



The relationship between alcohol use and injecting drug use: Impacts on health, crime and wellbeing

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ABSTRACT

Background and objectives: People who inject drugs (PWID) are at risk of a variety of adverse outcomes. Previous research suggests that alcohol, when consumed with opioids, is a risk factor for overdose, but there has been less investigation of the effects of alcohol consumption on other health, criminogenic or life satisfaction outcomes. In this paper we explore the effects of alcohol on outcomes for PWID across a variety of life domains.

Methods: Baseline data were drawn from the Melbourne Injecting Drug User cohort study, which is a cohort of 688 PWID. Drinking scores were generated from the AUDIT-C (0, 1–7, 8+) and associations between them and health (recent heroin overdose, Emergency Department use), criminogenic (violent and nonviolent crime) and life satisfaction (personal wellbeing) outcomes were examined using logistic and linear regression.

Results: While around 36% of the cohort reported past-month abstinence from alcohol, 44% scored between 1 and 7 and 20% above 7 on the AUDIT-C. A score above 7 was associated with perpetration of violent crime and lower personal wellbeing ratings than a score of 0, after adjusting for potential confounders. There was no association between alcohol and other outcomes examined, after adjustment for confounders.

Conclusion: Cohort participants who drink heavily were more likely to report engaging in violent crime and poorer life satisfaction. The relationship between alcohol and the offending behaviours of the cohort was consistent with the effects of alcohol on violent offending in the broader community.

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1. Introduction

People who inject drugs (PWID) are at risk of a variety of adverse health and criminogenic outcomes, such as overdose and arrest (Dietze et al., 2005; Kerr et al., 2005; Kinner et al., 2009; Stoové et al., 2009; Teesson et al., 2008). Age- and sex-standardised rates of mortality from overdose or other drug related causes are high (Degenhardt et al., 2011), and involvement with the legal system is frequently noted among samples of PWID (Kinner et al., 2009). They also report significantly lower levels of overall life satisfaction than the general community (Dietze et al., 2010). It is therefore not surprising that studies have also found that PWID are frequent users

of health services (Darke et al., 2007; Kerr et al., 2005). For example, 60% of participants in a cohort of PWID in Vancouver accessed an Emergency Department and 78% accessed primary care services over a two-year period (Kerr et al., 2005).

A large body of research has examined exposures associated with these adverse outcomes among PWID. For example, the use of central nervous system depressants such as benzodiazepines and alcohol has been shown to be a risk factor for non-fatal overdose (Dietze et al., 2005) and drug (i.e., frequent crystal methamphetamine injection) and chronic disease-related (i.e., HIV) exposures have been shown to be significant predictors of service utilisation (Kerr et al., 2005). However, few researchers have examined alcohol consumption as a key explanatory variable for adverse outcomes in PWID (other than overdose). For example, most studies of service utilisation in PWID (e.g., Darke et al., 2007; Kerr et al., 2005) did not include alcohol consumption as an explanatory variable in analysis. Similarly, past studies of overall personal wellbeing of PWID failed to consider the potential impact of

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alcohol consumption (Dietze et al., 2010). The omission of alcohol consumption exposures in these studies is somewhat surprising given the well-established link between problematic alcohol consumption patterns and acute and chronic health harms in general populations (Babor et al., 2010), and given that alcohol use is known to increase risk for adverse outcomes among PWID.

Various studies have shown associations between alcohol consumption and the perpetration of aggressive and violent behaviour in the general population (Chermack and Blow, 2002; Graham and Homel, 2008; Graham and Wells, 2001; Marshall et al., 2008). Possibly as a result of the disinhibitory effects of alcohol, alcohol is seen as having a causative role in violent or aggressive behaviour (Parker and Auerhahn, 1998; Room and Rossow, 2001). This proposition is supported by evidence that increasing alcohol consumption is associated with increased severity of aggression (Graham and Wells, 2001). In the literature on injecting drug use, the role of alcohol consumption in violent behaviour has been demonstrated in numerous studies (e.g., Marshall et al., 2008; Torok et al., 2008); however, the measurement of alcohol consumption in these studies is not consistent. For example, Torok et al. (2008) use the Alcohol Use Disorders Identification Test (AUDIT) scores to measure consumption in their sample, treating them as a continuous measure of alcohol consumption, in spite of the fact the AUDIT is a screening measure of alcohol disorders, comprising measures of consumption and harm, not consumption alone. In contrast, Marshall et al. (2008) developed a binary measure of alcohol consumption in which a 'yes' indicated that the participant consumed at least four (Canadian standard) drinks per day in the previous six months, allowing for only a restricted measurement of alcohol consumption. Nevertheless, with these measurement caveats in mind, alcohol has been consistently associated with violent victimisation and perpetration in studies of PWID.

