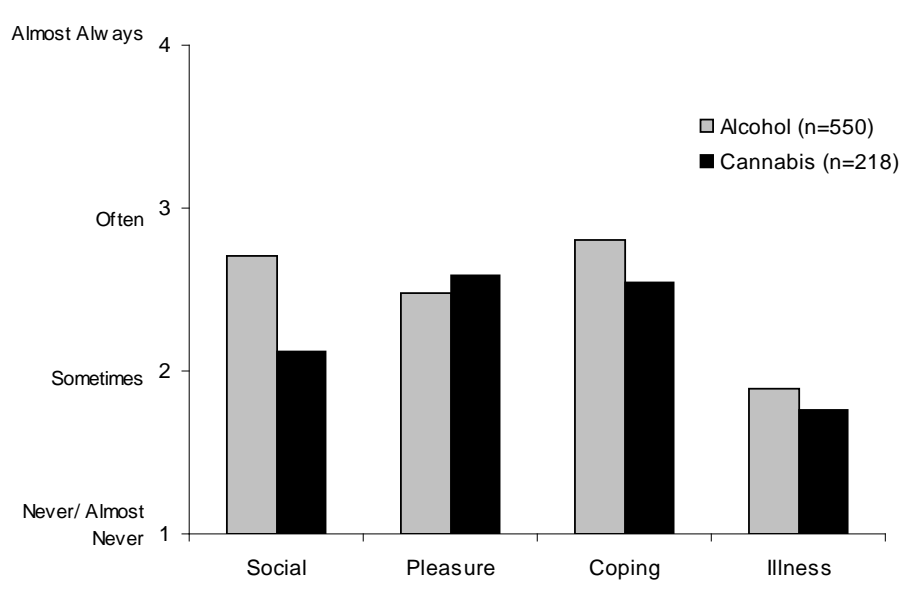


Figure 4.1. Study 1, 2 and 3 participants' reasons for alcohol and cannabis use collected via the DUMQ.

Reasons for Smoking Questionnaire (Pederson et al., 1996)

As can be seen in Table 4.2 smoking to satisfy cravings and habit were the two most frequently endorsed reasons for smoking by people in study 4, with over 90% of participants endorsing these reasons. Smoking to cope with stress, and ‘to relax’, were also endorsed by over 85% of participants. Over a quarter (27%) of participants reported smoking because it helped the symptoms of their mental illness, while only 9% of people smoked to help with side effects of their medication. In addition, 36% of participants listed smoking to satisfy cravings and addiction as the most important reason they smoked. Smoking because it is a habit was identified as the most important reason for smoking by 19% of participants, smoking to relax by 15% and smoking for enjoyment by 12%.

Table 4.2. Study 4 participants' endorsements of reasons for smoking collected via the RSQ (n=298)

| Reasons for Smoking | % |
|---|-------|
| Addiction | |
| Smoking satisfies cravings | 94.6% |
| Smoking is a habit | 93.0% |
| Stress Reduction | |
| Smoking helps you handle stress | 88.9% |
| Smoking helps you relax | 86.2% |
| Smoking lets you take a break | 80.5% |
| Arousal | |
| Smoking peps you up | 58.1% |
| Smoking helps you concentrate | 40.3% |
| Smoking stops weight gain | 22.8% |
| You enjoy smoking | 80.2% |
| Mental Illness | |
| Smoking helps symptoms on your mental illness | 27.2% |
| Smoking helps with side effects of your medication. | 8.8% |
| Partner Smoking | |
| Your partner smokes | 11.1% |
| Other reasons you smoke | 1.2% |
| Boredom | 0.8% |
| To Socialize | 0.2% |
| Loneliness | 0.1% |
| Escape | 0.1% |
| Reward | |
| Most important reason for smoking | |
| Craving or addiction | 36.0% |
| Habit | 19.1% |
| Relax | 15.6% |
| Enjoyment | 12.0% |
| Stress | 10.2% |
| Break | 3.6% |
| Boredom | 1.3% |

Free response

As in study 4, 'cravings', 'addiction' and 'habit' were the most commonly reported reasons for smoking tobacco, with 63% of participants with a psychotic disorder and 49% of participants with depression volunteering these as some of the

main reasons they smoked (see Table 4.3). ‘To relieve tension’, ‘stress’ and ‘to calm me’ were reported as main reasons for smoking by 27% and 28% of participants with psychotic disorders and depression respectively; followed by ‘relief of boredom’ (21%). For alcohol, the most commonly reported reasons for use were ‘to take away sad feelings, to cheer me up and loneliness’ (Psychotic disorder: 28.3%, Depression: 16.2%) ‘to be social/gives me a social life’ (Psychotic disorder: 22%, Depression: 30%), ‘to block everything out and escape reality’ (Psychotic disorder: 19.6%, Depression: 13.5%), and ‘to relieve tension and stress’ (Psychotic disorder: 15.2%, Depression: 18.9%). Cannabis was most frequently used ‘to relax and to give me a mellow mood’ (Psychotic disorder: 32%, Depression: 33%), and ‘to get high, because they liked the effect and to have fun’ (Psychotic disorder: 30%, Depression: 27%). Among people with psychotic disorders this was followed by ‘to feel good and to make me feel happy’ (21%) and by ‘to relieve tension and stress and to calm me’ (23%) among people with depression. A small group of participants reported using alcohol (Psychotic disorder: 7%, Depression: 11%) and cannabis (Psychotic disorder: 2%, Depression: 3%) to cope with negative affect. Four percent of participants with psychotic disorders reported using alcohol and cannabis to get away from hallucinations and paranoia, and 2% of participants with depression reported using tobacco to help with the side effects of their medication while 4% of participants with psychotic disorders reported using alcohol for this reason.

Table 4.3. Percentage of Study 5 participants' endorsing reasons for tobacco, alcohol and cannabis use collected via free response.

| Main reasons for substance use | Substance | | | | | |
|--|---------------------------|-------------------|---------------------------|-------------------|---------------------------|-------------------|
| | Tobacco (n=99) | | Alcohol (n=81) | | Cannabis (n=77) | |
| | Psychotic Disorder (n=56) | Depression (n=43) | Psychotic Disorder (n=46) | Depression (n=37) | Psychotic Disorder (n=47) | Depression (n=30) |
| Social | | | | | | |
| To be social/gives me a social life | 0% | 7.0% | 21.7% | 29.7% | 6.4% | 26.7% |
| Peer pressure, to be a part of a group | 3.6% | 2.3% | 2.2% | 0% | 2.1% | 3.3% |
| Its available | 3.6% | 7.0% | 2.2% | 0% | 8.5% | 10.0% |
| To celebrate | 0% | 0% | 4.3% | 2.7% | 0% | 0% |
| Pleasure | 0% | 0% | 0% | 0% | 0% | 0% |
| To relieve boredom | 21.4% | 20.9% | 8.7% | 8.1% | 8.5% | 0% |
| To feel good, to make me feel happy | 10.7% | 7.0% | 13.0% | 18.9% | 21.3% | 16.7% |
| To relax, give me a mellow mood | 10.7% | 11.6% | 10.9% | 13.5% | 31.9% | 33.3% |
| To get drunk or high, I like the effect, to have fun | 7.1% | 7.0% | 13.0% | 13.5% | 29.8% | 26.7% |
| I like the taste, good with a meal | 3.6% | 7.0% | 10.9% | 10.8% | 4.3% | 0% |
| Coping | 0% | 0% | 0% | 0% | 0% | 0% |
| Cravings, addiction, habit | 62.5% | 48.8% | 2.2% | 8.1% | 10.6% | 16.7% |
| Relieve tension and stress, calm me | 26.8% | 27.9% | 15.2% | 18.9% | 6.4% | 23.3% |
| Take away sad feelings, cheer me up, loneliness | 0% | 4.7% | 28.3% | 16.2% | 4.3% | 10.0% |
| Block everything out, escape reality | 0% | 0% | 19.6% | 13.5% | 8.5% | 6.7% |
| Illness | 0% | 0% | 0% | 0% | 0% | 0% |
| Help side effects of medication | 0% | 2.3% | 4.3% | 0% | 0% | 0% |
| Negative affect relief, stop me from being suicidal | 0% | 0% | 6.5% | 10.8% | 2.1% | 3.3% |
| Get away from hallucinations and paranoia | 0% | 0% | 4.3% | 0% | 4.3% | 0% |
| Pain management | 0% | 0% | 0% | 0% | 4.3% | 3.3% |

Overall reasons for substance use

The combined reasons for substance use data (i.e., across all five studies) are displayed in Tables 4.4 and 4.5. These show the percentages of participants who

endorsed at least one reason for substance use belonging to a particular motive domain (e.g. 8.1% of men endorsed at least one social reason for smoking tobacco).

Influence of substance type on reasons for use

The series of hierarchical logistic regressions performed on the combined data found that patterns of reasons for substance use differed significantly according to gender, substance type and age. As can be seen in Table 4.4, tobacco was primarily used to cope, with 94% of participants endorsing this motive. Alcohol was also primarily used to cope (79%), closely followed by use for social motives (75%). Cannabis, on the other hand, was primarily used for pleasure (77%). Participants were significantly more likely to use alcohol for social motives than tobacco and cannabis and significantly more likely to use cannabis for social motives than tobacco. Tobacco was significantly more likely to be used to cope than alcohol and cannabis, and alcohol was significantly more likely to be used to cope than cannabis.

Table 4.4. Combined endorsements of social, pleasure, coping and illness motives for substance use (n=1318)

| | | Social | Pleasure | Coping | Illness |
|---------|-------------|-----------------------|--------------------|-----------------------|---------|
| Step 1. | Age | | | | |
| | Under 30 | 43.8% | 71.2% | 72.6% | 26.3% |
| | 31-44 | 52.7%* | 73.7% | 83.3%** | 37.5%** |
| | 45 and over | 58.7%** | 77.0% | 90.0%** | 53.5%** |
| | Sex | | | | |
| | Female | 51.10% | 75.70% | 88.20% | 43.20% |
| | Male | 50.80% | 72.40% | 76.8%** | 33.9%* |
| Step 2. | Substance | | | | |
| | Tobacco | 9.90% | 70.60% | 94.20% | 23.70% |
| | Alcohol | 77.5% ^{††,*} | 73.1% [†] | 79.6% ^{†,**} | 47.7%** |
| | Cannabis | 48.6%** | 78.8%* | 65.9%** | 34.0%** |

Based on Wald statistics from logistic regression; versus reference category: * $p < 0.01$, ** $p < 0.001$; versus cannabis: ^{††} $p < 0.001$. [†] $p < 0.05$

Additionally, for both males and females coping motives were the most frequently endorsed motive for substance use. However, females were significantly more likely to endorse this motive. Females were also significantly more likely than males to endorse using substances for illness motives. Participants aged under 30 were significantly less likely to endorse using substances for social, coping and illness motives than participants aged 30-44 and 45 and over.

Influence of Illness Type on Reasons for Use.

The series of hierarchical logistic regressions conducted separately for each substance found that there were significant differences between diagnostic groups in the reasons given for using tobacco and alcohol. Patterns of reasons for use were also found to differ significantly according to age for tobacco and according to gender for alcohol and cannabis (see Table 4.5).

Table 4.5. Combined endorsements of social, pleasure, coping and illness motives for tobacco alcohol and cannabis use.

| | | Social | Pleasure | Coping | Illness |
|------------------|--------------------|----------|-----------|-----------|-----------|
| Tobacco (n=394) | | | | | |
| Step 1. | Age | | | | |
| | Under 30 | 11.1% | 60.8% | 90.2% | 20.3% |
| | 31-44 | 10.3% | 73.1% * | 96.2% * | 23.9% |
| | 45 and over | 7.1% | 83.5% ** | 97.7% | 29.4% |
| | Sex | | | | |
| | Female | 13.70% | 75.20% | 96.30% | 27.60% |
| | Male | 7.30% * | 67.40% | 92.70% | 20.90% |
| Step 2. | Diagnosis | | | | |
| | Depression | 9.30% | 48.80% | 74.40% | 2.30% |
| | Psychotic disorder | 10.00% | 73.2% ** | 96.6% *** | 26.3% * |
| Alcohol (n=631) | | | | | |
| Step 1. | Age | | | | |
| | Under 30 | 70.2% | 71.3% | 66.0% | 28.9% |
| | 31-44 | 81.0% * | 73.0% | 81.0% ** | 47.4% *** |
| | 45 and over | 80.2% * | 74.7% | 89.9% *** | 64.9% *** |
| | Sex | | | | |
| | Female | 78.80% | 74.20% | 86.90% | 55.20% |
| | Male | 76.70% | 72.40% | 75.2% ** | 43.30% ** |
| Step 2. | Diagnosis | | | | |
| | Depression | 81.00% | 77.40% | 87.90% | 59.20% |
| | Psychotic disorder | 67.7% ** | 61.1% *** | 56.3% *** | 17.7% *** |
| Cannabis (n=293) | | | | | |
| Step 1. | Age | | | | |
| | Under 30 | 44.1% | 81.6% | 63.2% | 29.3% |
| | 31-44 | 54.6% | 76.2% | 69.7% | 37.5% |
| | 45 and over | 50.0% | 75.0% | 65.6% | 45.2% |
| | Sex | | | | |
| | Female | 44.20% | 81.80% | 75.30% | 41.30% |
| | Male | 50.20% | 77.80% | 62.50% * | 31.40% |
| Step 2. | Diagnosis | | | | |
| | Depression | 48.70% | 75.30% | 72.00% | 38.70% |
| | Psychotic disorder | 48.60% | 82.50% | 59.40% | 29.40% |

Based on Wald statistics from logistic regressions. * $p < .05$ ** $p < 0.01$, *** $p < 0.001$

People with psychotic disorders were significantly more likely to report using tobacco for pleasure, coping and illness motives than people with depression. On the other hand people with depression were found to be significantly more likely to use

alcohol for social, pleasure, coping and illness motives than people with psychotic disorders. As can be seen in Table 4.5, cannabis was primarily used by participants for pleasure.

Additionally, relative to men, women were significantly more likely to report using tobacco for social motives, using alcohol for coping and illness motives, and using cannabis for coping motives. People under 30 years of age were also significantly less likely to use tobacco for pleasure and coping motives and alcohol for social, coping and illness motives than participants aged 30-44 and 45 and over.

Discussion

This study reported reasons for substance use data from five RCTs in detail, for the first time, and is one of the first investigations of reasons for tobacco, alcohol and cannabis use among people with different mental disorders. Supporting the authors' hypotheses, people with mental disorders were found to use tobacco, alcohol and cannabis for different reasons, and people with depression and psychotic disorders differed in the reasons for which they used each of these substances.

As hypothesized, this study found that for people with mental disorders substance use was an important coping strategy, which was perceived by them to help cope with cravings, stress, boredom, loneliness and negative affect. Tobacco and alcohol were found to be primarily used for coping motives, while cannabis was primarily used for pleasure, followed by coping motives. Coping motives were found to be particularly important for tobacco, which was chiefly used to cope with cravings and because of addiction, followed by relief of stress and boredom.

Drinking alcohol to cope with negative affect, boredom, loneliness and to escape was closely followed by alcohol use for social motives. As in the Australian general

population (Ministerial Council on Drug Strategy, 2006), alcohol was reported to play an important social role in participants' lives in the current study and in line with our hypothesis, was significantly more likely to be used for social motives than the other two substances.

Consistent with our hypothesis, cannabis was used by people with mental disorders primarily to enhance pleasure. For many participants, cannabis use was a way in which they could gain some pleasure from their lives, a way to relax, to make themselves feel happy, and to experience a pleasurable high. Cannabis was also more likely to be used for pleasure than either alcohol or tobacco, and was the substance least likely to be used to help participants to cope.

Reasons for substance use were found to differ between people with psychotic disorders and depression, in line with this paper's hypothesis. For participants with psychotic disorders, tobacco was found to play an important role in their lives, helping them to cope, giving them a source of pleasure and, for some, helping them with the symptoms of their mental illness and medication side effects. In contrast, among participants with depression, alcohol appeared to fill this role, as alcohol was frequently used to help people with depression cope, to give them pleasure, for social reasons and to help with symptoms of their mental illness.

These results may help guide some of the ways in which interventions for co-existing mental disorders and substance use might be improved. The perceived ability of tobacco to assist people with mental disorders to cope may itself be a significant barrier to smoking cessation among this population. It may be imperative to the success of smoking cessation interventions, especially among people with psychotic disorders, to address alternative coping strategies and to adequately address the person's nicotine addiction. Craving for and addiction to cigarettes were the most frequently endorsed,

and important, individual reason for tobacco use reported in the current study.

Consequently, and given the low abuse potential, ready over-the-counter and often subsidised availability of nicotine replacement therapy, flexible dose and longer-term delivery of nicotine replacement therapy should be the minimum level of intervention for tobacco use among people with mental disorders. Additionally, many participants with psychotic disorders used tobacco to reduce the symptoms of their mental illness and medication side effects, highlighting the continued need for research to investigate how the same symptom and side effect relief received from tobacco might be achieved in a safer way.

These results also suggest that alcohol use interventions for people with mental disorders, especially depression, might benefit by addressing the social importance of alcohol, such as how to interact in social situations without drinking. Similarly, this study suggests the perceived capacity of alcohol to help people cope, to escape reality, or block everything out, may be a strong deterrent to stopping drinking, especially among women and people with depression. Alternative coping mechanisms and strategies for reducing negative affect may be important parts in an effective intervention for these disorders when they co-occur.

Additionally, it may be important for interventions addressing cannabis use to investigate alternative ways in which people with mental disorders might gain pleasure from their lives. However, the key demographic variables (diagnosis, age and gender) that were associated with use of tobacco and alcohol, for the most part did not significantly predict reasons for cannabis use. Together with previous research that has indicated, when compared to alcohol, cannabis use responds less well to treatment (Baker et al., 2009), the current results suggest that factors influencing cannabis use

among people with mental disorders, including reasons for its use, need to be examined more closely.

To reduce the prevalence and impact of co-existing mental disorders and substance use, it is also important to address prevention. As tobacco, alcohol and cannabis were frequently used to cope and for pleasure, it is suggested that offering information and guidance about alternative coping strategies and alternative sources of pleasure, especially to people at risk of developing a psychotic disorder or depression, may help to prevent the onset of substance use problems among this population.

This study is the first known to compare reasons for substance use between multiple substances and between people with different mental disorders. It improves upon previous research that has reported only reasons for use of one substance, or substance use in general among people with only one type of mental disorder, or that has reported on only mental disorders in general (e.g. Bizzarri et al., 2009; Currie et al., 2001; Forchuk et al., 2002; Fowler et al., 1998; Gregg et al., 2007; Healey et al., 2008).

