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Illicit Drug Use and Experience of Harm in the Night-time Economy.

Abstract

The study investigates illicit drug use in the night-time economy and its association with intoxication, harm and violence experienced by licensed venue patrons. Five-minute structured interviews measuring event-level data were conducted over a 15 month period (March 2010 – June 2011) between 9pm-1am. 3,949 patrons interviews were conducted in Newcastle and Geelong, Australian regional cities close to capital cities. Mean age was 24.3 years old ($SD=5.8$) and 54.4% were male. Six percent of the sample self-reported consuming illicit substances at the time of interview; 7.3% at nightclub venues, 11.8% in the street, 5.5% in pubs and 2.8% in bars. Amphetamines, methamphetamines and ecstasy accounted for two thirds of substance use. Patrons who reported consuming illicit drugs were 1.90 times as likely to be involved in a prior violent incident (OR 1.35-2.70 95%CI, $p<0.001$). Participants who reported illicit drug use at time of interview were likely to be 0.89 ($p<0.001$) points higher on self-reported intoxication scale (0-10), and were more likely to have engaged in high risk alcohol consumption $\chi^2(1, n=3,396)=9.63, p<0.01$ than those who did not report using drugs. Illicit drug use contributes significantly to the burden of harm and intoxication in nighttime environments, despite being a minority behaviour.

Illicit Drug Use and Experience of Harm in the Night-time Economy.

Introduction

Attending night-time entertainment districts (NED's) and nightlife venues such as clubs, pubs, bars and raves is a central activity in the lifestyle of many young people (Parker & Williams, 2003). Prior research has found that the use of club drugs in NED's has become 'normalized' (Sindich & Burns, 2010) and illicit drug use is an ordinary and tolerated behaviour in this environment according to both the majority of abstainers (53%) and users (72%) (Duff, 2005). Despite widespread literature regarding the prevalence of illicit substance use in the general population (Australian Institute of Health and Welfare, 2011b), including data specific to ecstasy and related drugs (Langley, Kypri, Cryer, & Davie, 2008), very little research has been conducted in NED's investigating prevalence of illicit drug use and related violent/aggressive harm, especially research which has directly examined the interplay between illicit drug use, intoxication and violence. This study addresses this research gap, contributing to a better understanding of the interconnections between illicit drug use, intoxication and violence and the possibility of better-informed government policies.

Party and Club Drugs

Club drugs (sometimes also called 'party drugs') are commonly used in NED's, with recent Australian research showing 58% of supplied ecstasy, 43% of cocaine and 36% of ketamine was consumed in a nightclub, pub or rave in 2010 (Sindich & Burns, 2010). Specific substances consumed by party goers typically include ecstasy, (meth) amphetamine, cocaine, ketamine, Gamma-Hydroxybutyric acid (GHB), LSD and cannabis, and emerging synthetic stimulants such as Mephedrone (Bolier, Voorham, Monshouwer, Hasselt, & Bellis, 2011; Duff, 2005). Australia-wide data indicates that the use of club

drugs remained relatively steady in the period between 2007-2010, with the exception of an increase in cocaine (1.6% to 2.1% per annum) and a decrease in reported ecstasy use (Australian Institute of Health and Welfare, 2011a). However, while levels of self-reported club drug use in Australia have remained steady, the scale of the crime, health and self-reported data indicates that illicit drug use poses significant risks to individual safety (Duff, 2005; Mental Health Drugs and Regions Division, 2011). For instance, in Melbourne (Australia) in 2010, ambulances attended 9,187 illicit drug related callouts in the metropolitan area and 1,279 hospital admissions were identified as specifically related to club drugs (Mental Health Drugs and Regions Division, 2011; Sindich & Burns, 2010). Ecstasy was the most commonly reported illicit drug associated with both attending the emergency department and needing to receive first aid (Sindich & Burns, 2010). Other drugs, including methamphetamines, GHB and cannabis were also reported to a lesser extent (<1% for using hospital, ambulance, emergency services and needing to receive first aid). Other studies have investigated prevalence of illicit drug use amongst high-risk subgroups of nightlife attendants, including sub-cultures identified according to musical preference (Forsyth, Barnard, & McKeganey, 1997), sexuality (Degenhardt, 2005; Lea, Reynolds, & de Wit, 2013; Measham, Wood, Dargan, & Moore, 2011), and tertiary study (Thombs, et al., 2009), although links between drug use and harm were not investigated and the specificity of the samples reduces generalizability in terms of potential intervention.

