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, the strong social pressures influencing alcohol use and encouraged cannabis users to seek alternative pleasurable activities**.**

Declaration of Interest: None.

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, Lewis, Bebbington, Brugha, Farrell, Gill & Meltzer, 1997; Regier, Farmer, Rae, Locke, Keith, Judd & Goodwin, 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, Carr, Carter & Lewin, 2002; Kavanagh, Waghorn, Jenner, Chant, Carr, Evans, Herrman, Jablensky & McGrath, 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, Yarnold, Levinson, Singh, Bellack, Kee, Morrison & Yadalam, 1990).

These high rates of substance use disorders are of concern as they have been consistently associated with adverse outcomes for this group, including symptom worsening (Carey, Carey, & Meisler, 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 to do this, however, we must improve our understanding of why people with psychotic disorders use these substances (Chabrol, Duconge, Casas, Roura, & Carey, 2005; Kuntsche, Knibbe, Gmel, & Engels, 2006; Spencer, Castle, & Michie, 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 collegues (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., 1999a). 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., 1999b).

A number of studies have found substances, especially cannabis, to be frequently used to increase pleasure and for intoxication effects. 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. Pencer and Addington, 2008; Fowler et al., 1998; Addington & Duchak, 1997). In Carey et al.'s (1999a) 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, Gretchen, Weiden, Sweeney & Frances, 1991; Gearon, Bellack, Rachbeisel & Dixon, 2001; Gregg, Haddock & Barrowclough, 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 substance use disorders 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 combining 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, Fetters, & Ivankova, 2004; McKibbon & Gadd, 2004; Smith, 2003; Smith, Flowers, & Osborn 1997).

METHOD

Participants and Procedure

A self-report assessment battery was sent to 246 registrants on the Australian Schizophrenia Research Bank (ASRB) (Loughland, Carr, & Lewin, 2001; Loughland, Draganic, McCabe, Richards, Nasir, Allen, Catts, Jablensky, Henskens, Michie, Mowry, Pantelis, Schall, Scott, Tooney & Carr, 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 participant's 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, Reutenauer, Allen, Termine, Vessicchio, Sacco, Easton, McKee & George, 2007). These measures have been shown to be valid and reliable measures, for example: studies suggest the FTND, AUDIT and CUDIT have acceptable levels of internal consistency (.61-.70, .80-.94, and .84, respectively) (Adamson & Sellman, 2003; Dawe, Conigrave, Hall & Saunders, 1995; Conigrave, Saunders & Reznik, 1995; Etter et al., 1999; Heatherton, 1991); scores on the FTND have been found to be strongly associated with quitting self-efficacy and self-perceived dependence on cigarettes (Etter et al., 1999); the AUDIT displays moderate to high correlations with other self-report measures of alcohol misuse, and is a better predictor of future alcohol-related medical and social problems than any biochemical markers (Dawe et al., 1995; Conigrave et al., 1995); and a CUDIT cut-off score of 8 has been found to positively identify 73.3% of individuals with a current cannabis use disorder and, compared to a frequency

measure of cannabis use, is better at identifying cannabis abuse or dependence (Adamson & Sellman, 2003).

Scores of 7 or more on the FTND are recommended to indicate probable nicotine dependence (Hetherton et al., 1991), scores of 8 or more on the AUDIT are recommended as indicators of hazardous and harmful alcohol use and probable alcohol dependence (Babor et al., 2004) and scores of 8 or more on the CUDIT are recommended as indicators 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-occuring substance use and psychosis (Baker, Bucci, Lewin, Richmond, Carr, 2005) or depression (Kay-Lambkin, 2006; Kay-Lambkin, Baker, Lewin & Carr, 2010), 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 (see above), 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 [χ^2_{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-occuring 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, α = .78 - .83; Coping, α = .77 - .84; Pleasure Enhancement, α = .83 - .86; and Illness motives, α = .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), 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 collegues (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. (1997, 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 then 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 1 shows the number of participants using each substance.

(Table 1 about here)

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 the ASRB (Loughland et al., 2010) found that the groups differed significantly in age (43.70 vs 38.74, $t(487) = 3.63$, $p<0.001$) and but did not differ on gender distribution (65% vs 65.9% 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 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 substance use disorder (yes/no) were included as covariates in subsequent analyses. Substance use disorder 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 about here)

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 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 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 3) exploring the significant motive by substance interaction found that these patterns of reasons for use differed significantly. As shown in Table 3 and Figure 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 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.