Some of the limitations of the current study are self-evident. Unfortunately, only one of the studies included in this paper (Study 5: Baker et al., 2002a; Baker et al., 2002b) collected free response information regarding reasons for tobacco, alcohol and cannabis use, and only this study contained participants with both depression and psychotic disorders. Additionally, only three of the five studies used the same instrument to measure reasons for substance use. As a result, it was necessary to reduce the combined reasons for use data to 'yes' or 'no' endorsements of just four motive domains. The combined analysis, therefore, lacked the detail contained in the original measures, such as frequency of use for each motive as collected in the DUMQ. As these measures also possessed different numbers of items within each motive domain, the combined data were reported in terms of the percentage of participants who endorsed at

least one of the reasons belonging to a particular motive domain. It did not take into consideration how many individual reasons belonging to each motive domain were endorsed by participants and therefore may underestimate the differences between the endorsements of these motives. Consensus between at least 4 of the 5 independent researchers regarding the classification of individual reasons to motive categories was reached for only 72% of items, meaning that the combined reasons for use data may need to be interpreted with a degree of caution. Most participants also reported polydrug use, meaning that they were represented multiple times in the analyses. This may have confounded the results of this paper.

Despite these weaknesses, the current study is an important first step towards understanding why people with various mental disorders use substances, as it revealed that tobacco, alcohol and cannabis are often used for different reasons and that these patterns differ according to type of mental disorder. It is recommended that future research directly test these differences by examining reasons for tobacco, alcohol and cannabis use simultaneously among a sufficiently large sample of people with a variety of mental disorders.

Previous research has found targeted integrated interventions to be the most effective approach for co-existing mental disorders and substance use, however, there is still considerable room for improvement. These results suggest that to be optimally effective, integrated interventions may need to be more specifically tailored according to the substances being used by patients and the type of mental disorder they experience. As such, it is hoped the current results will be used to inform the development of more effective interventions for co-existing mental disorders and substance use in the future.

Paper 5

Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis

Introduction to Paper 5

While a number of studies have investigated reasons for substance use among people with mental disorders, including papers 1, 2 and 4 of this thesis, few studies have investigated other types of substance related attitudes and perceptions such as perceived harmfulness, knowledge of substances and perceptions of anti-substance use campaigns. Understanding these areas is also necessary for a better understanding of attitudes and perceptions regarding tobacco, alcohol and cannabis. Additionally, for appropriately targeted interventions for co-occurring substance use and mental disorders to be developed, it may be important to possess a good understanding of the ways in which attitudes to and perceptions of substance are similar, or differ, between people with and without mental disorders. For example, directly comparing the substance related attitudes and perceptions of people with and without mental disorders could help to identify areas in which population wide intervention or prevention strategies are appropriate, and areas in which it would be more helpful to target interventions specifically for people with mental disorders.

Paper 1 identified the need for good quality qualitative research in the area of attitudes and perceptions regarding substances among people with mental disorders. In response, Paper 5 describes a qualitative study that investigated attitudes and perceptions of people with a psychotic disorder, current symptoms of depression or without a mental disorder. Building upon, and extending, the results of the previous four papers of this thesis, Paper 5 aimed to broaden current knowledge of substance related attitudes and perceptions beyond reasons for substance use by identifying similarities and differences in a range of attitudes and perceptions regarding tobacco, alcohol and cannabis. It also aimed to identify any similarities and differences in the attitudes and

perceptions of people with and without mental disorders, and of people with different types of mental disorders. Finally this paper aimed to generate rich and detailed information that could inform the development of more effective and appropriately targeted intervention and prevention strategies for people with co-occurring substance use and mental disorders.

This paper adds significantly to the overall body of knowledge as it is the first large qualitative study known to investigate attitudes and perceptions regarding tobacco, alcohol or cannabis use among people both with and without mental disorders. It generates a wealth of valuable information that sheds light on people's experiences with tobacco, alcohol and cannabis and some of the factors that influence use of these substances. These insights lead to a number of recommendations regarding how future intervention and prevention strategies for co-occurring substance use and mental disorders might be more effective and more appropriately targeted.

Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol or cannabis

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Abstract

Understanding the factors that influence substance use among people with mental disorders is crucial for the development of improved intervention and prevention strategies. This study aimed to generate a greater understanding of the attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis use. Semi-structured telephone interviews were conducted with people with psychotic disorders, depression, or without a mental disorder. Interviews addressed participants' histories of tobacco, alcohol and cannabis use and their attitudes and perceptions towards these substances. Interviews were analysed using Interpretive Phenomenological Analysis. The results suggest that the substance use of people with and without mental disorders are influenced by many of the same factors e.g. a desire to fit in, to cope with stress and to seek pleasure. A complicating factor in treatment of substance misuse among people with mental disorders may be the way in which their mental disorders interact with their substance use.

Keywords:

Mental disorders, tobacco, alcohol, cannabis, qualitative, attitudes

Introduction

Co-occurring substance use and mental disorders present a complex and significant challenge to prevention and treatment strategies (Teesson et al., 2009). Large population studies, for example, consistently indicate that use of tobacco, alcohol and cannabis are much more common among people with mental disorders than in the general population (Degenhardt & Hall, 2001; Grant et al., 2004; Jenkins et al., 1997; Kessler et al., 2005; Regier et al., 1990; Teesson et al., 2009). Use of these substances is associated with a range of additional adverse consequences for people with mental disorders, such as reduced medication effectiveness, exacerbation of psychiatric symptoms, increased rates of relapse and hospitalization, and poor social functioning (Carey et al., 1991; Degenhardt & Hall, 2001; Healey et al., 2008; Maniglio, 2009; Ziedonis & Nickou, 2001). People with co-existing substance use and mental disorders also tend to be disproportionately expensive for health care systems (Dickey & Azeni, 1996; Kavanagh et al., 2004; Mangrum et al., 2006; Ziedonis & Nickou, 2001). Evidence also suggests there is considerable room for improvement of existing intervention and preventative strategies for these co-occurring disorders (Cleary et al., 2008; Drake et al., 2004; Drake et al., 2008).

Understanding the potential causes of, and factors influencing, substance use among people with mental disorders, and how these factors might differ to the general population, is crucial for the development of improved intervention and preventative strategies (Chisolm et al., 2010; Pattanayak et al., 2012; Peadar et al., 2010). An important part of this is a clear understanding of the attitudes and perceptions of people with and without mental disorders regarding substances (e.g. Baker et al., 2009; Chabrol et al., 2005; Giddings et al., 2003; Kuntsche et al., 2006; Spencer et al., 2002).

Previous research investigating attitudes and perceptions regarding substances among people with mental disorders is limited. The majority of research investigating this area has been conducted in the general population. Additionally, very few studies have investigated the areas of perceived harmfulness of substances, knowledge of substances or exposure and acceptance of public health campaigns among people with mental disorders. While a number of studies have investigated reasons for substance use among this population, most have only done so among people with psychotic disorders. Most studies do not report results separately for different substances and few have compared substance related attitudes and perceptions between people with and without mental disorders and between people with different mental disorders (Thornton et al., in press).

This limited body of research does suggest, however, that attitudes and perceptions regarding substances might differ by substance type and perhaps by diagnosis (Fowler et al., 1998; Thornton et al., 2012a; Thornton et al., in press; Thornton et al., 2012b). Fowler, Carr, Carter and Lewin (1998) found that tobacco and cannabis were primarily used by their participants with psychotic disorders to relieve dysphoria and for their intoxicating effects, while alcohol was used most frequently for dysphoria relief and social reasons. Similarly, among people with psychotic disorders, Thornton et al (2012a) found tobacco to be primarily used for coping motives, alcohol for social motives, and cannabis for pleasure enhancement motives.

In a study comparing reasons for tobacco, alcohol and cannabis use among people with psychotic disorders and depression, participants' reasons for substance use were found to differ significantly by diagnosis (Thornton et al., 2012b). People with psychotic disorders were found to be more likely than people with depression to use tobacco to cope, for pleasure and to help with their mental illness. People with

depression, in contrast, were found to be more likely to use alcohol for these reasons and for social reasons. Pattanayak et al (2012) also found that smokers with bipolar disorder perceived their risk of getting cancer to be significantly lower than smokers of the same age without mental disorders perceived their risk to be. People with co-occurring alcohol use and mental disorders have also been found to have more positive alcohol use expectancies than people with mental disorders or alcohol use disorders only (Boyd et al., 2007; Nishith et al., 1997). People with mental disorders have also been found to use substances more frequently to relieve negative affect, anxiety, psychotic symptoms and boredom than non-psychiatric controls (Thornton et al., in press). On the other hand Barr, Procyshyn, Hui, Johnson and Honer (2008), among people with psychotic disorders, and Currie, Hodgins, el-Guebaly and Campbell (2001), among people with a history of depression, found reasons for smoking not to differ between people with and without mental disorders.

Furthermore, very few studies have employed qualitative methodologies to investigate substance related attitudes and perceptions among people with mental disorders (Alvidrez et al., 2004; Bradizza & Stasiewicz, 2003; Clark et al., 2003; Forchuk et al., 2002; Hall & Nelson, 1996; Healey et al., 2008; Jukic et al., 1997; Thornton et al., in press). This lack of qualitative research is a major weakness; as qualitative methods can produce more detailed and rich descriptions of participant experiences, which can be useful when investigating new and complex areas such as co-occurring substance use and mental disorders (Neale et al., 2005; Smith, 2003).

This study aimed to address a number of gaps in the current literature and to gain a greater understanding of people's attitudes and perceptions towards tobacco, alcohol and cannabis use. It aimed to examine in what ways people with and without mental disorders, and people with different mental disorders, might differ regarding their

attitudes and perceptions towards substances. It is hoped that the information generated by the current study will be used to inform the development of more effective and appropriately targeted intervention and preventative strategies for people with co-occurring substance use and mental disorders.

Given the complex nature of these research aims and the gaps existing in the current literature in this area we determined that qualitative methodologies allowing for in depth exploration of interwoven aspects of a potentially complex and sensitive topic would be necessary to adequately answer the research questions. Interpretative Phenomenological Analysis (IPA) will be utilized as it provides an ideal approach to examine personal experiences and perceptions of substance use. IPA aims to understand how people make sense of their own experiences, rather than producing a subjective account of a phenomenon (Chapman & Smith, 2002; Smith & Osborn 2003).

Method

This article describes the qualitative section of a large mixed-method study named the Community Attitudes Towards Substances (CATS) study that investigated attitudes and perceptions regarding tobacco, alcohol and cannabis among people with and without mental disorders.

Participants and procedure

We obtained ethics approval from the University of Newcastle, Australia Human Research Ethics Committee. Participants were recruited via the Australian Schizophrenia Research Bank (ASRB) (Loughland et al., 2010), which contains data on people with a clinical diagnosis of schizophrenia and related disorders; past participants in two randomized controlled trials (RCT) of treatments for co-occurring substance use

and depression who had consented to be contacted regarding other studies for a five year period (Baker et al., 2010b; Kay-Lambkin et al., 2011); and the social networking website 'Facebook'.

A consent to contact form was posted to 325 registrants on the ASRB, to 307 RCT past participants with a self-report assessment battery. Additionally an advertisement was placed on 'Facebook' which appeared on the profiles of 'Facebook' users in Australia and invited people to 'Go into the draw to win an iPod by telling us what you think about drugs and alcohol'. The advertisement specified that the study was 'a PhD study at the Uni of Newcastle'. If 'Facebook' users clicked on the advertisement they were taken to the study's information sheet hosted by the University of Newcastle website, and then onto an online version of the self-report assessment battery hosted by Zoomerang.com.

Potential participants were asked to return the completed assessment battery or to complete it online and to complete the consent to contact form if they were interested in participating in a qualitative interview regarding their attitudes and perceptions towards tobacco, alcohol and cannabis use. Upon receipt of the consent to contact form, we contacted potential qualitative participants by telephone to explain the qualitative interview and to arrange a time to conduct the interview.

Priority to participate was given to those participants who reported past or current use of tobacco, alcohol, and cannabis, on the self-report assessment battery so that their perceptions of the three substances could be compared. Additionally, as this study aimed to compare people with and without mental disorders we selected participants to form three groups: a no mental disorder group; a depression group; and a psychosis group. Participants for the no mental disorder group were selected from participants recruited via 'Facebook'. Priority for this group was given to participants

whose self-report assessment batteries indicated they were not experiencing current symptoms of depression or anxiety (as measured by the DASS21) and reported no history of mental illness. Participants for the depression group were selected from participants recruited via the RCTs. Priority for this group was given to participants who indicated they were experiencing current moderate to severe symptoms of depression. Participants reporting current extremely severe symptoms of depression were excluded. Participants for the psychosis group were selected from participants recruited via the ASRB. Participants who met this criteria were approached in the order in which their completed assessment batteries had been received.

Qualitative data were collected via 17 semi-structured telephone interviews of approximately 1 hour duration, which allowed the flexibility to pursue interesting or relevant topics that emerged from the interviews. The first author conducted all interviews and introduced herself as a PhD student from the University of Newcastle. The interview schedule asked open-ended questions regarding participants' histories of tobacco, alcohol, and/or cannabis use, their feelings towards these substances, and their perceptions of anti-tobacco, alcohol and cannabis public health campaigns (see Table 5.1). Participants were reminded that they could stop or pause the interview, or withdraw from the study at any point and that their information would remain confidential except as required by law. Interviews were conducted until data saturation was achieved for each group.

Table 5.1 Interview Schedule

Interview schedule (repeated for tobacco, alcohol and cannabis)

Could you give me a bit of a history of your use of [substance]?

How do you feel about your [substance] use?

Prompts: Have you always felt this way?

What does [substance] mean to you?

Prompts: Do you like them? What do you know about them? Why do you use them?

Have you ever seen any public health campaigns regarding [substance]?
Prompts: What did you think of them? How could these public health campaigns be improved in your opinion?
Have you ever sought treatment for your [substance] use?
Would you ever consider accessing treatment for your [substance] use on the internet?

Interviews were digitally recorded and transcribed verbatim by the first author after gaining participants' verbal consent at the beginning and end of the telephone interview. All identifying information was removed in transcription to ensure anonymity. Participants were offered \$20 reimbursement for their time.

Analysis

We analysed the interviews using interpretative phenomenological analysis methodology as described by Smith and Osborn (2003). All transcripts were analysed independently by two co-authors (LT and FKL, or LT and MJ). Each transcript was read several times to identify important points of interest, recurring topics and possible interpretations. Next we listed emerging themes, examined possible connections between themes and grouped themes into a list of superordinate themes for each transcript. This process was repeated for each new transcript, looking for similar themes in subsequent transcripts, but remaining open to allowing new themes to emerge. When all the transcripts in a group had been analysed we examined similarities and differences between the interviews, identifying superordinate and subordinate themes which both co-authors agreed reflected the shared experiences of participants in each group. Superordinate and subordinate themes were then compared between the no mental disorder group, depression group and psychosis group looking for similarities and differences between them.

Throughout the data collection and analytic process emerging ideas were regularly cross-checked with the original transcripts to ensure that our analysis was

grounded in participants' accounts of their experiences with tobacco, alcohol and/or cannabis. The first author also engaged in a process of self-reflection which involved the discussion of transcripts, emerging possible interpretations and possible biases in regular qualitative peer-supervision meetings and discussions with co-authors.

Results

A total of 424 participants completed the consent to contact form and indicated they would be willing to be contacted to discuss the possibility of being interviewed. A total of 21 participants were contacted to be interviewed. One participant refused the invitation to participate and two participants who agreed to participate were unable to be contacted at the arranged interview time. Eighteen interviews were conducted lasting between 32 and 71 minutes. The sound quality of one interview was too poor to transcribe and analyze, leaving a total of 17 interviews that were transcribed and analyzed in the current study. These included six interviews for the general population group, five interviews for the depression group and six interviews for the psychosis group.

Five superordinate themes common to all three groups were identified. They were: i) the social place of substance use; ii) substance use to achieve positive effects; iii) the burden of substance use; iv) control over substance use; and v) the importance but ineffectiveness of anti-substance use campaigns'. A sixth superordinate theme mentioned only among people from the depression and psychosis group was also identified: vi) interactions between substance use and mental health (see Table 5.2).

Table 5.2 .Superordinate and subordinate themes identified in the qualitative data

| Superordinate themes | Subordinate themes |
|---|---|
| The social place of substance use | The influence of others on substance use Social acceptability of substance use Pressure to conform |
| Substance use to achieve positive effects | Substance use to relax Substance use to cope with stress Substance use for enjoyment |
| The burden of substance use | Health burden of substance use Financial burden of substance use Desire for better quality of life a motivator for change |
| Control over substance use | Acceptability of controlled substance use Loss of control over self and substance use Difficulty controlling and quitting substance use |
| The importance, yet ineffectiveness of anti-substance use campaigns | Importance of anti-substance use campaigns for others Ineffectiveness of anti-substance use campaigns |
| Interactions between substance use and mental health | Substance use as a cause of negative mental health effects Mental illness as a cause of substance use |

i) The social place of substance use

In all three groups, respondents described social factors playing an important role in their substance use. Respondents described that other people often influenced their substance use decisions, and that in many situations substance use was a socially

acceptable activity and that they often experienced pressure to conform to social expectations regarding substance use.

The influence of others on substance use

In all three groups respondents described that their use of tobacco, alcohol or cannabis was heavily influenced by other people:

I started smoking to be cool, I was in the age group that all the tough kids smoked and I was, well I wanted to be one of them, so that's something that I started (No mental disorder group);

I have, it's been peer pressure for me. Because a lot of the guys will say to me, well, and I come clean with some of them, I tell them I'm on medication and they say, 'Oh it doesn't matter, you can still have a drink', you know, 'go on, go on' and it's, so sometimes I scare myself a little bit by, by maybe having one or two more than I should have had (Psychosis group).

Tobacco, alcohol or cannabis were often used by respondents in order to feel accepted by other people and to avoid feeling ostracized. For many the need to 'fit in' was a deciding factor when initiating their substance use, especially use of tobacco. This desire to belong also often outweighed the perceived risks associated with substance use. For example, despite knowledge, and previous experience that alcohol interacts badly with his anti-psychotic medication, the psychosis group respondents nevertheless drank alcohol in order to fit in and placate his friends

Respondents also reported that many of their substance use decisions were influenced by a desire to limit any negative impact they may have on other people:

Yeah when you are in danger of losing your family yes, that spurred me on to go there' (Depression group);

It's that I'm not going to be around to see my children grow up and like grandchildren...I just really think about what I'm doing to my family. And I watch my child...she grabs a peg and she starts smoking and she starts drinking. Like I'm reinforcing that something bad to my child. I'm modelling that smoking is all right, when I know deep down that it's not... My kids are my world now, I just wish I could stop smoking for them too (No mental disorder group).