Involvement with crime, violence and harm.

A small body of research has documented the link between 'party' drug use and involvement in crime (e.g. Darke, Torok, Kaye, Ross, & McKetin, 2010; Vaughn, et al., 2010). A substantial minority of people in the Australian EDRS sample who regularly use club drugs reported having engaged in criminal activities such as drug dealing (24%) and property crime (13%), and 5% having committed a violent assault in the past year (Sindich & Burns, 2010) Further, data collected from the Drug Use Monitoring in

Australia project (DUMA) found that 23% of police detainees attributed their crimes to illicit drug use (Australian Institute of Criminology, 2012), and two in every three police detainees tested positive to drugs other than alcohol (Gaffney, Jones, Sweeney, & Payne, 2010).

Amongst those studies that have investigated nightlife patrons, event-level measurement of “current session” consumption is rare. In a large pan-European study of nightlife violence, Schnitzer et al. (2010) found that past 12 month use of ecstasy, cocaine and cannabis was associated with involvement in physical violence, particularly increasing risk amongst females. However, they contend that despite significant attention from researchers and law enforcement authorities, relatively little had been done to elucidate the link between illicit drug consumption in nightlife areas and its influence upon violent crime. Further, they identified that existing work fails to disentangle the pharmacological effects of party drugs upon violent behaviour from the effects which are a result of drug manufacturing and dealing systems (Schnitzer, et al., 2010).

Rationale

Very little research has been conducted in NED’s investigating “current session” illicit substance use and related harms. None has been conducted in Australia. This study is the first of its kind to interview large numbers of patrons in and around licensed venues about their substance use and any consequences they might have experienced.

Methodology

Research sites

This study was part of a larger study which involved evaluating two unique and very different frameworks for addressing alcohol-related harm in the entertainment precincts of two regional Australian cities: Geelong (Victoria) and Newcastle (New South

Wales). While Geelong's focus was on maintaining late trading hours and reducing subsequent harm, Newcastle had a mandatory closing time and set of other conditions imposed (Kypri, McElduff, & Miller, in press; Miller, et al., in press; Miller, et al., 2012b). Geelong and Newcastle are highly comparable in terms of their social and demographic histories and characteristics (Miller, et al., 2011). The central Geelong suburb has around 150 licensed venues (156 in March 2009), with 29 general (hotel) licenses and a further 83 on-premise licenses (restaurants). At the time of writing, 12 venues had licenses to trade after 1am and one venue continued to trade normally to 7am. The Newcastle Metropolitan area 170 hotel licenses, 44% (n=75) of which are located in the Newcastle Local Government Area (NSW Office of Liquor Gaming and Racing, 2009). During the study period, 12 venues had licenses to trade after 1am and all closed at 3:30am.

There are a number of reasons why Geelong and Newcastle were selected as locations to conduct research into alcohol-related problems, both around licensed venues and within the wider community. A major benefit of doing research in both cities is that both the communities are large enough to suggest validity for larger cities, but also small enough that key stakeholders in the community can be drawn together easily. Both Geelong and Newcastle are far enough removed geographically to be able to assume that interventions on a local level are unlikely to be substantially affected by interventions in place in other cities or regions. On the other hand, both Geelong and Newcastle are close enough to major cities (Melbourne and Sydney) that distance from major transport hubs is unlikely to be enough of an issue to create distinct consumption and cultural patterns.

Apparatus

Patron surveys collecting event-level data were conducted over a 15 month data collection period (2010-2011) at randomly selected venues (43 nights) (Miller, et al., 2011). In agreement with licensees, a team of 4 or more trained researchers attended up to 6 venues on allocated evenings (Miller, et al., 2011).

The Patron survey consisted of 7 domains. *Demographics*: year of birth, postcode and occupation and first name. *Past and planned movements on the survey night*: venues and premises attended that night, amount of money spent, motivation for going out, how they are planning to get home. *Normal entertainment patterns*: frequency of attendance at licensed venues, frequency of intoxication, frequency of service refusal. *Safety*: perceptions of safety in venue, measures they use to keep safe, frequency of police and security/ID checks. *Experience of harm*: witness and/or involvement in an aggressive incident. For events reported: intoxication levels at time of incident and incident setting. *Policy attitudes*: attitudes regarding effectiveness of multiple policy measures being implemented at research sites. *Patron intoxication*: self-rated intoxication (0-10, 10 highest) caused by alcohol and/or illicit drugs, amount of alcohol consumed, amount of alcohol consumed before visiting a licensed premises, refusal of service, and other substance use. All “current-session” alcohol and substance use items referred to consumption in the 12 hours prior to interview. Patron intoxication was also independently rated by the interviewer based upon visible symptoms of intoxication. Details were also recorded about the location of the interview, time, date and the interviewer’s name. If the interview was ended early, the reason for this was recorded.

