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Alcohol and drug problems among Australian homicide offenders

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Abstract

Background and Aims: Most homicide studies focus on ‘acute’ situational intoxication as opposed to ‘chronic’ substance misuse. The aims of the study were to: 1) determine the extent of homicide offenders’ alcohol and drug use in the year preceding the homicide; 2) compare the individual characteristics of homicide offenders across levels of problematic substance use; and 3) compare homicide incident characteristics across levels of problematic substance use.

Design and Setting: Observational study using data collected through face-to-face interviews in custodial and community correctional settings across Australia. Participants were recruited through an opt-in process.

Participants: The data consist of 302 individuals (262 men and 40 women) convicted of murder or manslaughter.

Measurements: We used the Alcohol Use Disorder Identification Test and Drug Abuse Screening Test to determine problematic alcohol or drug use. We also used a range of self-report measures to ascertain offender characteristics (socio-demographics, developmental experiences, criminal history, personality) and incident characteristics (who was killed, and situational intoxication).

Findings: Of the sample, 38.8% displayed high levels of alcohol problems and 30.8% displayed high levels of drug problems. Those displaying high levels of alcohol and/or drug problems were more likely than those without high levels of alcohol and/or drug problems to report adverse developmental experiences, low education, financial difficulties, extensive

criminal histories, and high levels of trait anger, impulsivity and risk-taking. In addition, offenders with problematic substance use were more likely to have killed non-family and to have used substances at the time of the homicide.

Conclusions: High proportions of homicide offenders in Australia appear to have problematic substance use in the year preceding the homicide offence, and such use appears to be associated with a range of other challenging factors, including adverse childhoods, criminal involvement, low socio-economic factors and low self-regulation.

Keywords: alcohol, drugs, homicide, substance abuse, substance dependence, violence

Introduction

It is widely known that alcohol and drugs are linked to violent deaths, including homicide (e.g., 1, 2-5). Most studies into substance misuse and homicide, however, focus on the immediate circumstances that led to the death, through (for example) examinations of victim toxicology reports or police or court reports about the intoxication of the offender. While such sources of evidence provide important insights into the role of substance use as an 'acute' factor associated with lethal outcomes, they do not shed light on the role of 'chronic' substance misuse. There are likely differences in offending risk between dependent and non-dependent substance users (6). Examining the relationship between 'acute' and 'chronic' substance misuse in the context of homicide offending may help us to better understand the ways in which problematic drug and alcohol use can form part of a pathway to homicide. This being the case, there is a need to adopt a longer-term focus on problematic substance use, rather than focusing exclusively on intoxication at the time of an incident.

The limited available studies suggest that a relatively large proportion of homicide offenders display problematic alcohol and drug use, at least at a rate higher than the general

population (4). Administrative data (e.g., police reports, psychiatric evaluations) suggest that approximately 35-50% of homicide offenders have a history of alcohol abuse and approximately 25-40% have a history of drug abuse (2, 7, 8). Self-report data, though rare, though reveal similar extent (9).

Importantly, scholars argue that we need to consider how the context surrounding substance use creates a scenario for lethal violence (10). Problematic substance use develops and/or is exacerbated within the context of a range of adversities and individual characteristics, including unfavourable childhood experiences (11-16), childhood aggression (2, 17, 18), low socioeconomic status (17, 19-23), impulsivity-related traits (17, 18, 24-28), and criminal activity in adulthood (2, 29). Yet few studies include the use of such indicators and their potential links to substance misuse among homicide offenders. Examining the extent to which these variables correlate with problematic substance use may reveal a series of intervention points that consideration of intoxication alone is unable to illuminate.

In sum, research highlights that ongoing problematic substance use and the individual characteristics that may coincide or contribute to such use should be carefully considered. This broader focus is more than a matter of theory: it has notable implications for public debate, policy, and practice. For instance, connections between substance misuse and lethal violence tend to receive particular attention from the media and in public discourse. High-profile incidents such as 'one punch kills' in popular night spots, or 'drug-fuelled' murders often provoke strong public concern and drive calls for macro-level measures such as more restrictive alcohol sales legislation, better regulation of the 'night time economy', and more severe law enforcement and justice policy responses to illicit drug use (e.g., 30). However, comparatively little is known at the micro-level about homicide offenders' problematic alcohol and drug use in the months preceding the homicide. This means calls for alcohol/other substance policy change in order to prevent homicides are made largely in the

absence of evidence about offenders' history of substance misuse. This oversight may lead to the development and application of policies that do not respond to the individual characteristics and broader circumstances of persons who are at risk of committing lethal violence.