For the first respondent, the desire to keep his family together outweighed his desire to continue drinking. The realisation that his drinking was harming his relationship with his partner, and that he risked losing his family, influenced him to attempt to stop drinking. Respondents recognised the negative influence their substance use had on other people, such as the second respondent's daughter modelling her smoking behaviour or her not living long enough to see her children grow up. They described that limiting the negative impacts their substance use had on other people, especially their children, was extremely important to them. However, there was little evidence to support this claim as smoking and alcohol use remained prevalent among these respondents.

Alcohol was also deliberately and purposefully used by respondents to facilitate social interactions:

I can feel comfortable, and relax while I drink. Feel sociable, amiable and all those sorts of things...I was quite shy when I was young, and I found that having a couple of pints of beer, in England you know, when I was 18, 19 sort of um, took that shyness away really, I suppose (Depression group);

I found like, to talk to strangers and, I need a confidence boost...I think I used it more as like, an easier, kind of thing. Because I lived in a big city, I knew no one then and um, it was just to talk to strangers... it made me feel more at ease in the environment that I was living in... like when I was sober I was always so cautious...after a few drinks I was like super woman (No mental disorder group).

Respondents had strong feelings of being socially inept or feeling isolated and lonely and used alcohol in order to increase their confidence and to feel more comfortable in social situations.

Social acceptability of substance use

Respondents described substance use as a socially acceptable activity, when conducted within certain limits. With respect to alcohol, social drinking and drinking to have fun was described to be acceptable and normal:

I'm quite sociable with drinking...I'm more of a quiet drinker, I get happy and giggly if anything....the people who I've seen drink when I was growing up were very angry and violent, whereas I'm a bit more of a chilled out drinker (Depression group);

Well what I don't usually think about is my use of alcohol I suppose just because it's common and overlooked. It's just seen to be part of everybody's routine, or most people's routine. Just because I suppose it's so accepted. You know its something I enjoy and I just keep enjoying it I guess...it's good to have a drink and have a chat (No mental disorder group);

Respondents perceived alcohol use as a normal and accepted part of every day life, and the ability to drink a lot of alcohol as a valued skill. The first respondent perceived her alcohol use to be acceptable because she had not become violent when

intoxicated. Despite the prevalence of material promoting responsible drinking on TV, in print and in places selling alcohol, the second respondent perceived alcohol to have been overlooked as a source of potential harm. For this reason he had not even considered the possibility that his alcohol use might be a problem.

On the other hand, respondents explained that getting drunk or drinking with the express purpose of getting drunk is unacceptable:

But my friends and I we don't drink to get shit faced, you know, we just drink to have fun and, and that's it...So um, we don't associate, we don't really have any friends that drink to get absolutely shit faced, and you know, we do meet people like that and they don't, they're not around for that long because that's just not the type of people we are (No mental disorder group).

The way in which someone drinks alcohol was perceived to be an important indicator of a person's personality and a valid feature on which to judge someone. Intoxication was also described to be unacceptable as it was perceived to cause social problems, particularly relationship breakdowns and violent behaviour in the case of alcohol:

I've just seen a lot of violence with alcohol. Um my parents, my parents, well my mother and step-father were extremely violent with alcohol when I was growing up, so yeah I seen a lot of really 'urgh' things from too much alcohol (Depression group);

Similarly, regarding cannabis one respondent described:

I haven't had a girlfriend in ages, well the relationships that I've had in the last two years haven't lasted that long, and that's due to smoking pot, so I would be happy if I stopped smoking um outright. Um that would give me a chance to get a decent Mrs and have a decent relationship I suppose (No mental disorder group).

The respondent perceived that his cannabis use had been a barrier to him forming and maintaining meaningful relationships.

When describing their experiences with alcohol, respondents were often contradictory. Although alcohol intoxication was described to be socially unacceptable, frequent alcohol intoxication, experience of alcohol related harm and exceptions to this rule were described:

Oh you see someone hurt themselves drinking, like I managed to break some ribs, and we all manage to laugh it off, 'Oh you were drunk hahaha'. You know what I mean? It's almost socially acceptable to do a stupid, or to fall off a ladder or whatever while you are drunk... I'm a happy drunk, I always did say that if ever I got nasty or violent or cranky because I'm drunk, I'll never drink again. And sure there's a couple of people I've seen while I've been drunk and had a shot at them and I shouldn't have because I was drunk, but I would have had a shot at them if I was sober. But I'm a happy drunk, don't get me wrong (Depression group).

In the quote above, for example, the respondent dismisses his experiences of sustaining serious injuries as a result of alcohol intoxication, and of becoming aggressive while intoxicated, qualifying that it is socially acceptable to be heavily intoxicated, as long as one remains happy and non-violent, most of the time.

Tobacco use was widely perceived to be socially unacceptable. However, respondents recounted that this attitude towards tobacco had changed over time:

I started nursing and that's sort of when it became habitual. You know a lot of nurses smoked in those days. In the 60's and a lot of doctors um, um it was just sort of accepted around the hospital, very different now-a-days though. Um and then I've just continued ...Oh well it was something exciting and different I guess. Um and at that time cigarettes were advertised

everywhere, it was just acceptable, you know. It must be hard for you to understand, um all, on the radio and television. It was just cool to do it ... I think it's the pressure from society too. You know, like you mightn't have a cigarette somewhere because it's not acceptable anymore...Well I feel ashamed and um, I've had some terrible things said to me by non smokers, some of them you know, very overweight...like I think for some reason smokers have been targeted, and then, they're sort of, it's taken the place of AIDS, AIDS victims really. They're the new lepers and that's, we all think, the way we're treated...It seems that you are judged for just that, by some people. You know, like they go, they can't see any further than the smoking...my self esteem goes down. Um and I feel more ashamed and I probably smoke more (Psychosis group).

Because it's so acceptable, even though you can't smoke in a lot of pubs and clubs these days, you walk out, you have a smoke, no one looks at you funny...it's so socially acceptable it's you know, you don't really consider it as a drug (No mental disorder group).

In the past smoking was perceived to be a normal, desirable and acceptable activity and the first respondent attributed part of the blame for her early tobacco use and resulting addiction to this acceptability. She also described how attitudes towards smoking have changed over time, to the point where today she feels victimized and stigmatized for being a smoker. On the other hand, the second respondent perceived tobacco smoking still to be socially acceptable despite the restrictions placed on smoking in today's society.

Among people without responsibilities, cannabis use was also perceived to be acceptable. However many respondents described quitting or reducing their cannabis use with maturation:

I think it's like a rite of passage when it comes to teenagers that you go and do it...I think everyone is going to try it even if there is going to be adds out there... [Cutting down cannabis use] really just came down to my kids. It was time to grow-up a bit basically...I realized I wasn't a single girl, wasn't just my life I was playing with anymore... It's not a young person's thing but it's an irresponsible thing to do...I find people that smoke it, they just seem not to have like...they just don't seem to care about their appearance or what their kids are doing...for myself I just needed to become more responsible like, it was something like someone, you smoke when you don't have kids or you don't have a care in the world, kind of thing you know, you have nothing to lose. But like I've got a lot of things to lose (No mental disorder group).

The respondent's attitude is that cannabis use at a young age is almost inevitable, and experimentation with cannabis is an acceptable and normal part of growing up. However, cannabis use among people with children or other responsibilities was looked down upon and perceived to be a hall-mark of an irresponsible person.

Pressure to conform

Respondents also described pressure to conform to these socially accepted patterns of substance use. Respondents described a great deal of pressure not to smoke tobacco, or to quit smoking, for example:

I have a new social network um since coming to (city name) and they don't know I smoke, you, you know, I do, I kind of keep that away...I've never admitted to it, I've never told that I, and I go home and she's gone to bed, I go out and have a smoke. It's one of those things...People assume that mums don't smoke you know (No mental disorder group).

The respondent above was so embarrassed by her smoking status that she hid her use of tobacco from her social group in order to conform to the social expectation that mothers do not smoke.

On the other hand, respondents perceived pressure from friends and society to drink alcohol, rather than to abstain. Alcohol use was perceived to be socially expected, with drinking understood to be the social norm within Australia:

All of my friends just freaked out when I just stopped drinking so I would drive to parties and they would just go ‘What do you mean you’re not drinking?’ and ‘Here have a drink’ and you know everybody would try and make me drink and I used to just go ‘No I don’t want to’ and they would get really angry. Not angry but like really annoyed you know that I wasn’t drinking and they were all drinking...I used to go to parties with um they used to sell the lemon lime and bitters in bottles that you could get in Woollies and take off the labels before I left and then they actually looked like gourmet, well back in the day, looked like the posh foreign beers... people used to think I had like a funny little beer...I sort of got around them that way for a while so they sort of stopped bugging me... I think they just didn’t understand why I didn’t want to drink anymore... I guess, I don’t know, broke the rules I suppose and didn’t drink...everyone was like ‘What do you mean you’re going out on a Saturday night and you’re not drinking?...If I had in my hand a bottle that looked like a fancy beer, nobody, nobody came and insisted that I had a drink...and having to have that argument, like it was not worth it (No mental disorder group).

Drinking alcohol was perceived to be compulsory in social situations, and deciding not to drink was seen to be a socially unacceptable choice. While one respondent pretended not to be a smoker to conform to social expectations, the same

respondent also pretended to drink alcohol in order to conform and to avoid the arguments and censure that would occur if her friends knew she was not drinking.

Respondents often perceived this pressure to drink alcohol to stem from the culturally important place alcohol occupies in Australian society:

If you didn't go into the bar and have a beer with the blokes, or something like that, after work and what not, mate, you were castigated. Mate, you were, man they were wary of you, it was part of the culture...I find it very hard to go to a barbeque or something like that without having a couple of beers. I find it very hard. I'm trying, trying to come to grips with the fact that I possibly can't quit drinking completely because I wouldn't have any sort of social life at all. But um, um, drinking is part of this culture in Australia isn't it? (Depression group).

The respondent perceived there to be no alternatives to social situations featuring alcohol. Despite his past experiences of alcohol problems and depression he consigned himself to a life involving alcohol use because maintaining a social life was more important to him.

ii) Substance use to achieve positive effects

Respondents from all three groups frequently described using substances to achieve a range of positive effects such as to relax, to cope with stress and for enjoyment.

Substance use to relax

Across all three groups, tobacco, alcohol and cannabis were deliberately used by respondents to calm themselves and to relax: 'The chemicals it creates in your brain, the calming chemical...there's a large amount of the way it makes my brain feel as to why I like smoking at the moment' (Psychosis group). One of the primary reasons the respondent

smoked was because he felt that it was an effective and efficient way in which he could calm and relax himself.

Smoking was also described as a method to facilitate breaks:

If I couldn't smoke I wouldn't take that 10 minutes and go and sit quietly...If I didn't go and sit and have a cigarette I wouldn't go and sit. I would keep doing the six million things I've got to do. So I think that's, not a factor, I think but its my, my excuse for a break rather than you know going 'I just need a break'...I suppose again back to the ten minutes of peace. You know getting to sit down and relax and you know...when I am having a cigarette I just get five, five, ten minutes just to myself which is a very rare thing in my life (No mental disorder group);

The thing called smoke breaks, at a, at work are a wonderful, wonderful thing. Yeah that's pretty much. I don't like it, but it lets me get time off work... Um well the fact that if you have smoke breaks you can have about twice as many breaks during the day as, you know, as you are meant to have, and the managers don't call you on it because they are out smoking as well (No mental disorder group).

For the first respondent, smoking was a valid excuse to take some time out for herself that she would feel unjustified to take otherwise. For the second respondent, smoking was simply a tool that allowed him to take more breaks at work. Cannabis was also described as an effective way in which someone could relax and take a break from their busy life: 'It means you can step back, you're not rushing all the time and you know it gives you time to think, or stop thinking' (No mental disorder group).

Substance use to cope with stress

Tobacco, alcohol and cannabis were deliberately used by respondents to cope with negative affect, stress and anxiety. Tobacco smoking in particular was described as an extremely reliable coping strategy:

I guess because sometimes cigarettes have been my only friend when you've been locked up in hospitals and what not...you had nothing else, you know your family abandoned you, your friends, all that sort of thing, they don't exist anymore (Psychosis group);

For many respondents, cigarettes were an important part of their lives and something they could depend upon to help them in situations of need. For the respondent in the quote above cigarettes were a part of his support network, filling the role of a close friend when he perceived all of his other friends and family to have abandoned him.

Furthermore, for some respondents substance use was the only way in which they knew how to cope:

Well because you see other people around and you talk to other people and they don't need to, you know, have a glass of wine at the end of the night, or they don't need to, or feel the need to sit down and have a cigarette or smoke a joint. And I wonder how come other people can, they just cope you know, and other people have shitty days too, and they just seem to be able to cope with at the end of it. Where as I seem to need something to help me cope. And I find if I give up one thing um, I seem to get heavy on another. You know what I mean? ... I think it's because I don't know how to cope.... I would love to figure that out (Depression group).

While respondents had insight that using substances to cope with stress is not a healthy or productive coping mechanism, like the participant above, they were unable to envisage any other way in which they would be able to cope with everyday life.

Substances, particularly alcohol, were often used as an avoidant coping strategy: 'I don't know, um sometimes it's to stop you thinking...to get really paralytic drunk and not think about anything and just go to sleep' (Psychosis group). Another respondent described: 'Well schizophrenia is a really painful thing. Like when you are going through an attack, anything that you can do to help you through that, you will do. So I think it, yes has a big effect' (Psychosis group). For the first respondent, drinking until he 'passes out' is an effective way in which he can forget his current situation and worries, a way in which he can escape from reality. Similarly, in the second quote, in essence alcohol is being used to escape the distress caused by acute psychotic episodes.

Substance use for enjoyment

Respondents in all three groups mentioned using substances for pleasure:

I like that, I know that I'm going to regret it, um I don't care about it...I take things as they come, I suppose. So I know I'm going to regret it, but I want it, so I'll have it anyway and I'll deal with regretting it when I'm regretting it (No mental disorder group);

While I'm smoking and getting my nicotine and feeling really awesome, I just don't think that I'm actually killing myself (No mental disorder group).

For many, the instant gratification of smoking a cigarette or having a drink of alcohol outweighed their concern of the risks or regret they would feel afterwards.

Additionally, some respondents with mental disorders perceived smoking to be the only source of pleasure in their lives:

It's just I don't have much enjoyment in life and that's one of the things that I do enjoy... Yeah even though I know it's bad for me and all that, and you know it's all the health warnings and stuff and getting the financial part as well, but it's, nothing seems to have phased me (Depression group).

Smoking played an important role in the respondent's life, as he perceived it to be one of the few ways in which he could gain any pleasure. For him, the pleasure gained from smoking outweighed both its health risks and financial burden.

The feeling of intoxication was also described as a source of pleasure by respondents: 'Even my kids and that, they think drinking is fun. You know Mum and Dad and their Uncles, they are funny when they get drunk, and they laugh about it even now' (No mental disorder group). Not only does the respondent perceive getting intoxicated with alcohol to be an enjoyable activity, this attitude has filtered down to her children whose experience of drinking is that of adults acting in funny and amusing ways.

iii) The burden of substance use

On the other hand, substance use has a range of negative effects including negative health effects and financial strain. Respondents also indicated that experience of some of these negative effects and a desire for a better quality of life often motivated people to try to change their substance use behaviours.

Health burden of substance use

Respondents perceived negative health consequences to be associated with the use of tobacco, alcohol and cannabis. However, the type and extent of harm these substances were perceived to cause differed. While all three substances were perceived to be associated with physical problems, tobacco was highlighted as the most harmful substance of the three: 'The damage it does to your heart and your lungs and your body and

your fitness and your life expectancy, what it does to children and what it does for asthma, for small children, what it does to babies' (No mental disorder group). Tobacco was perceived to be a deadly drug associated with death and a range of negative physical consequences.

While respondents agreed tobacco was physically harmful, they often disagreed regarding alcohol. First, respondents were often uncertain of the negative health effects cause by alcohol use:

I'm really not that well informed. I know your liver goes...I know your liver, you can get trouble with your liver and I know you can get the shakes and if you are a real bad alcoholic you stop eating and you can get like heart (No mental disorder group).

Second, alcohol was identified to be very harmful by some respondents and relatively safe by others:

So when you say what does it mean to me, um there's a double meaning. It can be a really good thing, a nice thing, and on the other hand deadly... Like alcohol harms other people whereas, that's the difference, that's the difference I feel between alcohol and cigarettes. Like cigarettes you've got the, if you're around other people or children it's the effect of that, but I do most of my smoking at home, around my home anyway, but alcohol is different. People become violent and it has much more of an effect on other people. I think, the people around you (Psychosis group);

Alcohol is, I see as, as being um, a lot safer...than cigarettes are...But I see it [alcohol] as not being harmful at all, even though I have had experience of, of, of um the fact that it can be [harmful]. Yeah I look at it, I put a slightly more romantic feel on it (Psychosis group).

Respondents perceived alcohol related harm to be primarily caused by the secondary effects of alcohol intoxication, such as violence. For the first respondent the

immediate, visible effects alcohol intoxication can have on other people leads her to perceive alcohol to be more harmful than cigarettes. She discounts the negative effects of passive smoking as she perceives her own smoking not to negatively impact upon others. For her, although alcohol use has the potential to cause a great deal of harm, she also observes that alcohol use can be enjoyable. On the other hand, the second respondent describes alcohol use as a harmless, enjoyable experience. However, he also mentions his personal experience of alcohol related harm. For him the pleasant association he has with alcohol outweighs his own experience of the harm alcohol use can cause.

For respondents from the depression group, who had histories of alcohol use problems, only extremely heavy alcohol use was perceived to be associated with negative consequences:

The people I used to drink with, I think there is only two of us who is still alive. But they all died through organ failure, um, gone, a few different reasons, but all alcohol related...I was told by a doctor if I kept going I wouldn't reach 40...um which must have knocked some sense into me somewhere cos I stopped drinking what I was drinking...I know what I'm doing, I know where I am, I don't cock up on things and I don't, and I'm not a smartarse and I don't bad mouth people like I used to...To me I'm not drinking much, to other people yeah, they think that's a bloody, 15 a day, a lot...but to me over a 16, 18 hour period it's not ... But um alcohol wise, I'm, I'm healthy, I don't have the shakes anymore, I don't have withdrawal seizures anymore, uh I don't have diarrhoea like I used to um, well naturally I've still got my memory loss, but that is not as bad as it used to be.... It's just that all round I'm, health wise I think I'm better off (Depression group).

The respondent above lost friends to alcohol related illnesses and injuries.