Each member of the research team randomly (every 3rd person was approached) approached patrons, briefly explained the survey and invited them to participate in a 5 minute survey. A business-sized information card was provided to each respondent, containing a study web address and contact details for further information or withdrawal of consent.

All surveys were completed on busy nights of the week (typically Friday and Saturday nights) between peak hours (typically 9pm to 1am). Surveys were conducted at later times (until 3.30am) in Geelong on at least 2 occasions to reflect the later trading hours. Survey data were directly entered into PDA Palm Pilots or iPhones, and was then extracted into a spreadsheet for data analysis.

Analysis

All statistical analysis were conducted using SPSS v20.0 or later. Data was analysed based on frequency counts. Group differences (such as involvement in aggressive incidents, substance use behaviour, and intoxication levels) were explored using chi-square statistics and multivariate statistical methods (multiple linear and logistic regression) to determine association with and predictive value towards experience of harm. Harm was operationalised as involvement in aggression in the previous 12 months. Missing values were removed case wise, available cases are reported for each regression analysis. Missing data was coded as 'no value' by the equipment, and was attributed to incomplete interviews as a result of disturbance, the interviewee leaving, or the interviewee being too intoxicated to continue. Assumptions of minimum cell count, homogeneity of variance and multicollinearity were tested prior to analysis.

Results

Sample Characteristics

In both cities, the sample comprised of patrons attending licensed venues (hotels and nightclubs) located within the main entertainment precincts of the each city. The interviewers approached a total of 4,374 potential interviewees (Geelong (G), 2,051; Newcastle (Nc), 2,323). A total of 3,949 people agreed to be interviewed, a response rate of 90.7%. Around half (54.4%) of the interviewees were male. The mean age of interviewees was 24.3 years old ($SD=5.8$). After removing missing data case-wise for all

key variables, $n=3,514$ cases were available for regression analysis. Table 1 reports illicit substance use prevalence and frequency of self and interviewer rated intoxication ratings for the sample.

Overall, 3.9% of the sample (5.4% in Geelong and 2.8% in Newcastle) reported the use of amphetamine type substances (ATS). This categorisation is most accurate given the generally poor level of consumer knowledge about the chemical composition of the drugs they are consuming, and seizure data showing that most of the drugs that Australian users believe to be ecstasy or amphetamine are in fact methamphetamine based (Sindich & Burns, 2010).

Table 1 Descriptive Statistics for Key Variables

INSERT TABLE 1 APPROX. HERE.

A bivariate Pearson correlation found a moderate strength positive correlation between self rated intoxication and the total number of interviewer rated intoxication symptoms, $r = 0.43$, $n = 3,670$, $p < 0.001$. As the number of visible intoxication symptoms increased, mean self-rated intoxication increased ($\chi_0=3.68$, $\chi_1=4.73$, $\chi_2=5.31$, $\chi_3=6.29$, $\chi_4=6.28$, $\chi_5=6.73$).

Substance Use and Experience of Harm

Table 2 reports the prevalence of reported substance use at the time of an aggressive incident within the past 12 months, compared to reported prevalence of substance use at the time of interview. Almost a third (28.8%) of participants who had been involved in an aggressive incident reported that either themselves or the other perpetrator had been using illicit substances at the time of the incident. In comparison, 6.2% of the total sample reported illicit drug use at time of interview. Consumption rates for all illicit substances were reported as higher at the time of prior aggressive incident, with the exception of cannabis and ketamine which were lower. Substance use was

reported more frequently at nightclub venues (7.3%) and in the street (11.8%) compared to pub venues (5.5%) and bar venues (2.8%).

Table 2 Prevalence of Substance use at Time of Aggressive Incident vs. Time of Interview

INSERT TABLE 2 APPROX. HERE.

Table 3 reports the results of 2x2 chi-square analyses conducted to assess variance in experience of violence associated with specific illicit substances. With the exception of ketamine users, the use of all substances was significantly more likely to be involved in an aggressive incident in the preceding 12 months.