In summary, previous research suggests a causative role for alcohol in aggressive incidents and that this would be expected to be manifested in PWID. However, in relation to other life domains such as health and wellbeing, alcohol is rarely included as an explanatory variable in analyses involving PWID. Heavy drinking does not always impact on these life domains for the wider population (e.g., alcohol dependence per se is not associated with increased visits to general practitioners; Proudfoot and Teesson, 2009), but it is unknown whether alcohol consumption or heavy drinking would impact on these domains for PWID after adjusting for potential confounders, in particular intensity of illicit drug use. If alcohol consumption or heavy drinking is linked to a kind of generalised deviance and poorer health among PWID, then particular drinking patterns would be independently associated with decreases in measures across all these life domains. If, on the other hand, alcohol use is associated with violent behaviours alone, then one would expect that alcohol consumption or heavy drinking would only impact on measures these behaviours alone.

In order to examine these issues this study has been specifically designed to explore the effects of alcohol consumption, and heavy drinking in particular, on health, criminogenic and life satisfaction outcomes for PWID.

2. Methods

2.1. Sample and interviews

A sample of 688 PWID was recruited and interviewed as part of the Melbourne Injecting Drug User Cohort Study (MIX). MIX involves interviewing eligible participants (18–40 years of age, injecting in the month prior to interview) annually using a structured questionnaire that canvasses participant demographics, patterns of lifetime and recent (past month) alcohol and other drug acquisition and use, and the health and social consequences of drug use. Interviews take place in different locations across Melbourne, usually in and around six main drug markets in the greater metropolitan area (St. Kilda, Footscray, Dandenong, City of Yarra, City of Melbourne, Frankston). Trained interviewers administer the questionnaire with

the aid of personal digital assistants (PDAs) running Questionnaire Development System software (Nova Research Company, Maryland, USA). At the end of each interview, participants are reimbursed AUD\$30 for their time and out-of-pocket expenses. Data for this paper were obtained from baseline interviews conducted with participants between April 2008 and January 2010. The study was approved by the Human Research Ethics Committees of the Victorian Department of Human Services (now the Victorian Department of Health) and Monash University.

2.2. Outcome variables

We examined a variety of health, criminogenic and life satisfaction outcomes reported by participants including: recent (past six months) heroin overdose, past month hospital emergency department attendance, past month perpetration of violent crime, fraud or drug dealing, and overall life satisfaction as measured by the Personal Wellbeing Index (PWI; Cummins, 2003; Dietze et al., 2010).

2.3. Predictor variable

Drinking status was derived from a variant of the AUDIT consumption questions (AUDIT-C) (Bush et al., 1998), modified to include only a past month rather than past year timeframe (to ensure compatibility with the other drug use questions used in the questionnaire). Drinking status cutpoints of abstinent, moderate and high risk in the past month were calculated on the basis of AUDIT-C scores of 0, 1–7 and 8+, respectively.

2.4. Potential confounders

Potential confounders of all of the above outcomes were generated for inclusion in analysis in the socio-demographic and drug use domains.

Socio-demographic correlates: age (<20, 20–24, 25–29, 30+), gender (male, female), education (<year 10, year 10–1, year 12+ – including post-high-school courses), employment (unemployed, employed/other) and indigenous (indigenous/non-indigenous) status, living circumstances (with spouse/partner, alone or with spouse/partner and with children, with parents/other relatives, with friends/housemates, alone, other), recruitment site (St. Kilda, Footscray, Dandenong, City of Yarra/CBD, Frankston), country of birth (Australia/other), accommodation type (owner-occupied, private rental, public housing, unstable – including homeless, boarding house and temporary accommodation), ever failed a year at school (y/n), ever been expelled from school (y/n), incarceration history (never, once, twice, 3+ times).

Drug use correlates: additional drug use variables included: length of injecting career (years), current pharmacotherapy (methadone or buprenorphine, y/n), past month use of main drugs (heroin and methamphetamine, heroin only, methamphetamine only, neither heroin nor methamphetamine), frequency of heroin use in the week before interview (none, <7times, 7–13 times, >13 times), frequency of methamphetamine use in the week before interview (none, 1–2 times per week, >2 times past week), past-month use of benzodiazepines (y/n), self-reported hepatitis C (HCV) status (y/n) and most recent purchase of heroin/speed used in public (e.g., park, street) location (y/n).

2.5. Analysis strategy

Data were downloaded from PDAs and transferred into a Stata 11 database for analysis.

Simple descriptive statistics were generated for each of the outcomes. We then examined the bivariate relationships between drinking status and each of the outcome variables using logistic regression.

Our multivariable analysis followed the confounding model building protocol used in several recent papers focused on relationships between a primary explanatory variable and a given outcome of interest (e.g., Milloy et al., 2009). Here, we began with a full model for each outcome that included the drinking status variable and all the potential confounders listed above. We then ran reduced models with each potential confounder removed in turn. The relative change of the coefficient for the drinking status variable was then examined in each of these models. The omitted potential confounder that resulted in the smallest change in the coefficient for the drinking status variable was then removed from further analysis. This procedure was repeated until the smallest change in the drinking status coefficient was greater than 10%. The final models include the relationship between drinking status and each of the six outcomes, after adjusting for relevant potential confounders. We report only the adjusted relationship between drinking status and each of the six outcomes in this paper. Tests of multicollinearity between potential confounders showed variance inflation factors within accepted limits.

3. Results

The distribution of drinking scores across the sample is shown in Table 1 along with a selection of other drug use and demographic characteristics. The sample was comprised largely of

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