However, he no longer experiences many of the negative physical effects from drinking that he once did, so he perceives his drinking to be relatively safe, despite continuing drinking well above recommended levels. He does not acknowledge that due to his long history of heavy alcohol use he might have a high level of tolerance to alcohol. This could explain why he experiences few noticeable physical side effects from drinking but means he could nevertheless be causing himself a great deal of harm.

Cannabis use was perceived to be relatively benign by most respondents and it was described as an enjoyable activity that did not impact negatively on others:

Most blokes who go home from work and have a couple of cones or a joint, they tinker in their shed, or play the guitar, or whatever and next they get up and go to work and perform as necessary with absolutely no problems. Only problem is the drug testing (Depression group).

Respondents thought cannabis use laws do not fit with the perceived effects of its use, and perceived cannabis to be a drug that can be used and enjoyed by people without it interfering with them fulfilling their responsibilities. The only negative consequence of cannabis use consistently mentioned by respondents was the potential link between cannabis use and schizophrenia and other mental health problems. 'Some of them it's actually turned them schizophrenic, like it's affected their brain you know' (No mental disorder group).

A common discrepancy mentioned by respondents from all three groups was their continued substance use despite knowledge of the risks associated with their use and even despite acknowledging the risks associated with their substance use:

It's terrible bad for you I suppose, I know, you know, I think every smoker knows that it's so bad for you, that it causes cancer, that it causes all these

other things I mean, what it does to a growing foetus and their brain structure and stuff like that (No mental disorder group);

I shouldn't drink alcohol on my tablets. Yeah, and alcohol is a depressant so, so you just feel worse really...[Interviewer: Considering that, why do you drink sometimes then?] I don't know. Because it's there (Psychosis group).

Although all respondents had good knowledge of tobacco and the health risks associated with smoking, this knowledge did not impact upon their smoking. Similarly the immediate desirable effects of alcohol use outweighed the knowledge that alcohol can interact badly with anti-psychotic medication for the respondent from the psychosis group.

Financial burden of substance use

Smoking tobacco and drinking alcohol were described to be expensive activities which often placed significant financial strain on respondents:

So yeah following getting pulled over and losing my license um kind of woke me up a bit...cos I need my license because the job that I had, I was very scared of losing it and yeah kind of shook me up a bit, so it woke me up....just took me, um but it, for my license to be lost and that almost impact on my career um yeah, that was I think the main thing that kind of told me to settle down... Um [I drink] no more than a six pack, yeah. It's mainly due to work reasons. I don't want to be hung-over at work (No mental disorder group).

For some respondents the potential financial strain or loss of income associated with continued substance use was a bigger influence on their behaviour than the health risks associated with continued use.

For some respondents this financial strain prompted thoughts about quitting and treatment seeking: 'Oh I am, I am going to give up. Yeah. Though I think if I had a job and I could afford to smoke I probably still will, but I just can't now...no, it's so expensive' (Psychosis group). While the financial burden of smoking had influenced the respondent to think about quitting, she also acknowledged that without this pressure she would continue to smoke.

Desire for better quality of life a motivator for change

Respondents perceived that their substance use had negatively impacted upon their quality of life and often described that their desire for better health and quality of life prompted thoughts about quitting or reducing their substance use. For many this desire was prompted by personal experience of the negative health effects associated with substance use:

I've had problems with my heart and my lungs so I've been on the patches trying to cut down...It's only since the last few months since I've had heart and lung trouble that I've even worried about even trying to slow down... I don't really want to, but now it's getting to my health it's not a matter of choice...so yeah it's down to, getting down to what I want more with my health, um yes, so that's getting reasonably stopped (Depression group).

The only reason the respondent above was considering cutting down his tobacco use was due to health problems. His desire to live a long and healthy life was so important that he perceived his need to quit smoking as non-negotiable.

While many respondents described similar desires to quit smoking in order to live a longer and healthier life many respondents displayed no urgency to quit:

I didn't want to end up being a smoker for my whole life. I thought well if I can give up half-way through my life and like, would at least give me a fairly

good chance at living a long life. So yeah that's probably why. I'd probably thought about it three or four years ago (Psychosis group);

The clots are in the left leg, so if I keep smoking and I get more clots eventually they might have to lop it off..., I just want to give up before the end of the year, no particular time period (Psychosis group).

Although the first respondent described thinking about quitting for a number of years, and the second respondent described risking the loss of his leg, both were still smoking. Respondents did not acknowledge that their substance use may have caused permanent damage, assumed that they will successfully quit one day and therefore not experience any further negative consequences of their use. For example, at 46 years old, having smoked continuously since the age of 13, it is unlikely that the first respondent is only half-way through his life, as he describes himself to be.

While respondents in the depression group had a desire for good quality of life, they were satisfied to settle with their current quality of life if it meant they were able to continue drinking:

The body just, Na, it's had enough, you abuse it long enough... I got the shakes that bad that I couldn't roll a smoke, uh couldn't pick up a glass of beer if I went to the pub. I had to seat the glass on the bar, put my mouth to it and pick it up that way. Uh the shakes were really bad... Yeah and just all these little things I used to do and think No, that's not right. ...[Now] I'm not drinking in a way that I'm killing myself but I may be doing it slowly but not as I was doing it before. I mean I only drink gold now. I don't even drink heavy beer. And I can drink the, the 15 will take me all day to drink, from when I wake up till I go to bed, so I'm not getting drunk and it, I can live with that, without living without it, if you know what I mean. I've still got my beer, but I'm not getting shit-faced (Depression group);

These respondents perceived a significant improvement in their health and well being as a result of their reduced alcohol use, despite their use remaining above recommended levels and acknowledging that this level of alcohol use was still doing them harm.

iv) Control over substance use

Across all three groups control over substance use and themselves was an important issue raised by respondents. Controlled substance use was perceived to be safe and acceptable, however, many respondents experienced difficulty controlling their substance use.

Acceptability of controlled substance use

Across all three groups, substance use was not interpreted as a problem, as long as a person can control their use:

If you do something in moderation and you can deal with it, then I'm OK with it, but if you can't, then you go to extremes, well you get out of control with your life, then it's a problem...But it's not a problem for me. I'm, where I am there are a lot of alcoholics, so I know very well and I know that they do have a problem when it comes to their dependency on alcohol. Whereas I don't. And I can drink with these people and you know not touch it again. Whereas they can't (Psychosis group).

Controlled substance use was perceived to be safe and acceptable, and many respondents used this to justify, and cope with, their own substance use, particularly alcohol use. Regardless of their own actual level of use, or dependence, respondents framed their responses so that they portrayed themselves to be in control of their

substance use. People they perceived to have a problem with their substance use were perceived not to be in control of their use.

Loss of control over self and substance use

Losing control as a result of substance use, and a lack of control over their substance use, were raised by respondents. Strong dislike of the feeling of being out of control of one's actions when intoxicated was mentioned:

That's why I didn't like it, it just, it makes you stupid, I don't like being, I don't like not having access to my true personality and my true behaviour. I don't like acting like that and acting like I'm on drugs really. ..I didn't enjoy the sensation of it anyway (No mental disorder group).

Another respondent described: 'Yeah I don't really like the feeling of being without control, well you never know what you'll do or say' (Psychosis group). Respondents perceived that they lost control of themselves and their actions when intoxicated. In the first respondent's opinion alcohol intoxication caused him to behave like a different person, and masked his true self. This unpleasant and often distressing feeling of being out of control was perceived to be a disadvantage of alcohol and cannabis use, compared to tobacco smoking: 'I suppose that's probably why the cigarettes are the thing that I've stuck to, and kind of left the mind altering things away, because I needed to be safe' (No mental disorder group).

Respondents also described an inability to control their substance use, particularly tobacco use: 'It's basically a big mental fight because I'm ready to do it mentally, I'm well actually probably more physically, I'm so addicted with the nicotine, my body is fighting to keep it, keep the hit happening' (No mental disorder). Another respondent described: 'Yeah I mean alcohol, I'll start drinking, and I'll start drinking and start drinking and I'll keep drinking...With me alcohol, drinking, you know, once I start I won't stop'

(Depression group). Respondents felt that they had no control over their smoking and would be unable to give it up, even if they wanted to, because they were addicted and often experienced strong physical cravings for tobacco. Similarly respondents sometimes felt unable to control their level of alcohol intake once they had started drinking. On the other hand, cannabis was frequently perceived to be easily controlled and not addictive: 'It wasn't like I stressed out for it. I never, I wasn't like, I mean it is addictive to some people, but for myself it was very easy not to do it' (No mental disorder group).

Respondents often blamed uncontrollable and unchangeable traits, such as genetic and personality factors, for their perceived inability to stop or control their substance use: 'Having the addictive gene, with a clear history of the addictive gene in the family it's fucking hard' (No mental disorder group). Another respondent described:

Well I don't know if that, um if I, there is some sort of drinking gene and that's why I'm a drinker as well. I'm, I don't know, because I always thought I would be extremely anti-drinking and yet I've grown up to be a drinker (Depression group).

Respondents blamed an addictive gene for their harmful substance use and perceived inability to quit. The second respondent for example could think of no other reason that would explain why she became a heavy drinker. The idea of an addictive personality was also blamed for respondents' substance use: 'I don't think I will ever be able to give up. I've got an addictive personality and I've been smoking for that long that it's a part of my life' (Depression group). For many respondents the belief that they possessed a genetic predisposition or an un-changeable personality trait was used as a coping strategy, to deal with their guilt and shame for continuing to use substances, that absolved them of blame.

Similarly, a number of participants regarded themselves as stubborn or strong willed and blamed this trait for their continued substance use:

It's just the way. I don't take them so to heart. I don't let them get to me or anything. It's like I say, I'm stubborn, I can't be told and the like. It's just something I've got to work out myself, do myself, I'm not going to listen to someone telling me to do it, or something that will just get into my head because it was on TV or something like that (Depression group).

Respondents however saw stubbornness as a positive personality trait and used their perceived stubbornness as a reason not to heed the warnings or advice of others regarding their substance use.

Difficulty controlling and quitting substance use

Across all three groups, stopping substance use, particularly tobacco, was described to be extremely difficult:

Well pretty hard, I'll tell you that...it's fucking hard...it's just so damn fricken hard to do it...you see someone having a smoke and you go 'aww, aww' and the little things inside your brain would say 'smoke, smoke, smoke' (No mental disorder group);

You've got to get to this place in your mind where you are psychologically strong enough to give the dependency up... I gave it up for ten months and then ended up back in the mental health unit and started smoking again. Lasted ten months and ended up back in the psych ward, hit rock bottom again and took it back up again (Psychosis group).

Quitting smoking was perceived to be a stressful and effortful undertaking that requires significant psychological strength. The second respondent described relapsing

when exposed to others smoking in hospital. Respondents had little belief in their ability to quit smoking and described it to be very easy to relapse when trying to quit:

I mean it's just really hard when friends smoke as well, but that's the real killer. If I had friends who didn't smoke, I wouldn't be a smoker but when you've got friends who smoke it's just insidious and it's yeah, it's really really difficult (No mental disorder group).

Friends, in particular, provided a strong smoking cue, one that was almost impossible to resist. Additionally there was a sense of loss in quitting: 'I suppose every time I try to quit it's like I am losing a friend that's been there well all my life' (No mental disorder group). Respondents often likened quitting smoking to losing a friend.

v) The importance, yet ineffectiveness of anti-substance use campaigns

While respondents from all three groups perceived anti-substance use public health campaigns to be important, they were also described to be widely ineffective in actually influencing substance use behaviours.

Importance of anti-substance use campaigns for others

Across all three groups, respondents expressed that they thought it was important that anti-substance use campaigns continue to be implemented and that these campaigns have the potential to influence other people's substance use, but not their own: 'Something, that, you know, has to be done in order for, to try and get people to give up smoking. I just don't know if they are effective or not' (Psychosis group). Respondents recognised substance use as a major health issue, acknowledging that it is important to try and influence people to quit or reduce their use of these harmful substances. However respondents were unsure of the effectiveness of current anti-substance use

public health campaigns. An exception to this was drink driving advertisements which were perceived to be particularly effective:

[Have any of the campaigns you've seen in the past had any effect on your drinking do you think?] Oh yes, definitely yes. Especially the drink driving ones. I never drink and drive. I used to, but I never drink and drive anymore. I wouldn't do that. But yes that really, those you know, seeing bodies and blood and you realize you could be the cause of that through drinking (Depression group).

For the respondent above the focus placed upon the direct harm one can cause to other people through drinking and driving was effective in influencing his behaviour. Similarly, an advertisement emphasizing the emotional impacts of substance use, and the impact on others, was perceived to be particularly effective by a mother interviewed:

There's a little boy in a train station and he is lost and crying and um they liken that to that's how he'll feel if you die of cancer. That one really actually made me go 'Oh, ouch, ok'. Um and I didn't go and have a cigarette after I saw.... (No mental disorder group)

Ineffectiveness of anti-substance use campaigns

Overall, however, respondents described anti-substance use campaigns, particularly anti-smoking and anti-drinking campaigns, to be ineffective, with some respondents even describing the campaigns would prompt them to use: 'I just don't take any notice of them. When an ad comes on TV it makes me want to like smoke it more actually' (Depression group). Respondents mentioned a number of reasons why they felt these campaigns had not influenced their substance use. First, anti-substance use campaigns were perceived to be ineffective as knowledge of substances and their harmful effects was described to be insufficient to influence change in substance use behaviour:

I already knew all the health effects anyway...and I have seen, you know, people go through getting emphysema and stuff like that, so yeah they didn't really have much of an effect on me (No mental disorder group);

Oh well you get a bit, sort of horrified when you realize you might be drinking too much. But at the end of the day, is it going to stop me drinking? Uh no I would say...Oh well, it's made me think, but it doesn't really, it hasn't really changed anything (Depression group).

For some respondents anti-substance use campaigns were ineffective as respondents perceived they already had good knowledge of substances and their effects. For other respondents anti-substance use campaigns were understood to increase knowledge of substances and their harmful effects, but this knowledge was insufficient to change their behaviour. The second respondent, for example, had insight that while anti-drinking advertisements had increased his knowledge and awareness of the potential harm he was doing to himself, this was not enough to influence an actual change in his drinking.

Another reason anti-substance use campaigns were perceived to be ineffective was that respondents were long term substance users:

I mean I can see an ad on TV but it doesn't affect me in any way. You know it might help someone else, but I, I doubt very much that if someone is already in the throws of their addiction that showing them something like that, if they are that far gone, which I was, it doesn't um, it doesn't effect you, you just go pfff...yeah get them before they are too far gone (Depression group).

The respondent perceived anti-substance use ads to be only effective in preventing the initiation of substance use, or influencing substance use among

occasional users. In his opinion it is impossible for a campaign to be more convincing, or to outweigh the pull of an established addiction.

Respondents also mentioned deliberately avoiding or ignoring anti-substance use public health campaigns and dismissing the health messages promoted: 'I've got to the stage now where I just shut my eyes, you know?' (Psychosis group). Another respondent described:

Because most parents are already too far gone anyway, they are like myself, watch the ads, feel a bit guilty which they watch the ads then push it out of their minds (No mental disorder group).

To deal with the cognitive dissonance created by their continued substance use and exposure to anti-substance use public health campaigns respondents often relied upon avoidant coping strategies. In an attempt to escape the confronting images the first respondent regresses to the childlike reaction of closing her eyes, for example. Respondents also dismissed the health messages promoted in anti-substance use campaigns as they perceived the campaigns not to be relevant to them:

You see those ads on TV about, um nah, they're usually ones aimed at teenagers. Um of course there is there so called alco-pop tax they put on top of the cost of pre-mixed bourbons, well premixed spirits... I don't think they're relevant to me... The ads you see on TV are aimed at teenagers and young kids who are going out for a night on the town. That's me 20 years ago, more than 20 years ago. Um the other ones you see about the bloke comes home, fighting with his Mrs when he is drunk, well I'm not married, never been married and don't want to be married. So um or how the alcohol consumption affects your kids. So none of it's relevant to me (Depression).

The respondent in the quote above, for example, dismissed the health messages promoted in anti drinking campaigns as he perceived most of them to be directed at

young people. As the ads did not address his particular situation in life he dismissed their messages as not being relevant, or applying to him.

Anti-tobacco public health campaigns, in particular, were regarded as being ineffective as they often employed a condescending and authoritative tone:

I generally feel that scare campaigns insult your intelligence a little. I much prefer to be given reasons why, you know, some is bad and the whole argument rather than you know, graphic images (No mental disorder group).

Oh I thought they [anti-drinking ads] were excellent, I think they're better than the smoking ads. The smoking ads are there to just create absolute fear, but the alcohol ads are much better I, I think...because they teach responsibility whereas cigarettes you're just put down and, and um, they create this fear in you, and um it's not a good way to cure anybody of anything I don't think. But um the alcohol ads, um I don't know, they are just much more sensible (Psychosis group).

Anti-smoking ads were perceived to be authoritarian and did not respect the intelligence, or the right to make informed choices, of individuals. Alcohol ads on the other hand were seen to be more effective as they aimed to teach responsible use of alcohol rather than dictate expected behaviour.

Finally, respondents believed the graphic images frequently used in anti-tobacco public health campaigns to be ineffective:

I think we should, the more messages that get out to the young kids, and I think should be harsher and more brutal and you know face facts about what things to look for if you continue down this...I just think the advertising that's out there, people just become numb to so much of what they see. You know, even the brutal ads with, you see on the magazines, you know....Um I

feel that people tend to get blasé because they just get so many ads everywhere (Depression group);

I honestly don't see um, look I'll just get a picture now, a picture of smoking causes lung cancer. Well I don't think you're getting any stronger. I don't think you, you can't get, if you show a picture to somebody and they ignore it or choose to have a look at it and they keep smoking...So look, if a harsh, smash-you-in-the-back-of-the-head-with-a-baseball-bat, approach doesn't work, well maybe you should try something else (Depression group).

The first respondent felt many people are now desensitized to the gruesome images used in anti-tobacco advertising and that as a result perceived these campaigns to be ineffective. On the other hand, however, she also described that she felt campaigns might be improved if more gruesome and more shocking images were included in campaigns. Similarly, the second respondent perceived himself to be desensitized to the gruesome images on cigarette packets and is easily able to ignore them. He perceived the need to try a different approach to anti-smoking campaigns rather than simply attempting to scare people into quitting over and over again.

vi) Interactions between substance use and mental health

Among respondents from the depression and psychosis groups an additional theme regarding the interactions between substance use and mental health emerged. Respondents with mental disorders described substance use to often cause negative mental health effects. Conversely, respondents' mental disorders were also perceived to have influenced their substance use.