Table 3 Self-reported illicit drug use at the time of interview and involvement in violence in the previous 12 months.

INSERT TABLE 3 APPROX. HERE.

A binary logistic regression was performed with involvement in an aggressive incident in the previous 12 months as the dependent variable and overall drug use (yes/no/answer withheld), poly-substance drug use, gender, venue type and study site as predictor variables. A total of 3,514 cases were analysed and the full model significantly predicted involvement in a fight (omnibus $\chi^2 = 147.47$, $df=8$, $p<.005$). The model accounted for between 4.1 and 7.1% of the variance in experience of violence (see Table 4).

Patrons who had reported use of illicit substances at the time of interview were 1.90 times as likely to be involved in a prior aggressive incident (OR 1.35-2.70 95%CI, $p<0.001$). This ratio increases to 3.31 times as likely for patrons who withheld response to the substance use item (OR 1.33-8.21 95%CI $p<0.05$). Males were 2.76 times more likely than females to have been involved in an aggressive incident (OR 2.24-3.40 95%CI

$p < 0.001$). Likelihood of involvement in an aggressive incident did not differ significantly between sampling sites (OR 0.77-1.18 95%CI $p > 0.05$). Attendants at nightclub type venues were 1.48 more likely to have been involved in an aggressive incident compared to those who attended bars (OR 1.02-2.17 95%CI $p < 0.05$), whereas other venue types were not significantly predictive of involvement.

Association of Substance Use with Visible and Self-Reported Intoxication

A multiple linear regression was performed with self-rated intoxication as the dependent variable and overall drug use, poly-substance use, study site, venue type and gender as predictor variables. Using the enter method, a significant model emerged: $F(8, 3,011) = 14.65, p < 0.001$. Table 4 gives information for predictor variables entered into the model.

Illicit substance use at the time of interview was significantly associated with higher levels of self-rated intoxication. Participants who had self-reported consuming illicit drugs at the time of interview were likely to be 0.89 ($p < 0.001$) points higher on the self-reported intoxication scale (0-10). Males were more likely to report a significantly higher level of intoxication than females, though the effect was small (0.30, $p < 0.001$). Attendants at nightclubs were likely to report significantly higher intoxication level than bars (0.62, $p < 0.001$), whereas other venue types were not significantly predictive of increased self-rated intoxication.

A multiple linear regression was performed with interviewer-observed signs of intoxication as the dependent variable and overall drug use (yes/no/answer withheld), poly-substance drug use, study site, venue type and gender as predictor variables. Using the enter method, a significant model emerged: $F(8, 3,513) = 29.68, p < 0.001$. However, the model only explains approx. 6% of the variance in interviewer observed intoxication (Adjusted $R^2 = 0.06$). The number of interviewer-observed physical symptoms of intoxication was likely to be higher in patrons who had consumed illicit drugs (0.78,

$p<0.001$). Attendants at nightclub venues were likely to exhibit more visible intoxication symptoms than bar type venues (0.28, $p<0.001$).

Participants who had engaged in pre-drinking were significantly more likely to self-report consumption of illicit substances at the time of interview. When controlling for pre-drinking behaviour, 6.1% of pre-drinkers reported illicit substance use, compared to 3.6% of non-pre-drinkers $\chi^2 (1, n=3,396)=9.63, p<0.01$).

Table 4 Binary logistic and multiple regression analyses predicting intoxication and involvement in physical aggression: significance, odds Ratios and B- weights

INSERT TABLE 4 APPROX HERE.

Discussion

Self-reported illicit drug use was relatively infrequent (6.2%) when compared to high-risk alcohol consumption and pre-drinking behaviour, contrary to general public perception amongst both abstainers and substance users that illicit drug use is a normal behaviour (Duff, 2005). However, illicit substance users contribute significantly to the burden of harm associated with violence and high level intoxication. ATS consumption rates (past 12 months) at the time of interview were almost double the population rate. Unsurprisingly, this rate is highest for people who attend late-trading nightclubs, rather than those who go to bars or pubs. Illicit substance users are entering NEDs at a higher level of intoxication compared to other participants and are at increased risk of having experienced violent or aggressive harm.