(Table 3 and Fig. 1 about here)

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, 2 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 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 4 about here)

I: Substance use for intoxication effects

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'.

II: 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).

III: 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 pressures 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.

IV: 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 effected people with psychotic disorders differently to people without psychotic disorders.

DISCUSSION

This study compared reasons for tobacco, alcohol and 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, they 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, adds unique insight and detail to this literature (Forchuk et al., 2002; Smith, Singh, Infante, Khandat, & Kloos, 2002).

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 allows control of symptoms and results in positive feedback from friends? In such circumstances it is important that other methods of obtaining the same symptom benefits be made available. Before such treatments are developed

however it may be advantageous for services to offer nicotine replacement therapy to patients for a sustained period and at a high enough level to manage their cravings for tobacco and symptoms of withdrawal.

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 why there is a call for smoking bans in all mental health units (Wye, Bowman, Wiggers, Baker, Knight, Carr, Terry &Clancy, 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. Out findings also confirm the research of Carey et al. (1999b) 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 that 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 relive 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 (1999a) 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. This result may 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; 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 generalizabilty 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.

Furthermore, alcohol use was linked very closely to Australian culture. It would be valuable to investigate the generalizabilty 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 and the first to supplement quantitative data regarding patterns of reasons for substance use with rich qualitative descriptions of individuals reasons for substance use. This approach allowed us to gain a greater understanding of reasons for substance

use among people with psychotic disorders and lead 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 substance use disorders.

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Table 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

Table 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

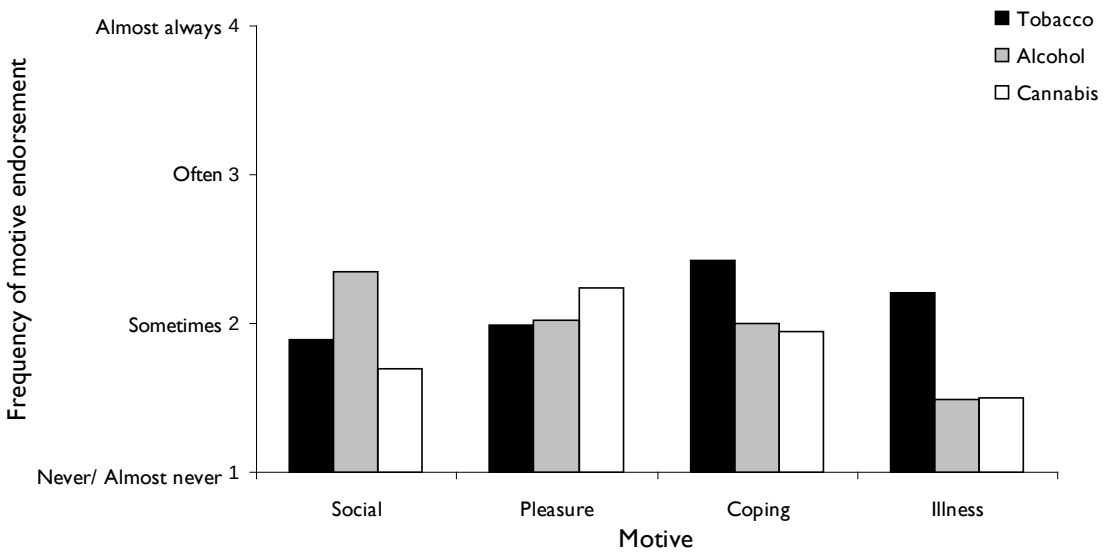

Fig. 1. Patterns of reasons for tobacco, alcohol and cannabis use among people with psychotic disorders.

Table 3. Scheffé follow-up contrasts (*n = 64*).

	Social vs Pleasure	*Social vs Coping*	*Social vs Illness*	*Pleasure vs Coping*	*Pleasure vs Illness*	*Coping vs Illness*
	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

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

Table 4. Superordinate and subordinate themes identified in the qualitative data.

Superordinate themes	*Subordinate themes*
Substance use for intoxication effects	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