Substance use as a cause of negative mental health effects

Respondents in the depression and psychosis groups perceived substance use to have negative effects on their mental health. Alcohol and cannabis use, in particular, were often mentioned as perceived causes of respondents' mental health problems:

It must have been a problem because the marijuana and the alcohol were a problem for quite a few years and I ended up in hospital with, with um with mental illness issues as well... I mean of course having a problem with alcohol, which I know I did have, would have not benefitted my cause at all in the fact that I was taken to hospital, you know, for psychiatric reasons.

Yeah, no it wouldn't have been good at all... it had to have done something (Psychosis group).

For the respondent above it is clear that his substance use must have contributed to the development of his mental disorder. Respondents in the psychosis group in particular mentioned cannabis as a cause of negative mental health effects and described cannabis to be a cause of psychosis:

It really sucks now because it's affected my mental health ...cos I was doing drugs and all that which I found out was causing, or it caused the illness...I was getting moody, stroppier, having arguments with people and stuff like that (Psychosis group);

Whether it's because it's illegal, cos I sort of freak out whenever I do anything wrong. Because I want to be a good person and um I don't know whether that's the fact or, or whether it actually really truly is bad for, you know, people who suffer psychosis or whether it actually causes psychosis itself. I don't know...I've had bad episodes you know, while I've been smoking it. And um I'm not sure whether that was actually me having an episode at the same time as I'm smoking marijuana, or whether the um

marijuana is actually causing it....it's a pretty scary thing...it can be almost hallucinogenic being on marijuana and having an episode at the same time, but it's on the other end of the scale. It's a bad trip, and you think aw, lots of bad things (Psychosis group).

Respondents often qualified that they thought their cannabis use had caused their psychosis because they had been told that it had, rather than actually perceiving a causal relationship themselves. The second respondent for example was unsure of the link between his cannabis use and psychotic disorder, explaining instead that the anxiety and stress of doing something illegal may have had an effect on his mental health.

Alcohol use, on the other hand, was associated primarily with symptoms of depression and anxiety:

Because with my alcohol [use], that shot me nerves to pieces over the years... The body couldn't take it anymore. I was a mess. I couldn't go out in public, even when I wasn't drinking cos I had um paranoia sort of thing that I thought people were looking at me (Depression group).

I was drinking, I was actually drinking four litres of wine, a cask of wine a day, and um, uh, I ended up, the wine just sent me silly, I started slashing myself, slashing my wrists and arms and that, and end up in psych wards (Depression group).

For the first respondent alcohol use was perceived to have caused him to experience extreme anxiety that persisted even when he was not drinking, while the second respondent perceived heavy alcohol use to have led to his self-harm.

Respondents in the psychosis group also explained that alcohol use interacted badly with their anti-psychotic medication: 'I wasn't an alcoholic, but I just needed to come and drink...but it was affecting my mental, my medication and um, but I used to make a real

mess of me self" (Psychosis group). Another respondent described: 'The fact that I can't have too much because of my medication and I can really, now that I'm only drinking a little, I can really notice the way that it changes me' (Psychosis group). Respondents perceived even a small amount of alcohol to affect them badly. They interpreted this to be a result of their medication interacting with the alcohol they had consumed and felt forced to drink smaller amounts of alcohol as a result.

Mental illness as a cause of substance use

Conversely, respondents from the depression and psychosis groups also described that they perceived their mental illnesses to have influenced their substance use in a number of ways. Firstly, respondents described using tobacco and alcohol to cope with anxiety and depression:

Oh if I get anxious I do [smoke] yeah I do, the same reason I drink more if I'm really anxious. If something sort of gets under my skin, I'll get anxious about something then I'll smoke more than what I normally would...oh settles the nerves (Depression group).

For this respondent smoking and drinking were effective ways in which he might reduce his anxiety. However the respondent also described this would mean he would smoke and drink a lot more than usual when he was feeling anxious.

Descriptions of increased smoking and drinking when acutely unwell were common among respondents: 'And then different periods where I've had schizophrenia attacks, you know, I'll smoke up to 80 a day, um but I really settled down after the, over the last few years' (Psychosis group). Another respondent described:

I suppose being by myself again, having lost family and you know, divorces and that sort of stuff and not finding a job, unemployment yeah. Just basically being down, you know, really depressed and down. Yeah those

things have helped, you know, pushed me back towards drinking (Depression group).

When experiencing a psychotic episode the first respondent markedly increased her substance use, while depression was a major cause of relapse to alcohol use for the second respondent.

Mental illness was also perceived to have influenced respondents' development of substance use problems:

One of my brothers doesn't drink, and um he said I don't drink because I saw too much at home and that was the way I had felt until I was about 30, um, but he didn't have the illness that I had did he?...but I don't want to blame everything on my illness either. Yeah, that would have been the reason (Psychosis group).

The respondent above perceived her mental disorder to be a potential cause of her problems with alcohol, explaining that people with mental disorders may be more likely to develop a substance use problem than people without mental disorders.

Discussion

The findings of this study portray substance use, especially among people with mental disorders, as an extremely complex area in which a wide range of factors, attitudes and perceptions play a role. The rich qualitative data collected in this study and the use of IPA adds significantly to our understanding of the factors influencing people's tobacco, alcohol and cannabis use and gives us a unique and detailed insight into respondents' experiences and perceptions of substance use. Interestingly, few differences in the attitudes and perceptions of people with and without mental disorders emerged. Five common themes regarding substance use were identified in this study: 'the social place of substance use', 'substance use to achieve positive effects', 'the

burden of substance use', 'control over substance use', 'the importance yet ineffectiveness of public health campaigns'. In addition, one theme specific to people with depression or a psychotic disorder emerged: 'interactions between substance use and mental health'. These results suggest that the substance use of people with mental disorders is influenced by many of the same factors that influence people without mental disorders, but that an additional factor, barrier to quitting and source of harm, exists for people with mental disorders: the ways in which substance use and their mental illness interact. While previous studies have found similarities between the reasons for substance use reported by people with mental disorders and those reported in the general population (Charles & Weaver, 2010), this is the first study known to directly compare a range of attitudes and perceptions regarding tobacco, alcohol and cannabis use between people with and without mental disorders.

Social factors were found to play an important role in respondents' substance use, with friends, family and even society at large perceived to influence their tobacco, alcohol and cannabis use. Substance use to feel accepted, to fit in and to conform to social expectations was common. This need to belong was so important that many respondents would use substances despite knowledge of the associated risks, or conceal their actual patterns of substance use to meet social expectations.

The way in which these social influences impacted upon respondents' substance use differed between tobacco, alcohol and cannabis. Cannabis use, for example, was perceived to be acceptable among young people, but associated with irresponsible behaviour when used regularly among older people and people with responsibilities such as caring for children. Participants described 'growing out of' cannabis use. Similarly, previous research has found key reasons for decreasing illicit substance use to include changes in life goals and increased perceived value of disposable income and

family relationships (Lobbana et al., 2010). Alcohol was described to be socially acceptable and expected of people. As in previous research (Ministerial Council on Drug Strategy, 2006; Pettigrew, 2002; Thornton et al., 2012a), alcohol was perceived to occupy an important position in Australian society, with respondents frequently describing pressure to drink alcohol and an inability to socialise without drinking. As such, these results suggest the Australian culture of heavy and frequent drinking may be a significant barrier to many people keeping their alcohol consumption to a safe and responsible level. Indeed it has been proposed that the major health problem alcohol use poses in Australia is maintained by the important symbolic role alcohol plays in Australian culture and lifestyle (Doran, Hall, Shakeshaft, Vos, & Cobiack, 2010; Ministerial Council on Drug Strategy, 2006; Pettigrew, 2002). Heavy drinking, as a cultural norm, is attributed to Australia's Anglo-Celtic cultural background and its central place in Australian social life dates back to the time of the colonisation (Lewis, 1997). In Australia alcohol is frequently used for enjoyment, relaxation and sociability (National Health and Medical Research Council, 2009). Its use is often associated with sporting activities and celebrations, and heavy drinking is enshrined in a number of Australian rituals such as 'shouting', in which each person in turn buys a round of drinks for the whole group (Lewis, 1997). For this reason, one of the National Alcohol Strategy's primary aims is to facilitate long-term cultural change regarding alcohol, promoting a safer drinking culture (Ministerial Council on Drug Strategy, 2006). In lieu of this major cultural shift however, it might be important for intervention strategies to assist people with and without mental disorders to manage social situations without the use of alcohol. This assistance could be in the form of a counselling intervention that suggests alternatives to using alcohol in social situations and gives patients opportunities to practice strategies for refusing alcoholic beverages. Educational

advertising campaigns promoting these skills could also be beneficial. Additionally there may be a need for additional and targeted assistance for people with mental disorders who often have poorer coping and social skills (Ziedonis & Nickou, 2001)

Tobacco smoking, on the other hand, was often described to be unacceptable within society. Respondents with and without mental disorders described the de-normalization of tobacco use and the stigmatization of smokers. This is consistent with research conducted among the general population in other countries where similar tobacco control policies, such as reduced tobacco advertising, health warnings on cigarette packs and restrictions on where smoking is permitted, are in place (Bell, Salmon, Bowers, Bell, & McCullough, 2010; Ritchie, Amos, & Martin, 2010; Stuber, Galea, & Link, 2008) . While these types of tobacco control measures have been successful in helping to reduce smoking rates, smoking related harm and in increasing the de-normalisation of smoking, many of these strategies have also influenced a cultural shift towards the stigmatization of smokers (Bell et al., 2010; Ritchie et al., 2010; Stuber et al., 2008). Ritchie et al (2010), for example, conducted a three wave longitudinal qualitative study in Scotland examining perceptions regarding tobacco use before and after the introduction of smoke-free legislation. They found that post-legislation stigmatization was a common experience among smokers. While few smokers reported direct discrimination, people described that they felt segregated and judged because of their status as a smoker, which had become more visible as a result of the legislation. They often labelled themselves as ‘outcasts’ or ‘lepers’. Confirming previous research the current study also identified that mothers who smoked were perceived particularly negatively (Ritchie et al., 2010). While the increased stigma associated with smoking could discourage some young people from initiating tobacco use, it may also be an additional burden and barrier to seeking treatment for smokers

who are already disadvantaged, such as people with mental disorders. Lawn et al., (2002) found, in a qualitative study of smokers with mental disorders, that fear of experiencing increased social isolation and stigma for their smoking, in addition to the stigma they already experienced for their mental illness, was reported by all their participants. It is therefore important that in addition to tobacco control measures, there are also mechanisms in place that will support and empower smokers to try to quit. Empowering people to make the choice to quit smoking requires the choice of quitting to be physically, financially and socially easier and more desirable than continuing to smoke (Friel, 2009). De-normalisation of smoking has made smoking less desirable than it once was, however without the provision of easily accessible and affordable NRT to help people manage their cravings, it may simply be easier for many people to continue to smoke (Friel, 2009).

Tobacco, alcohol and cannabis were deliberately used by respondents with and without mental disorders as tools to achieve a range of positive effects. Substances were used to relax, as an important coping strategy and a source of pleasure by many respondents on an everyday basis. Some respondents with mental disorders perceived substance use to be their only source of pleasure, and the only way in which they knew how to cope with stress and relax. Additionally, tobacco smoking was frequently used as a method to facilitate additional breaks at work and in the home. A mother described, for example, that she would not feel justified to take a break for herself to relax if she was not smoking a cigarette. Similarly, pleasure and coping motives have been found to be common motives for substance use among people with and without mental disorders in previous research (e.g. Charles & Weaver, 2010; Kuntsche et al., 2006; Lawn et al., 2002; Lobbana et al., 2010; Thornton et al., in press). Among people with psychotic disorders, for example, a recent systematic review found relaxation, pleasure and

dysphoria relief to be some of the most frequently endorsed reasons for tobacco, alcohol and cannabis use (Thornton et al., in press). These substances' roles as sources of pleasure, reliable coping mechanisms and facilitators of breaks may be significant barriers to many people reducing or stopping using these substances.

These results suggest that it may be important for intervention and prevention strategies to assist people to find other sources of pleasure in their lives, to promote other ways in which people can relax, and to assist people to develop more effective coping skills. People with mental disorders in particular may perceive themselves to have few other sources of pleasure in their lives. It may be especially useful for intervention and prevention strategies among this population to provide examples of, and opportunities to engage in, other enjoyable activities through organised social gatherings, classes or helping people to engage with community groups. These results also highlight the continued need to address smoking in the workplace, while balancing the rights of smokers with misuse of these rights. A cultural change may be needed to encourage people to place a higher value on their own well being, and feel able to take a break when they need it, without having to use cigarettes as an excuse. A useful strategy might be engaging employers and unions to help implement policy and organizational cultural change to make it acceptable for non-smokers to also take short rest breaks when they need it.

While tobacco, alcohol and cannabis were used for a range of positive effects, respondents also acknowledged the significant burdens use of these substances often placed on people. Tobacco, for example, was perceived to be very physically harmful and respondents often associated its use with death, illness and cancer, suggesting public health strategies have been successful, at least in terms of educating people both with and without mental disorders of the dangers of smoking. Evaluations of Australia's

National Tobacco Campaign, also suggest Australians have good knowledge of the health effects of smoking (Hassard, 2000a). Alcohol, on the other hand, was perceived to be harmful by some and to be safe by others. Many people also described patterns of drinking, that were above recommended levels, to be safe or acceptable; suggesting there is room for improvement of peoples' knowledge regarding alcohol use. Similarly, a survey of Australians' attitudes and perceptions towards alcohol health warning labels found only 18% of people surveyed were aware of the existence of the 2009 National Health and Medical Research Council's alcohol use guidelines (National Health and Medical Research Council, 2009), and familiar with its content. This suggests that the majority of Australians do not know how many standard drinks is a safe amount to drink to reduce the health risks of drinking (Foundation for Alcohol Research and Education, 2011). The survey also found that while the majority of people knew alcohol is linked to harm during pregnancy, liver cancer, damage to developing brains, death, car accidents and injury, few people knew it is also linked to mouth, throat and breast cancer. There is clearly a need for better education regarding standard drink sizes and safe drinking patterns, so that people can make informed and hopefully healthier decisions when drinking. It has been suggested that these gaps in knowledge could be diminished via the implementation of health warning labels on alcoholic beverages. However, while there is support for warning labels as a potential tool to raise awareness of the harms of drinking, their effectiveness has not yet been tested (Foundation for Alcohol Research and Education, 2011).

On the other hand, cannabis use was perceived to be relatively benign. The only negative consequence of cannabis use consistently mentioned was the potential link between cannabis use and mental health problems, particularly schizophrenia. Participants did not link cannabis use with the problems associated with tobacco

smoking despite evidence to suggest people who smoke cannabis often mix it with tobacco (Amos, Wiltshire, Bostock, Haw, & McNeill, 2004). This suggests there is also a need for greater education regarding the risks of cannabis use, especially when smoked and mixed with tobacco. Additionally, the financial burden of buying cigarettes and alcohol was frequently mentioned. For some, a potential loss of income was a strong motivator to try to change substance use behaviour. Similarly, in a study involving former smokers from the general population Pederson, Bull, Ashley and MacDonald (1996) found that up to 40.7% of their participants endorsed the cost of tobacco as a reason for quitting smoking.

Experience of these health and financial burdens, and a desire for a better quality of life, was frequently cited in the current study to be a strong motivator for respondents to attempt to change their substance use behaviour. Similarly, previous research has found concern for health to be cited as a major reason for quitting smoking, in particular. Curry and Wagner (1990) and Pederson et al (1996) for example, found health concerns to be the most frequently endorsed reasons for quitting smoking among general population samples. Similarly McKee, O'Malley, Salovey, Krishnan-Sarin and Mazure (2005) found the most frequently endorsed perceived benefit of quitting smoking to be physical appeal, followed by health and finances. While respondents with and without mental disorders in the current study frequently described a desire to cut down or quit using tobacco and alcohol, in particular, few respondents reported actually stopping or reducing their substance use. Respondents described a perceived lack of control over themselves and their substance use and experienced a great deal of difficulty and distress attempting to cease tobacco use in particular. Contributing to many respondents' perceived inability to quit smoking, or drinking, was the belief that their substance use was influenced by uncontrollable personality or genetic traits. For

many, these were perceived to be major barriers to quitting, but also used as excuses to justify their continued use and failed attempts to quit or cut down.

The perceived inability to control substance use may be a significant barrier to quitting or regulating substance use for many people, suggesting the need for greater support for people having difficult quitting, perhaps through greater provision of subsidised nicotine replacement therapy or counselling services. As the financial burden of substance use was a salient issue for many respondents it is important that these treatments be less expensive than continuing to smoke. However, while subsidised nicotine patches are available in Australia, they are only available with a prescription from a doctor and only for a maximum of 12 weeks in a 12 month period. Other forms of NRT and nicotine patches without a prescription remain two to three times more expensive than cigarettes which may be a major deterrent for many smokers (Quit Victoria, 2010b). Additionally, courses of NRT longer than 12 weeks have been shown to be more effective at helping people with mental disorders to achieve abstinence than shorter courses of NRT (Horst, Klein, Williams, & Werder, 2005). To empower people to make the choice to quit smoking, research and partnerships between health providers, governments and businesses are needed to find ways in which affordable and easily accessible NRT can be provided to people with and without mental disorders.

While respondents with and without mental disorders described anti-substance use public health campaigns to be important, they also perceived these campaigns to be largely ineffective at influencing changes in their substance use. Similarly, research regarding the effectiveness of public health strategies indicates there is considerable room for improvement of anti-substance use public health campaigns (Babor et al., 2003; Hill, 2004; Thornton et al., 2011). As described in the current study, while many campaigns have been found to increase knowledge, they often have little impact on

actual substance use behaviour (Babor et al., 2003; Hill, 2004). These results are also consistent with those of Thornton et al (2011) and Pattanyak et al (2012) who found, among people with mental disorders, anti-smoking campaigns were perceived to be ineffective. As in the current study, people with psychotic disorders were found to report deliberately ignoring the messages promoted by anti-smoking campaigns (Thornton et al., 2011), while people with bipolar disorder were found to dismiss the relevance and credibility of anti-smoking campaigns (Pattanyak et al., 2012).

The results of this study highlight a number of ways in which anti-substance use campaigns among people with and without mental disorders could be improved. First, campaigns perceived not to be personally relevant, e.g. only aimed at young people, were frequently dismissed by respondents without them generalising the underlying health messages to their own situation. Campaigns may need to find ways in which they can engage a wide range of people and encourage them to apply the health messages promoted to their own lives. Educational campaigns highlighting that smoking tobacco and drinking at levels above the recommended guidelines is harmful no matter the person's age, sex or circumstance could be more engaging, for example.