Illicit Substance-Use and Violence

Patrons who had consumed illicit drugs at the time of the interview were approximately twice as likely to be involved in a prior violent incident in nighttime entertainment areas, increasing to 3.3 times as likely for patrons who withheld response to the substance use question. Participants who withheld response to illicit drug use

items on the survey had likely consumed illicit drugs at the time of interview, but were less cooperative than participants who openly reported use. This finding supports previous research, which has found a significant relationship between illicit drug use and involvement in violence, injury and crime (Mental Health Drugs and Regions Division, 2011; National Drug Strategy, 2008; Schnitzer, et al., 2010). In particular, findings lend support to the notion of high-risk sub-group of stimulant based substance users. While all illicit drug users were at increased risk of having experienced violence compared to the remainder of the sample, stimulant users were over represented compared to other illicit drugs. This study found a significant difference in the level of risk associated with the use of illicit drugs. While 15.5% of the whole sample reported involvement in aggressive incidents was, the risks increased dramatically to 26.4% for cannabis use; 30.6% for those using methamphetamines; and 42.9% for ecstasy. These findings are comparable to previous research not specific to NED attendees which found that 42% of methamphetamine users had been the victim of violence in the past 12 months (Darke, et al., 2010), and that cocaine users were four times as likely to have experienced violence within the past 12 months than the general population (Vaughn, et al., 2010).

The association between illicit substance use and prior experience of violence is a cross-sectional link between drug use consumption one night and experience of violence on a previous night. These findings do not provide a direct causal link between substance use and violence on a specific night, but rather show a correlation that people who consume illicit drugs are more likely to experience violence. It is possible that people who report illicit drug use on the night they were interviewed do so regularly. Supporting this assertion is the finding that prevalence of self-reported illicit substance use increased 4.5 times from a baseline of 6.2% at the time of interview to 28.8% at the time of an aggressive incident. This relationship requires substantial further research.

Illicit drugs, intoxication and determined drunkenness.

The concept of “determined drunkenness” is often used in alcohol harm research and describes a subset of alcohol consumers whose main intention and consumption pattern is the conscious goal of a high level of intoxication (Measham, 2006). The current sample provide further support for this construct and extend the reasoning that “determined drunks” are also more likely to combine illicit drugs with risky alcohol consumption in order to achieve the required sensation.

Illicit drug users rated themselves as more intoxicated, and were rated by observers as more intoxicated, than people who did not report illicit drug use. Further, participants who had engaged in pre-drinking or ‘pre-loading’ were significantly more likely to have also consumed illicit substances, compounding intoxication symptoms. While it has been long understood that patrons are leaving NED’s in intoxicated states, this study has found that patrons are entering NED’s in intoxicated states, and that there is a significant subset of NED patrons that are under the influence of illicit drugs, which lead to dramatic increases in the likelihood of aggressive incidents.

Limitations

The findings of this study are ultimately limited by its geographical focus on two large regional cities, and recent research suggests regional rates of drug use may be higher than capital cities (Miller, et al., 2012a). Although patron interviews have substantial benefits in terms of investigating people who visit nighttime entertainment districts, certain limitations should be noted (Thombs, et al., 2009; Voas, et al., 2006). As potential participants are in the middle of a night out and are approached in public areas, interviews are necessarily kept short and are not suitable for in-depth questions or questions which probe private information. For the same reasons, participants were not asked about planned substance used for the remainder of the night. Further, many of the people interviewed were intoxicated. It is difficult to ascertain what effect this may

have on the veracity of their responses. Although interviewers were trained to end obviously spurious interviews and have records removed, it is possible that some people's level of intoxication influence their level of truthfulness. Yet, it is worth noting that there is no evidence to suggest this is the case and there is no guarantee that a person who is sober is more truthful than someone who is intoxicated, indeed, the reverse may be true. Regardless, similar research investigating nightlife drug use has reported substantial underestimation of substance use using self-report compared to results of bio-chemical marker oral swabs, albeit with sampling in more restricted environments aboard Swedish cruise ships (Gripenberg-Abdon, et al., 2012). Future studies should endeavor to validate self-reported measures of drug use, as the reliability of these measures remains questionable. Future studies will attempt to validate self-report with the use of chemical swab techniques and obtain objective measures of intoxication using breath alcohol analysers (Miller, et al., 2013). Future research may also benefit from additional survey questions pertaining to planned substance use, in an effort to increase accuracy of prevalence estimates.

Conclusions

Illicit drug use was reported by a minority of patrons in the NEDs studied. Amphetamine type substance use was reported in this population at up to four times more than in the general population. This small subset of substance users contribute significantly to the burden of violence, intoxication and harm, and interventions should target this group of people along with high risk alcohol and pre-drinking behaviours.

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