Campaigns were also perceived to be ineffective among long-term substance users for whom addiction and habit are significant barriers to quitting. To engage this group of people, campaigns may need to acknowledge these barriers and perhaps focus on educating people regarding the availability of additional support. Quit Victoria for example has recently launched an advertising campaign that urges smokers to 'never give up giving up'. This campaign acknowledges the challenges facing smokers who are trying to quit and aims to build their confidence to quit, rather than focussing on the negative effects of smoking (Quit Victoria, 2010a). The effectiveness of this new approach has yet to be evaluated however. Additionally, anti-smoking campaigns in

particular may benefit by employing a more respectful and supportive approach, as opposed to the authoritative and condescending approach many respondents perceived the campaigns to use. Finally, the graphic images often used in anti-smoking campaigns were also perceived to be ineffective. Graphic and negative advertisements have been shown to have some impact on smoking rates (Hassard, 2000a), however these results suggest it may be important for anti-tobacco campaigns to also employ other approaches, such as highlighting the emotional impacts of substance use, the effect on other people and supporting and encouraging people to quit smoking. Quit Victoria's 'never give up giving up' campaign, for example, represents its first positive advertisement in over two decades and aims to supplement graphic and negative emotion advertisements by supporting and positively encouraging smokers to quit (Quit Victoria, 2010a).

An additional theme concerning the relationship between substance use and mental health was also mentioned by respondents from the psychosis and depression groups, but not by respondents in the no mental disorder group. Substance use and mental disorders were perceived by people with mental disorders to interact, and influence one another, in a bi-directional manner. Substance use, particularly alcohol and cannabis use, were often perceived to be the causes of peoples' mental health problems, with cannabis associated with psychosis and alcohol with symptoms of anxiety and depression. On the other hand, mental health problems were perceived to also influence substance use. Respondents described using substances, particularly tobacco and alcohol, to cope with their mental illness. They also perceived their mental illness to lead to increased substance use and to have contributed to the development of their substance use problems. Similarly, a number of studies investigating substance use among people with mental disorders have found interactions between substance use and

mental health to be a salient issue (Asher & Gask, 2010; Charles & Weaver, 2010; Healey et al., 2008; Lobbana et al., 2010; Thornton et al., 2012a). Charles and Weaver (2010), for example, found that the majority of their participants with psychosis (10 out of 14 participants) perceived their substance use to have directly contributed to the development of their mental disorder, or to have exacerbated their mental disorder.

In an attempt to justify their substance use, respondents often contradicted themselves or voiced self-exempting beliefs when discussing their substance use. Few respondents perceived themselves to have a current problem with alcohol or cannabis use, for example. Regardless of their actual level of use, or if they went on to describe difficulty limiting their substance use once they had started, quitting or reducing their use, respondents described themselves to be in control of their alcohol and cannabis use. Controlled alcohol and cannabis use was described to be safe and acceptable. In contrast, many respondents did perceive themselves to be addicted and not in control of their tobacco use. This may suggest that being addicted to tobacco, or unable to quit smoking, is perceived to be more acceptable than having a problem with alcohol or cannabis. Similarly, while being heavily intoxicated with alcohol was perceived to be unacceptable, respondents frequently described instances in which they had been drunk and even sustained injuries as a result.

As in previous research (Fowler et al., 1998; Thornton et al., 2012a; Thornton et al., in press; Thornton et al., 2012b), the results of this study suggest that attitudes and perceptions regarding substances may differ for tobacco, alcohol and cannabis. Alcohol, for example was perceived to be socially acceptable with people describing pressure to drink, while tobacco was largely perceived to be unacceptable. Similarly, the type and degree of harm these substances were perceived to cause differed with tobacco, and to a lesser degree alcohol, associated with significant physical harm and financial burden,

while cannabis was only associated with causing mental harm. These findings suggest that to be optimally effective intervention and prevention strategies may need to be tailored by substance type. Intervention and prevention strategies for alcohol for example might benefit by addressing the social role of alcohol and providing strategies for people to interact socially without drinking alcohol. On the other hand a better use of time and resources in smoking cessation strategies may be addressing smoking as a way to cope or relax and providing alternative coping and relaxation strategies.

Despite the similarities of attitudes and perceptions regarding tobacco, alcohol and cannabis among people with and without mental disorders found in the current study, higher rates of substance use remain among people with mental disorders. This could in part be due to public health policy exemptions that have allowed smoking to continue in mental health settings, where smoking, at times, has even been condoned (Lawn & Pols, 2005; Wye et al., 2010). People with mental disorders also often feel excluded from mainstream smoking cessation programmes (Lawn et al., 2002). A step towards closing this gap could be actually implementing existing smoking cessation interventions among people with mental disorders. The perceived interactions between mental health and substance use, described in this study, may also contribute to the higher rates of substance use found among people with mental disorders. Respondents with mental disorders often described using substances to self-medicate symptoms of negative affect and anxiety and to cope with stress, for example, which could lead to higher use in this population. The similarities of attitudes and perceptions among people with and without mental disorders found in this study suggest that people both with and without mental disorders might benefit from similar intervention and prevention strategies regarding tobacco, alcohol and cannabis. However, to address the high rates of substance use and the unique and complex issues surrounding substance use for

people with mental disorders, additional and targeted support may need to be offered to people with mental disorders if interventions are to be optimally effective.

The results of the current study should be interpreted with caution as respondents may not have been representative of the overall populations of people with and without mental disorders who use tobacco, alcohol or cannabis. Participants recruited to the depression and 'no mental disorder' groups may have had unusually high levels of substance use, for example. Participants recruited to form the depression group each had a history of an alcohol use problem, while people recruited to the no mental disorder group were recruited via an advertisement on Facebook for a study about 'drugs and alcohol' that contained drug imagery, meaning people with high levels of substance use may have self-selected into the study. This may have limited the generalizability of these results. Additionally individuals on the ASRB are likely to be relatively high functioning, perhaps limiting the generalizability of these results to the wider population of people with psychotic disorders (Loughland et al., 2010).

Despite these limitations, this study adds significantly to our knowledge and understanding of substance related attitudes and perceptions among people with and without mental disorders. It is one of the first studies known to generate information regarding the perceived harmfulness of tobacco, alcohol and cannabis, knowledge of these substances and perceived effectiveness of anti-substance use campaigns among people with mental disorders. It is also one of the few studies to investigate these issues among people with a mental disorder other than a psychotic disorder and to use qualitative methodologies. In these ways this study addresses a number of gaps in previous research in this area, while also generating valuable information regarding potential barriers to changing substance use behaviours among people with and without

mental disorders and provides insight into some of the reasons why public health campaigns regarding substances have, or have not, been successful.

Through the process of conducting this study the authors also identified the great potential of online forums such as 'Facebook' as tools for research. In a short period of time (one month), and for relatively low cost (\$976) and effort, a large number of participants were able to be recruited via 'Facebook'. Indeed the majority of people in the current study who indicated they would be willing to be interviewed were recruited via 'Facebook'. 'Facebook' and other online forums have great potential to be used as tools for recruitment and spaces in which to conduct research, and it is recommended that researchers keep these methods in mind when designing future studies.

The findings of this study highlight a number of ways in which interventions and prevention strategies regarding tobacco, alcohol and cannabis use, especially among people with mental disorders, might be improved. They also highlight some important areas in which organisational, cultural and policy changes might be needed if the health burden created by use of these substances is to be effectively reduced. In particular, continued work is needed to try to change the ingrained social place of heavy alcohol use in Australia and to find ways in which cheap NRT can be accessed by smokers with and without mental disorders.

Discussion and Conclusions

Discussion

Co-occurring substance use and mental disorders have been identified as a major health problem in Australia and globally (e.g. Grant et al., 2004; Khalid, Kunwar, Rajbhandari, Sharma, & Regmi, 2000; Teesson et al., 2009; Ziedonis & Nickou, 2001). To develop effective intervention and prevention strategies for these co-occurring disorders it is important to understand the factors underlying and influencing substance use among people with mental disorders. However, a clear understanding of the attitudes and perceptions of people with mental disorders regarding substances has been missing from the current literature. The aim of this thesis was to address this gap and to examine attitudes and perceptions regarding tobacco, alcohol or cannabis use among people with and without mental disorders by employing a range of different methods. It triangulated the results of a systematic literature review, quantitative, qualitative and mixed method studies. This triangulation approach allowed this thesis to capture information regarding both the trends and details of attitudes and perceptions regarding tobacco, alcohol and cannabis, and led to a more complete understanding of the area. It also led to a number of recommendations to be made as to how intervention and prevention strategies for tobacco, alcohol and cannabis use among people with and without mental disorders might be improved.

This discussion brings together the findings of the five papers included in this thesis, and discusses them in the context of the five main aims of the thesis. First the strengths and weaknesses identified in the existing literature regarding attitudes and perceptions towards tobacco, alcohol and cannabis among people with mental disorders are discussed, as well as the gaps this thesis aimed to address. Next, the ways in which attitudes and perceptions towards tobacco, alcohol and cannabis were found to differ

and be similar are discussed. Following this, the ways in which substance related attitudes and perceptions were found to differ and be similar among people with and without mental disorders, and among people with different types of mental disorders, are addressed. This is followed by a discussion of the findings regarding perceived harmfulness and knowledge of substances and anti-substance use public health campaigns, which extend our understanding of people's attitudes to and perceptions of tobacco, alcohol and cannabis beyond reasons for substance use. Finally, some ways in which these findings might inform the development of more effective intervention and prevention strategies regarding tobacco, alcohol and cannabis use among people with and without mental disorders are considered. The limits and strengths of this research are then discussed.

Strengths, weaknesses and gaps in the literature

The first aim of this thesis was to identify the strengths, weaknesses and gaps in the existing literature regarding attitudes and perceptions to tobacco, alcohol or cannabis use among people with mental disorders. This aim was primarily addressed by *Paper 1* (Thornton et al., in press) which, through a systematic search of the literature, identified a number of key gaps and weaknesses. One strength of the existing literature identified was the wealth of information available regarding reasons for substance use among people with psychotic disorders. The majority of studies included in *Paper 1* (14/21) were conducted among people with psychotic disorders, 13 of which also investigated reasons for substance use. Synthesising the results of these studies led to insights regarding the reasons why people with psychotic disorders use tobacco, alcohol or cannabis. Relaxation and pleasure emerged as important reasons for the use of all three substances among this population. Cravings and addiction were also found to play an

important role in participants' use of tobacco, as were social factors for alcohol use, and intoxication effects for cannabis use (Thornton et al., in press).

A major weakness of this body of literature was the lack of research conducted among people with mental disorders other than psychotic disorders. Of the studies included in *Paper 1*, only two studies were conducted among people with anxiety disorders (Abrams & Kushner, 2004; Buckner & Schmidt, 2009), one involved people experiencing depression (Currie et al., 2001), one was conducted among people with post-traumatic stress disorder (Waldrop et al., 2007) and three involved people with psychiatric disorders in general (Baker et al., 2002a; Nishith et al., 1997; Spencer et al., 2002). It was therefore difficult to draw conclusions regarding the patterns of substance related attitudes and perceptions common to these populations, and whether or not these differed from those held by people with psychotic disorders. Similarly, the lack of studies investigating areas other than reasons for substance use, e.g. perceived harmfulness or knowledge, emerged as a gap in the existing literature in this area (Thornton et al., in press).

Another weakness identified was the number of studies that did not report their results separately for individual substances. Studies often reported their results in terms of substance use in general (e.g. Alvidrez et al., 2004; Healey et al., 2008). Indeed the main reason potentially relevant studies were excluded from *Paper 1* was that they did not report results separately for individual substances (Thornton et al., in press). As previous research indicates interventions may be differentially effective according to substance type (Baker et al., 2009) and in order to determine the appropriate way in which treatments may need to be targeted, it is important that attitudes and perceptions regarding substances are well understood for individual substances.

Paper 1 also identified the need for methodologically rigorous research investigating attitudes and perceptions regarding substances among people with mental disorders, as many of the studies included in the review were found to be of low methodological quality (Wells et al., 2008). Additionally, few studies employing qualitative methods were identified. Only three were included in *Paper 1* (Baker et al., 2002a; Forchuk et al., 2002; Fowler et al., 1998), and none of these studies adequately described the analytic process undertaken. Included papers also used a wide range of methods to measure attitudes and perceptions, very few of which involved reliable or validated measures (Thornton et al., in press).

The subsequent papers of this thesis address a number of the gaps and weaknesses identified in *Paper 1*. *Papers 4* and *5*, for example, included participants with depression (Thornton et al., 2012b; Thornton et al., in submission) and without mental disorders (Thornton et al., in submission), as well as people with psychotic disorders. *Papers 2, 4* and *5* investigated tobacco, alcohol and cannabis separately and simultaneously, allowing similarities and differences between the attitudes and perceptions regarding each of these substances to be compared (Thornton et al., 2012a; Thornton et al., 2012b; Thornton et al., in submission). *Papers 3* and *5* addressed a gap in the existing literature by investigating perceptions of anti-substance use public health campaigns and other issues, such as perceived harmfulness and knowledge, extending our understanding of substance related attitudes and perceptions beyond reasons for substance use (Thornton et al., 2011; Thornton et al., in submission).

In response to the poor methodological quality of studies included in *Paper 1* each of the four subsequent papers attempted to be more methodologically rigorous. Additionally *Papers 2, 3* and *5* employed qualitative methodologies, filling the gap of

good quality qualitative research in this area (Thornton et al., 2012a; Thornton et al., 2011; Thornton et al., in submission).

Addressing the need for standardized measures of attitudes and perceptions, *Paper 2* also reports the factor analysis of the Drug Use Motive Questionnaire (Cooper et al., 1992) among a sample of people with mental disorders, identifying it as a reliable questionnaire appropriate for use among people with mental disorders (Thornton et al., 2012a).

Attitudes to and perceptions of tobacco, alcohol, and cannabis

This thesis aimed to identify similarities and differences in the attitudes and perceptions regarding tobacco, alcohol and cannabis among people with mental disorders, so that recommendations to inform the development of appropriately targeted intervention and prevention strategies could be made. *Papers 1, 2, 4 and 5* investigated attitudes and perceptions regarding tobacco, alcohol and cannabis, and while each found evidence to suggest that among people with and without mental disorders attitudes and perceptions regarding these substances differ considerably, some similarities also emerged (Thornton et al., 2012a; Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission).

Similarities in attitudes to and perceptions of tobacco, alcohol and cannabis

Tobacco, alcohol and cannabis use were found to be important coping strategies for people with and without mental disorders. In the systematic review described in *Paper 1*, for example, relaxation (e.g. to relax, stress reduction and sedative effects) was one of the most frequently endorsed motives for tobacco, alcohol and cannabis use. Similarly, included studies involving participants with psychotic disorders found these substances were frequently used to cope with symptoms of their mental illness,

especially negative affect and anxiety (Thornton et al., in press). In *Paper 4*, among people with psychotic disorders, tobacco and alcohol were found to be primarily used for coping motives (e.g. to forget worries), while cannabis was primarily used for pleasure (e.g. like the feeling), closely followed by coping motives (Thornton et al., 2012b). Additionally, in the qualitative sections of this thesis respondents with and without mental disorders described deliberately using tobacco, alcohol and cannabis to relax and cope with stress (Thornton et al., 2012a; Thornton et al., in submission).

These results lend support for an alleviation of dysphoria model of substance use, in that all participants were found to use substances to cope and alleviate stressful situations and negative emotional states (Mueser et al., 1998). These results are also consistent with previous research that has also found coping motives to be an important reason for substance use among people with and without mental disorders (Charles & Weaver, 2010; Carey et al., 1999b; Fowler et al., 1998; Gregg et al., 2007; Kuntsche et al., 2006; Lawn et al., 2002; Lobbana et al., 2010). Gregg et al.'s (2007) review of reasons for substance use among people with psychotic disorders, for example, found dysphoria relief (e.g. to cope with feelings of depression, anxiety and other negative emotional states) to be the most frequently endorsed reason for substance use (alcohol, cannabis, amphetamines or substance use in general) across the 11 studies included in their review. A limitation of most of this previous research however has been its focus on substances in general, or only one substance (e.g. Charles & Weaver, 2010; Forchuk et al., 2002; Goswami et al., 2004; Green et al., 2004; Gregg et al., 2007; Lawn et al., 2002; Lobbana, et al., 2010; Schaub et al., 2008). By investigating the attitudes and perceptions regarding tobacco, alcohol and cannabis separately and simultaneously, this thesis demonstrated that each of these substances are often used to help people cope

with stress, and allowed comparisons to be made between the substances (Thornton et al., 2012a; Thornton et al., 2012b; Thornton et al., in submission).

Differences in attitudes to and perceptions of tobacco, alcohol and cannabis

While all three substances were reported to be commonly used to help participants cope, the support perceived to be provided by tobacco, to cope with stress and psychiatric symptoms, was particularly important to participants (Thornton et al., 2012a; Thornton et al., 2011; Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission). For many participants, tobacco use was perceived to be a vital and reliable coping mechanism (Thornton et al., 2012a; Thornton et al., in submission). Quantitative analysis of reasons for substance use data among people with mental disorders in this thesis found tobacco to be primarily used for coping motives, such as to cope with cravings, addiction, stress and boredom (Thornton et al., 2012a; Thornton et al., 2012b). This differed significantly from alcohol and cannabis which were used more frequently for social and pleasure enhancement motives (Thornton et al., 2012a). Qualitative analysis found participants with and without mental disorders also frequently described using tobacco to help them cope with stress. Tobacco was described to be an important part of many participants' lives. It was perceived to be an extremely reliable coping strategy and a way in which participants could exert some positive control over their lives and symptoms, and to relax (Thornton et al., 2012a; Thornton et al., in submission). Participants also described using tobacco to self medicate negative affect and cigarettes were seen by some to be more effective at doing so than prescribed medications (Thornton et al., 2012a). Previous research has found coping with stress to be an important reason for which people with mental disorders smoke (Baker et al., 2007; Forchuck et al., 2002; Kumari & Postma, 2005; Lawn et al.,

2002). Baker et al (2007), for example, found stress reduction to be the highest rated reason for smoking tobacco among a sample of participants with psychotic disorders.

These results are consistent with previous research in the general population that also suggests stress, and the resulting psychological distress, plays an important role in peoples' tobacco use (Kassel, Stroud, & Paronis, 2003; Rosario et al., 2011). These results also lend some support to a stress response model of substance use which suggests that people with increased feelings of distress and who lack other coping resources may smoke as a method to manage the demands of stressors (Rosario et al., 2011; Wills & Shiffman, 1985). While research investigating how effective smoking actually is at reducing stress is mixed, and for some alleviation of withdrawal symptoms may be misinterpreted as coping with stress (Rosario et al., 2011), tobacco's perceived ability to reduce stress and negative affect may be a significant barrier to many people ceasing smoking, especially people with mental disorders who often experience a great deal of stress and distress in their daily lives (Myin-Germeys, van Oz, Schwartz, Stone, & Delespaul, 2001) .

A strong association between addiction and tobacco also emerged that was not present for alcohol and cannabis. In the systematic literature review reported in *Paper 1* participants with mental disorders from a number of included studies reported using tobacco because of cravings and addictions (Thornton et al., in press), while in *Paper 2* cravings, addiction and habit were some of the most frequently endorsed reasons for smoking among participants with psychotic disorders or depression (Thornton et al., 2012b). Participants' cravings for tobacco were also often described to be too strong for anti-smoking campaigns to overcome and participants described disregarding the advertisements as a result (Thornton et al., 2011; Thornton et al., in submission). Participants with and without mental disorders described a perceived inability to control

their tobacco use, and perceived themselves to be addicted to cigarettes, unable to give it up even if they wanted to. Quitting smoking was described to be extremely difficult and very stressful, requiring significant psychological strength. For many participants their addiction was a significant and perceivably impossible barrier to quitting smoking (Thornton et al., in submission).

The prominent social place of alcohol in Australia was another way in which attitudes and perceptions towards tobacco, alcohol and cannabis differed. Quantitative analysis of reasons for substance use data among people with mental disorders found alcohol was frequently used for social motives and was significantly more likely to be used for this reason than tobacco and cannabis (Thornton et al., 2012b). Participants with and without mental disorders also described social pressure exerted by friends, family and even society to strongly influence their alcohol use. Drinking alcohol was perceived to be an acceptable activity, which few respondents perceived to be very harmful. Drinking alcohol was understood to be the social norm within Australia and many participants described pressure to drink alcohol. Alcohol was also deliberately used to facilitate social interactions (Thornton et al., 2012b; Thornton et al., in submission). These results are consistent with previous research which has also identified alcohol to play an important role in Australian society (Ministerial Council on Drug Strategy, 2006). Previous research has also found social factors to strongly influence alcohol use among people with and without mental disorders (e.g. Asher & Gask, 2010; Charles & Weaver, 2010; Gregg et al., 2009; Fowler et al., 1998; Kuntsche et al., 2006; Lobbana et al., 2010). This thesis adds to an understanding of the important social place of alcohol use by extending our knowledge to include people with mental disorders, generating in-depth qualitative descriptions of the ways in which social factors influence alcohol use (Thornton et al., 2012a; Thornton et al., in submission),

and generating quantitative data among a large sample of people with mental disorders (Thornton et al., 2012a; Thornton et al., 2012b).

The perceived acceptability of tobacco, alcohol and cannabis use was also found to differ. While drinking alcohol was perceived to be acceptable, tobacco smoking was described to be unacceptable and an activity associated with increasing amounts of stigma among people with and without mental disorders. Cannabis, on the other hand was perceived to be acceptable, but only when used by young people or people without responsibilities. These findings are, in part, consistent with those of the 2010 NDSHS that found alcohol use to be socially acceptable, with 44.8% of people sampled reporting that they approved of adults drinking alcohol. This was followed by 15.3% of people who approved of tobacco use by adults and 8.1% of people who approved of cannabis use by an adult (AIHW, 2011a). The results of this thesis however extend the findings of the NDSHS by generating detailed information regarding the ways in which different substance use behaviours are perceived to be acceptable or not.

The strong association between pleasure enhancement and cannabis use was another way in which attitudes and perceptions differed between tobacco, alcohol and cannabis. Across *Papers 1, 2 and 5* cannabis use was associated with seeking pleasurable intoxication effects among people with and without mental disorders. In the systematic review reported in *Paper 1* participants with mental disorders in a number of studies described using cannabis for intoxication effects, such as to get high (Thornton et al., in press). Similarly quantitative analysis of reasons for substance use data among people with mental disorders found cannabis was most frequently reported to be used for pleasure enhancement motives, such as to make themselves feel happy and to experience a pleasurable high (Thornton et al., 2012a; Thornton et al., 2012b). Similarly, in the qualitative sections of *Papers 2 and 5* cannabis was described by

participants with and without mental disorders as an enjoyable, fun activity, suitable for young people and people without responsibilities (Thornton et al., 2012a; Thornton et al., in submission). In concordance with these results, Fowler et al (1998) also found cannabis to be frequently used by people with psychotic disorders to achieve pleasurable intoxication effects. Similarly, among young adults from the general population Clark, Scott and Cook (2003) found marijuana was perceived to be fun and was associated with a happy atmosphere.

The level and type of harm tobacco, alcohol and cannabis were perceived to cause were also found to differ in this thesis. In the qualitative sections of *Papers 2* and *5* respondents with and without mental disorders mentioned the perceived physical and mental health effects of tobacco, alcohol and cannabis. While tobacco was frequently described as a deadly drug, and one associated with a range of illnesses and death, alcohol was sometimes described to be safe, sometimes described to be harmful and participants often contradicted themselves (Thornton et al., in submission). Although physical effects such as liver and brain damage were mentioned, alcohol was perceived to be more strongly associated with social harm and indirectly causing harm, such as violent behaviour, relationship breakdown and car accidents. Cannabis, on the other hand, was described to be a relatively benign substance. The only negative effect consistently attributed to cannabis use was its perceived link to mental health problems, particularly psychosis. To a lesser degree, alcohol use was also associated with causing mental harm by exacerbating psychotic symptoms (Thornton et al., 2012a; Thornton et al., in submission). Conversely, in *Paper 2* participants with psychotic disorders described tobacco to have positive effects on their mental health (Thornton et al., 2012a).

This thesis presents some of the first research to investigate the perceived harmfulness of substances among people with mental disorders, and to the author's knowledge is the first to investigate the perceived harmfulness of tobacco, alcohol and cannabis simultaneously in this population. These results however are consistent with studies conducted within the general population; confirming previous research which has found tobacco to be perceived to be very dangerous and more harmful than alcohol and cannabis, while cannabis has been found to be perceived as safe (Clark et al., 2003; Johnston, O'Malley, & Bachman, 1991). Among young adults, for example, Clark et al (2003) found tobacco was strongly associated with ideas like being addictive, damaging your body, being able to kill you and being expensive. On the other hand, alcohol and cannabis were associated with being fun, not a problem if used occasionally and good to share with friends. Among users, while half the smokers and a third of the drinkers thought these substance were dangerous, only one in five cannabis users thought cannabis was dangerous (Clark et al., 2003).

Among people with mental disorders previous research has only investigated perceived harmfulness in terms of substance use in general, or tobacco alone. However, similar to this thesis, Alvidrez et al (2004) found substance use was perceived to exacerbate psychiatric symptoms among people with severe mental disorders and was identified by a few participants to be the cause of their mental illness. Their participants also described substance use to have some positive effects, especially concerning symptoms of depression and anxiety. Pattanayak (2012) conducted the only other study identified to investigate perceived harmfulness of substances in people with and without a mental disorder (bipolar disorder). They found participants with bipolar disorder perceived smoking to be less likely to harm them, than did a control group without mental disorders. In contrast, in *Paper 5* participants with and without mental disorders

described tobacco to be associated with death and illness (Thornton et al., in submission). Perceived harm was only investigated using qualitative methods in this thesis, consequently the degree of harm substances were perceived to cause was unable to be compared between the groups.

Synthesising the results of *Papers 1, 2, 4 and 5* provide some of the first evidence to show that attitudes and perceptions, particularly reasons for use, differ considerably between tobacco, alcohol and cannabis. These findings have important implications for the development of effective and appropriately targeted intervention and prevention strategies, which are discussed later.

Diagnoses, and attitudes to and perceptions of substances

In order to inform the development of appropriately targeted interventions for co-occurring substance use and mental disorders this thesis also aimed determine to what extent, if any, attitudes and perceptions regarding tobacco, alcohol and cannabis may differ between people with different types of mental disorders and without mental disorders. This information could be crucial to identifying if there is a need for intervention and prevention strategies to be targeted specifically for people with different mental disorders.

Similarities and differences between people with and without mental disorders

Paper 5 investigated the substance related attitudes and perceptions of people with depression, a psychotic disorder or without a mental disorder. Overall, very few differences between these groups were found. Among all three groups the themes of ‘the social place of substance use’, ‘substance use to achieve positive effects’, ‘the burden of substance use’, ‘control over substance use’ and ‘the importance but ineffectiveness of public health campaigns’ emerged. However, among the respondents

with depression or a psychotic disorder, the ways in which substance use and mental disorders were perceived to interact also emerged as an important issue. Both respondents with depression and psychotic disorders described alcohol and cannabis use as potential causes of their mental health problems. Among people with psychotic disorders cannabis, in particular, was perceived as a cause of negative mental health effects, while alcohol was associated with symptoms of depression and anxiety. Participants from both groups also perceived their mental disorders to have influenced their substance use. Tobacco, alcohol and cannabis were used to help participants to cope with anxiety and depression, but alcohol and cannabis were also perceived to have led to the development of their substance use problems in some cases (Thornton et al., in submission).

Similarly, the few studies included in *Paper 1* that compared reasons for substance use or substance use expectancies between people with and without mental disorders found there were few differences in the primary reasons for which people with and without mental disorders used substances. However, they did find that people with mental disorders reported using substances more frequently for reasons related to their mental illness such as relief of negative affect, anxiety, boredom, psychotic symptoms and medication side effects, than controls without mental disorders. People with mental disorders were also found to have more negative expectancies of cannabis and to be more influenced by the negative effects of cannabis use than people without mental disorders (Thornton et al., in press).

The results suggest that the substance use of people with mental disorders is influenced by the same factors that influence people without mental disorders. A complicating factor in the substance use and substance use treatment of people with

mental disorders, however, may be the way in which their mental disorders interact with their substance use.

Similarities and differences between people with different types of mental disorders

Paper 4 investigated the attitudes and perceptions of people with different types of mental disorders (Thornton et al., 2012b). *Paper 4* found evidence to suggest reasons for substance use differ significantly between people with psychotic disorders and depression. Tobacco was found to play an important role in the lives of people with psychotic disorders, helping them to cope, giving them a source of pleasure and for some helping them with the symptoms of their mental illness and medication side effects. In contrast, alcohol appeared to fill this role for people with depression. Participants with depression were significantly more likely than people with a psychotic disorder, to report the use of alcohol for social, coping, pleasure and illness motives (Thornton et al., 2012b).

These results support previous research that indicate tobacco may have a range of beneficial effects for people with psychotic disorders in particular (Kumari & Postma, 2005; Smith et al., 2002). Research has found, for example, tobacco use to be associated with reduced negative psychotic symptoms (Smith et al., 2002), reduced side effects of neuroleptic medications and improvements in sustained attention and working memory in people with schizophrenia (Kumari & Postma, 2005). Previous research also indicates that the association between smoking and schizophrenia may be stronger than that between mood disorders and smoking (Campo-Arias et al., 2006). Campo-Arias et al (2006) found, for example, prevalence rates of smoking to be considerably higher for schizophrenia patients than for patients with mood disorders. Research also indicates that people with schizophrenia may be more aware of their smoking habits than people with depression (Lawn et al., 2002). Among people with depression previous research

has also found a strong association between depression and alcohol use (Grant et al., 2004; Grant et al., 2009). Grant et al (2009) for example, found daily depressed mood to be positively correlated with drinking to cope and drinking for conformity motives (e.g. drinking to avoid social disapproval).

This thesis generates some of the first available data comparing reasons for substance use between people with different mental disorders (Thornton et al., 2012b; Thornton et al., in submission). These results suggest that people with different mental disorders may perceive substances differently. Specifically these results suggest that tobacco may be perceived more positively and fill an important role in the lives of people with psychotic disorders, while alcohol may do the same for people with depression (Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission).

Beyond reasons for substance use

This thesis aimed to generate a more extensive understanding of people's attitudes and perceptions regarding tobacco, alcohol and cannabis, as the majority of previous research in this area has only investigated reasons for substance use. As identified in *Paper 1* areas such as perceived harmfulness, knowledge, perceptions of public health campaigns, and other issues, have not been previously investigated in detail among people with mental disorders (Thornton et al., in press). This thesis generated some of the first information available regarding perceptions of public health campaigns, perceived harmfulness and knowledge regarding substances among people with mental disorders. Additionally, as *Paper 5* employed a flexible qualitative method, issues that were salient to the participants, and not only those perceived to be important by the researchers, were investigated (Thornton et al., in submission).

Anti-substance use public health campaigns

Perceptions of public health campaigns were investigated in *Papers 3* and *5*. Participants with psychotic disorders in *Paper 3* reported high exposure to anti-smoking public health campaigns and good knowledge of the effects of tobacco. However, despite remembering the campaigns and in some cases being scared by them, the campaigns were perceived to be ineffective because they were able to be ignored and the health messages promoted able to be deliberately disregarded (Thornton et al., 2011). Similarly, in *Paper 5* while participants with and without mental disorders thought anti-substance use campaigns addressing tobacco, alcohol and cannabis use to be important, they were also described to be ineffective at influencing changes in substance use behaviour. Participants engaged in a number of avoidant coping strategies regarding anti-tobacco campaigns in particular. Participants with and without mental disorders found reasons not to generalise the underlying health messages promoted to their own lives, gave themselves permission to ignore the campaigns as they were perceived to employ an authoritative and disrespectful tone, and absolved themselves of blame and responsibility to change their tobacco use as they conceptualized their smoking to be the result of uncontrollable genetic or personality traits (Thornton et al., in submission). These two studies represent preliminary investigations of the acceptability and perceived effectiveness of anti-substance use campaigns among people with mental disorders. They suggest that anti-substance use campaigns may be reaching this population and even increasing knowledge of the consequences associated with substance use. However, disappointingly they do not appear to be achieving their ultimate goal of actually changing the substance related attitudes and behaviours of people (Thornton et al., 2011; Thornton et al., in submission).

These results confirm those of previous research that suggest anti-substance use campaigns have considerable room for improvement (Babor et al., 2003; Gordon et al., 2006; Hill, 2004; Loxley et al., 2004). Just as anti-tobacco advertisements have been found to be less effective among disadvantaged populations, such as people of low socio-economic status or Aboriginal and Torres Strait Islander descent, this thesis suggests the same might be true for people with mental disorders. However, unlike previous research in which people from more advantaged backgrounds have been found to perceive anti-tobacco campaigns to be more effective and believable than people from disadvantaged backgrounds, participants without mental disorders in *Paper 5* also described anti-substance use campaigns to be ineffective (Pattanayak et al., 2012; Shanahan & Elliott, 2009; Thornton et al., in submission). Given the high prevalence of substance use among people with mental disorders (Degenhardt & Hall, 2001; Teesson et al., 2009) it is important that public health strategies that are effective among this population are developed.

Recommendations for future intervention and prevention strategies

The final aim of this thesis was to inform the development of more effective and appropriately targeted intervention and prevention strategies for co-occurring substance use and mental disorders. While a range of approaches were used to investigate the attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis in this thesis, the results generated in each of these studies were largely consistent with one another. This led to a number of recommendations to be made regarding how intervention and prevention strategies addressing substance use among people with mental disorders could be improved and appropriately targeted.

These results suggest that substance related attitudes and perceptions, among people with and without mental disorders, differ considerably by substance type (Thornton et al., 2012a; Thornton et al., in press; Thornton et al., in submission). This suggests that intervention and prevention strategies may be more effective if tailored by substance type. It is recommended, for example, that intervention and prevention strategies addressing alcohol use, among people with and without mental disorders, focus on assisting people to manage social situations without the use of alcohol. This could include providing alternatives to using alcohol in social situations, strategies on how one might refuse a drink of alcohol when it is offered and education regarding standard drink sizes. The in-grained social importance of alcohol use in Australia is recognized as a significant factor that maintains the alcohol use problem in Australia and could be a significant barrier to many people drinking alcohol in a responsible and safe way (Ministerial Council on Drug Strategy, 2006). Giving people the skills and knowledge to counter this influence, perhaps through individual counselling or wide spread educational campaigns, is vital to reducing the substantial burden alcohol use places on Australian society (AIHW, 2011b; Ministerial Council on Drug Strategy, 2006).

The perceived value of tobacco as an effective coping mechanism, and addiction, were found to be important factors influencing the smoking of participants (Thornton et al., 2012a; Thornton et al., 2011; Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission). In previous research, higher levels of stress have been found to be associated with increased smoking initiation, prevalence of smoking, frequency of smoking and quantity of cigarettes smoked (Rosario et al., 2011). Additionally it has been suggested that a reliance on substances to cope may contribute to further deterioration in long-term adaptive coping and to increased dependence on

substances to cope (Cooper, Frone, Russell, & Mudar, 1995). It is therefore recommended that smoking intervention and prevention strategies assist people to adopt more adaptive coping strategies and provide easily accessible and affordable support to manage cravings, such as over the counter subsidised NRT. Emerging evidence also suggests it may helpful to employ new technologies, such as smart phone applications and online social media, to provide support and feedback to people trying to change their substance use (Webb, Joseph, Yardley, & Michie, 2010). This support to cope with stress and manage cravings may be especially important among people with mental disorders who may also use tobacco to self-medicate symptoms of their mental illness (Thornton et al., 2012a). These results highlight the continued need for research to identify the mechanisms behind tobacco's ability to improve a range of cognitive deficits among people with psychotic disorders so that alternative and safer ways in which they can gain the same benefits can be developed (Kumari & Postma, 2005; Thornton et al., 2012a; Thornton et al., 2012b; Thornton et al., in submission).

For many participants cannabis was an important source of pleasure (Thornton et al., 2012a; Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission). Cannabis intervention and prevention strategies may therefore benefit by assisting people to find other, safer, ways in which they might gain pleasure from their lives. Health and counselling services should consider organising social gatherings and other enjoyable activities for clients, in an attempt to provide people using cannabis with other sources of pleasure, for example.

A small amount of previous research (Lawn et al., 2002) and the results of this thesis suggest that it may be helpful to consider diagnosis when developing interventions for substance use among people with mental disorders. In *Paper 4* (see table 4.5, Thornton et al., 2012b), participants with depression were found to use

alcohol primarily for coping motives, and almost two thirds of participants reported using alcohol to help with the symptoms of their mental illness or medication side effects. In contrast, participants with psychotic disorders reported using alcohol primarily for social motives. These results suggest alcohol use interventions could be more effective among people with depression if they focussed on alternative coping strategies and ways in which to relieve negative affect. On the other hand, alcohol use interventions among people with psychotic disorders may be more effective if they address alcohol use in social situations. *Paper 4* also found females were more likely than males to use substances, particularly alcohol, for coping and illness motives. This suggests it could be useful for health professionals to offer advice concerning alternative coping strategies to substance use to their female clients in particular.

The results of this thesis suggest that people with mental disorders are influenced by many of the same factors that influence people without mental disorders regarding substance use. The substance use of both groups was found to be influenced by a desire to fit in, to cope with stress and seek pleasure. Similarly, people with and without mental disorders reported a desire to reduce their substance use and its impact upon others, were aware of the health problems associated with substance use and used many of the same excuses for continuing their substance use (Thornton et al., in submission). Despite these similarities, discrepancies exist in the treatment and support offered to people with and without mental disorders, particularly to quit or reduce their tobacco use (Health Development Agency, 2001; Lawn & Pols, 2003, 2005). In some countries mental health wards are still exempt from smoke-free legislation and in these settings smoking has tended to be condoned (Lawn & Pols, 2003, 2005). Literature suggests that mental health professionals may be concerned that smoking cessation may negatively impact patients' mental health and this may be a barrier to implementing

intervention strategies (Banham & Gilbody, 2010; Health Development Agency, 2001). Evidence that many smoking cessation treatments are equally effective among people with and without mental disorders, and do not result in an increase of psychiatric symptoms is available (Banham & Gilbody, 2010; Lawn & Pols, 2003, 2005; Mendelsohn, 2012). This previous research, in conjunction with the results of this thesis, suggest that people with mental disorders should be offered the same treatment and support for their substance use, especially tobacco use, as people without mental disorders. However, to be optimally effective additional support may be needed for this population to overcome the additional difficulties presented by interactions between substance use and peoples' mental disorders, such as perceived improvement of psychiatric symptoms and increased daily stress (Thornton et al., 2012a). Indeed previous research regarding tobacco has found people with psychotic disorders who received an extended course of nicotine replacement therapy to have better outcomes than people who received only a standard course (Horst et al., 2005).

While some previous research has found anti-substance use campaigns, particularly anti-smoking campaigns, to be perceived as effective and to result in changes in substance use in the general population (Shanahan & Elliott, 2009), the majority of research indicates existing anti-substance use campaigns are not yet optimally effective (Babor et al., 2003; Gordon et al., 2006; Hill, 2004). It is suggested that campaigns may be more effective if they acknowledge and address some of the barriers to quitting and reducing substance use identified in this thesis. This could include addressing the difficulty of overcoming an addiction and substance use as an effective and reliable coping mechanism. Rather than simply promoting cessation or reduction of substance use, campaigns should promote alternative and healthy ways of coping with stress and suggest other ways in which people could achieve the benefits

they perceive themselves to receive from using substances. They should also take care to employ a respectful and encouraging tone, rather than being authoritative (Thornton et al., in submission).

Limits and Strengths

This thesis aimed to address the gaps and weaknesses of the existing literature investigating the attitudes and perceptions of people with mental disorders regarding tobacco alcohol and cannabis. A number of these areas were outside the scope of this thesis, or were only addressed in part, however and warrant further attention. The effect of socio-economic status (SES), for example, was not investigated in this thesis. It may be important for future studies in this area to control for SES, however, as it could be associated with differences in attitudes and perceptions towards substances (Shanahan & Elliott, 2009). It was also beyond the scope of this thesis to investigate attitudes and perceptions regarding substances among people outside Australia. Alcohol use in particular was found to be strongly influenced by Australian culture, for example, and it is unclear if social influences would play as strong a role in the alcohol use of people in other cultures. Future research should aim to extend the results of this thesis to other countries and cultures. This thesis also did not conduct a quantitative analysis comparing the attitudes and perceptions of people with and without mental disorders, or of the perceived harmfulness of substances. Future research could use the qualitative results of *Paper 5* (Thornton et al., in submission) to inform the development of quantitative research investigating these areas. Furthermore, a quantitative analysis of exposure to public health campaigns and knowledge of substances was only conducted for tobacco, in *Paper 3* (Thornton et al., 2011). It is recommended that future studies extend this research to include exposure and acceptance of alcohol and cannabis public

health campaigns and knowledge of these substances. This thesis also did not examine the links between substance related attitudes and perceptions and other variables such as patterns of substances use and severity of psychopathology. It should also be acknowledged that the attitudes and perceptions examined in this thesis are not exhaustive, and other idiosyncratic views may exist. As such the recommendations made may not be appropriate for all people.

In many ways, though extensive, this thesis was a preliminary exploration of the attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis. For this reason it did not aim to test or formulate a theory of substance use. The results of this thesis characterise substance use, especially among people with mental disorders, as an activity influenced by a complex range of factors including influence from immediate social networks and the wider social environment, experiences of stress and distress, physical addiction, knowledge of the consequences of substance use and expectancies of pleasure. While many of the existing theories and frameworks designed to explain substance use behaviours capture important elements of substance use, they do not address the full range of factors identified to play a role in people's substance use in this thesis (Michie, van Stralen, & West, 2011; West, 2006), meaning it was impossible to place the results of this thesis in the context of any one theory of substance use.

Substances were found to be frequently used to cope with stress and relieve negative affect, anxiety and in some cases psychotic symptoms. These findings support a self-medication (Khantzian, 1997) or alleviation of dysphoria (Leshner, 1998) model of substance use. However these models also state that psychological distress must predate substance use, which was not always the case with participants in this thesis. Participants also frequently described using substances, especially cannabis, to have fun

and experience a pleasurable high rather than to cope with negative emotional states (Thornton et al., 2012a; Thornton et al., in press; Thornton et al., 2012b; Thornton et al., in submission). These models also do not consider the social influences that were found to play an important role in alcohol use in particular in this thesis (West, 2006). Similarly, while the theory of planned behaviour (Ajzen, 1985) and the health belief model (Becker, 1974) consider peoples' attitudes towards substances, subjective norms and perceived degree of control over substance use, they characterize drug users as rational decision makers and do not address the potentially important roles of impulsivity, habit, self-control and the physical addiction some people have to substances (Michie et al., 2011; West, 2006).

On the other hand neurobiological theories of substance use, such as the dopamine theory of drug reward (Tomkins & Sellers, 2001; Ziedonis & Nickou, 2001), may explain some of the physical aspects of substance use such as addiction which was found to play an important role in participants' use of tobacco, and elucidate why people with mental disorders are more likely to use substances. However many aspects of these models are not yet well understood and these frameworks do not address the social influences of substance use (West, 2006). Similarly a disease model of addiction views addiction as a medical disorder and conceptualizes cravings as strong and all-encompassing urges to use substances (Gelkopf, Levitt, & Bleich, 2002; West, 2006). However, it also characterised the substance user simply as an impotent onlooker and does not consider the role of the user's choices, identity or social influences (West, 2006).

The PRIME theory of motivation and the Behaviour Change Wheel developed by West and Colleagues (Michie et al., 2011; West, 2006) are theories which aim to pull together the different aspects of existing theories to produce a more integrated and

encompassing theory of behaviour. Future research investigating the attitudes and perceptions of people with and without mental disorders regarding substances may consider using these models to guide their research and intervention development.

Despite these limits this thesis adds significantly to the body of knowledge regarding attitudes and perceptions towards substances among people with and without mental disorders. It includes some of the first research conducted that investigates attitudes and perceptions separately and simultaneously for different substances and for different diagnoses. It also generates some of the first information available regarding perceptions of public health campaigns among people with mental disorders, and some of the first in depth qualitative data available for many of these issues. This thesis contributes to an overall understanding of substance use, especially the factors underlying and influencing tobacco, alcohol and cannabis use among people with mental disorders. It also recommends a number of ways in which intervention and preventative strategies for co-occurring substance use and mental disorders could be improved and appropriately targeted.

Conclusions

This research suggests that attitudes and perceptions towards tobacco, alcohol and cannabis differ considerably by substance type, and to a lesser degree, by diagnosis. While all three substances were found to be used to cope with stress and to relax, this reason was particularly important for tobacco use among people with and without mental disorders. Social factors were found to play an important role in the alcohol use of people with and without mental disorders, while cannabis was often used as a source of pleasure by people with and without mental disorders. The type of harm these substances were perceived to cause was also found to differ considerably.

This research indicates that the substance use of people with and without mental disorders is influenced by many of the same factors, primarily by a desire to fit in, to cope with stress and to seek pleasure. Among people with mental disorders, however, their mental health and substance use are perceived to interact, which may explain the higher rates of substance use among this population and present an additional barrier to quitting or reducing substance use. Anti-substance use campaigns were perceived to be ineffective by people both with and without mental disorders.

Additionally, attitudes and perceptions towards tobacco, alcohol and cannabis were found to differ between people with a psychotic disorder and people experiencing depression. This research suggests tobacco is frequently used to achieve a range of positive effects by people with psychotic disorders, while alcohol is commonly used by people with depression to achieve these effects.

These findings suggest that to be optimally effective, intervention and prevention strategies should be tailored by substance type, so that the main factors influencing the use of each of these substances are addressed e.g. coping strategies for tobacco, social factors for alcohol and sources of pleasure for cannabis. These results also suggest that additional support, rather than different approaches or exemptions from existing substance use policies, should be offered to people with mental disorders who are using substances. It is hoped these insights will help to reduce the burden of disease placed on individuals and society by co-occurring substance use and mental disorders.

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Appendices

Appendix 1.

Appendix 1.1. Statements of contribution from co-authors Paper one

Statement of Contribution

I, Amanda Baker, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Lewin, T. J. Attitudes and perceptions towards substances among people with mental disorders: A systematic review. *Acta Psychiatrica Scandinavica*

Amanda Baker (Co-Author)

Date 19th June 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Martin Johnson, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Lewin, T. J. Attitudes and perceptions towards substances among people with mental disorders: A systematic review. *Acta Psychiatrica Scandinavica*

Martin Johnson (Co-Author)

Date: 30th May 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Terry Lewin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Lewin, T. J. Attitudes and perceptions towards substances among people with mental disorders: A systematic review. *Acta Psychiatrica Scandinavica*

Terry Lewin (Co-Author)

Date: 30th May 2012

Louise Thornton (Candidate)

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Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Appendix 1.2 Statements of contribution from co-authors Paper two

Statement of Contribution

I, Amanda Baker, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A., Johnson, M. P., & Lewin, T. Reasons for tobacco, alcohol and cannabis use among people with psychotic disorders: Mixed method exploration. Psychology of Addictive Behaviors.

Amanda Baker (Co-Author)

Date 19th June 2012

Louise Thornton (Candidate)

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Statement of Contribution

I, Martin Johnson, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A., Johnson, M. P., & Lewin, T. Reasons for tobacco, alcohol and cannabis use among people with psychotic disorders: Mixed method exploration. Psychology of Addictive Behaviors.

Martin Johnson (Co-Author)

Date 30th May 2012

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Statement of Contribution

I, Terry Lewin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A., Johnson, M. P., & Lewin, T. Reasons for tobacco, alcohol and cannabis use among people with psychotic disorders: Mixed method exploration. Psychology of Addictive Behaviors.

Terry Lewin (Co-Author)

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Louise Thornton (Candidate)

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Prof John Rostas (Assistant Dean Research Training)

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Appendix 1.3 Statements of contribution from co-authors Paper three

Statement of Contribution

I, Amanda Baker, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Kay-Lambkin, F. Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*.

Amanda Baker (Co-Author)

Date: 19th June 2012

Louise Thornton (Candidate)

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Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Martin Johnson, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Kay-Lambkin, F. Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*.

Martin Johnson (Co-Author)

Date 30th May 2012

Louise Thornton (Candidate)

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Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Frances Kay-Lambkin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A. L., Johnson, M. P., & Kay-Lambkin, F. Perceptions of anti-smoking public health campaigns among people with psychotic disorders. *Mental Health and Substance Use*.

Frances Kay-Lambkin (Co-Author)

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Prof John Rostas (Assistant Dean Research Training)

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Appendix 1.4 Statements of contribution from co-authors Paper four

Statement of Contribution

I, Amanda Baker, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

Amanda Baker (Co-Author)

Date 19th June 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Martin Johnson, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

Martin Johnson (Co-Author)

Date 30th May 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Terry Lewin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L., Baker, A., Johnson, M. P., & Lewin, T. Reasons for tobacco, alcohol and cannabis use among people with psychotic disorders: Mixed method exploration. Psychology of Addictive Behaviors.

Terry Lewin (Co-Author)

Date: 30th May 2012

Louise Thornton (Candidate)

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Date: 25th June 2012

Statement of Contribution

I, Frances Kay-Lambkin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

Frances Kay-Lambkin (Co-Author)

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Louise Thornton (Candidate)

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Statement of Contribution

I, David Kavanagh, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

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Date: 25th June 2012

Statement of Contribution

I, Robyn Richmond, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

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Date: 25th June 2012

Statement of Contribution

I, Brian Kelly, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Baker, A. L., Lewin, T., Kay-Lambkin, F. J., Kavanagh, D. J., Richmond, R., Kelly, B., & Johnson, M. P. Reasons for substance use among people with mental disorders. Addictive Behaviors.

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Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Appendix 1.5 Statements of contribution from co-authors Paper five

Statement of Contribution

I, Amanda Baker, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Johnson, M. P., Baker, A. L., & Kay-Lambkin, F. J. Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis. Qualitative Health Research.

Amanda Baker (Co-Author)

Date: 19th June 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Martin Johnson, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Johnson, M. P., Baker, A. L., & Kay-Lambkin, F. J. Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis. Qualitative Health Research.

Martin Johnson (Co-Author)

Date: 30th May 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Statement of Contribution

I, Frances Kay-Lambkin, attest that Research Higher Degree candidate Louise Thornton contributed substantially – in terms of study concept and design, data collection and analysis, preparation of the manuscript – to the publication:

Thornton, L. K., Johnson, M. P., Baker, A. L., & Kay-Lambkin, F. J. Attitudes and perceptions of people with and without mental disorders regarding tobacco, alcohol and cannabis. Qualitative Health Research.

Frances Kay-Lambkin (Co-Author)

Date: 19th June 2012

Louise Thornton (Candidate)

Date: 19th June 2012

Prof John Rostas (Assistant Dean Research Training)

Date: 25th June 2012

Appendix 2.

Appendix 2.1 Ethics approval Paper two and Paper three

HUMAN RESEARCH ETHICS COMMITTEE *Certificate of Approval*



| | |
|---|--|
| Applicant: (first named in application) | Associate Professor Amanda Baker |
| Co-Investigators / Research Students: | Mr Terry Lewin Mrs Frances Kay-Lambkin Dr Carmel Loughland Miss Louise Thornton Dr Martin Johnson |
| Protocol: | An exploration of attitudes and knowledge regarding tobacco, alcohol and cannabis among people with a psychotic disorder |

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-2008-0094

Date of Initial Approval: 15-May-2008

Approved to: 14-May-2011

Approval is granted to this date or until the project is completed, whichever occurs first. 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.

Initial Approval

11-Jun-2008

Approved

The Committee ratified the approval granted by the Chair on 15 May 2008 under the provisions for expedited review.

Renewal of Approval

Variations to Approved Protocol

Authorised Certificate held in Research Services

Professor Val Robertson
Chair, Human Research Ethics Committee

Appendix 2.2 Ethics approval Paper four

HUMAN RESEARCH ETHICS COMMITTEE



APPROVAL TO CONDUCT HUMAN RESEARCH

| | |
|--|---|
| To Chief Investigator or Project Supervisor: | Professor Amanda Baker |
| Cc Co-investigators / Research Students: | Miss Louise Thornton Doctor Martin Johnson |
| Re Protocol: | An exploration of reasons for substance use among people with mental disorders |
| Date: | 29-May-2012 |
| Reference No: | H-2009-0141 |

Thank you for your recent application to the University of Newcastle Human Research Ethics Committee (HREC) for approval of the protocol identified above.

Details of previous approvals for Initial, Renewal and Variation applications are available upon request.

A *Certificate of Approval* is enclosed.

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:
Human Research Ethics Administration

Research Services
Research Office
The University of Newcastle
Callaghan NSW 2308
T +61 2 492 18999
F +61 2 492 17164
Human-Ethics@newcastle.edu.au

Linked University of Newcastle administered funding:

| Funding body | Funding project title | First named investigator | Grant Ref |
|--------------|-----------------------|--------------------------|-----------|
|--------------|-----------------------|--------------------------|-----------|

Appendix 2.3 Ethics approval Paper five

HUMAN RESEARCH ETHICS COMMITTEE



APPROVAL TO CONDUCT HUMAN RESEARCH

| | |
|--|---|
| To Chief Investigator or Project Supervisor: | Professor Amanda Baker |
| Cc Co-investigators / Research Students: | Ms Louise Thornton Doctor Martin Johnson Mrs Frances Kay-Lambkin Miss Bethany Patch |
| Re Protocol: | Attitudes, Reasons for Use, and Knowledge of People with and without Mental Health Problems regarding Tobacco, Alcohol and Cannabis |
| Date: | 29-May-2012 |
| Reference No: | H-2010-1053 |

Thank you for your recent application to the University of Newcastle Human Research Ethics Committee (HREC) for approval of the protocol identified above.

Details of previous approvals for Initial, Renewal and Variation applications are available upon request.

A *Certificate of Approval* is enclosed.

**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.
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- **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.

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With best wishes for a successful project.

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Linked University of Newcastle administered funding:

| Funding body | Funding project title | First named investigator | Grant Ref |
|--------------|-----------------------|--------------------------|-----------|
|--------------|-----------------------|--------------------------|-----------|

Appendix 3.

Appendix 3 Interview Schedule for Papers 2 and 3

Interview schedule

Current and past tobacco, alcohol and/or cannabis use

Prompts: Have you ever used [substance]?

Perceptions of harm and addictiveness of tobacco, alcohol and cannabis

Prompts: Out of tobacco, alcohol and cannabis which do you think is the most harmful? To your physical health? Mental health? What type of harms do they cause? What type of problems do they cause? Out of tobacco, alcohol and cannabis which do you think is the most addictive?

Reasons for using tobacco, alcohol and cannabis

Prompts: Why do/did you smoke tobacco/drink alcohol/ use cannabis? Why do you think other people smoke tobacco/drink alcohol/ use cannabis?

Knowledge of tobacco, alcohol and cannabis

Prompts: What are some of the facts or information you know about tobacco/ alcohol/ cannabis?

Interpretations of health campaigns, messages and education information regarding tobacco alcohol and cannabis

Prompts: Can you remember seeing any public health campaigns or adds about tobacco/ alcohol/ cannabis? What did you understand the main messages of these campaigns to be? Did you think they were effective? Why do you continue to smoke/ drink/ use cannabis? Do you think they would stop other people from smoking/ drinking/ using cannabis?