Drawing on the research suggesting that a relatively large extent of homicide offenders have had problematic substance use prior to committing the offence (2, 7-9), the current study adds value by using self-report data collected through interviews with homicide offenders serving custodial or community sentences to examine the extent to which a range of both individual and situational indicators correlate with levels of problematic substance use. The aims of the study are to: 1) determine the extent of homicide offenders' alcohol and drug use in the year preceding the homicide; 2) compare the individual characteristics of homicide offenders (socio-demographic, adverse developmental experiences, criminal history, and personality) across levels of problematic substance use; and 3) compare homicide incident characteristics (who was killed and situational intoxication) across levels of problematic substance use.

Methods

Study Design and Participants

The data are drawn from the Australian Homicide Project dataset, which is unique in the homicide-research field as it includes information derived from comprehensive face-to-face interviews with offenders about their developmental pathways to homicide. The project was approved by the Griffith University Human Research Ethics Committee. Individuals convicted of murder or manslaughter were recruited from custodial and community corrections facilities across Australia through an opt-in process. Correctional staff distributed information letters to eligible individuals that outlined that the study was a university-based research project and that participation was voluntary and subject to approved ethical

procedures. Of the 1,316 individuals who were sent invitation letters, 302 respondents (22.95%) chose to participate. Interviews were conducted between 2010 and 2013. Trained interviewers conducted the interviews, which lasted approximately 1-2 hours each. Prior to commencement, participants were informed of the study's purpose and procedure. To indicate their agreement to partake in the study, participants read and signed a consent form. The interviewer read questions to the respondent and recorded their responses onto an interview schedule.

Measures

The interview schedule included a range of self-report measures to examine the characteristics of homicide offenders (socio-demographics, developmental experiences, criminal history, personality) and homicide incidents (situational intoxication and victim-offender relationship).

Alcohol problems. Problematic alcohol use in the year preceding the homicide was measured through the 10-item Alcohol Use Disorder Identification Test (AUDIT; 31). Scores range from 0 to 40. As per AUDIT guidelines, the scores were classified into the following categories: no/low alcohol problems (0-7), medium level alcohol problems (8-15) and high levels of alcohol problems (16+). A total of 270 respondents had answered all 10 questions. A further six individuals with missing responses on 1-3 of the items could be classified into the above categories based on available responses. For example, one respondent had answered 7 of the 10 questions and was classified into the 'high' level category based on the available summative score of 18.

Drug problems. Problematic drug use in the year preceding the homicide was measured using the 10-item Drug Abuse Screening Test, Short Form (DAST-10; 32). Scores range from 0 to 10. As per DAST-10 guidelines, three categories were created from the summative scores: no drug problems (0), low/moderate drug problems (1-5), and high

(substantial/severe) drug problems (6+). A total of 277 respondents had answered all 10 questions. A further nine individuals who had missing responses on 1-2 of the items could be classified into the above three groups based on their available responses. For example, one respondent had answered 8 of the 10 questions with a summative score of 1 on those questions, and was classified into the low/moderate category.

Substance use overlap. Respondents were subsequently classified into one of four groups based on their levels of alcohol and drug problems: (1) ‘no problems’; (2) ‘alcohol-only’ (high levels of alcohol problems but not high levels of drug problems); (3) ‘drug-only’ (high levels of drug problems but not high levels of alcohol problems); and (4) ‘poly-use’ (high levels of both alcohol and drug problems).

Drug type. As part of DAST-10, respondents were asked open-ended questions about the types of drugs they had used in the year preceding the homicide. We coded the answers into the following categories in accordance with the DSM-V: cannabis, hallucinogens (e.g., LSD, MDMA, mushrooms), opioids (e.g., heroin, methadone, morphine), sedatives (e.g., rohypnol, valium), and stimulants (e.g., amphetamine, cocaine, ice).

Socio-demographics. Offender background variables included age at the time of the homicide, gender, Aboriginal and Torres Strait Islander status, highest level of education, employment status at the time of the homicide, and being on Commonwealth benefits in the year preceding the homicide.

Developmental experiences. Experiences with violence in childhood were measured using items from a scale examining family violence (33), including exposure to physical abuse, sexual abuse, physical neglect, and observing parental violence. Attachment styles to maternal and paternal caregivers in childhood were assessed using the brief self-report Parental Caregiving Style Questionnaire (34). Respondents were provided with three descriptions of ‘parental caregiving styles’: 1) warm/responsive (secure), 2) cold/rejecting

(avoidant), and 3) ambivalent/inconsistent (anxious-ambivalent). Respondents were asked about maternal and paternal caregiving styles separately, and asked about alternative caregivers if mother/father was absent. The variables 'insecure' attachment incorporates avoidant and anxious-ambivalent attachment styles.

Criminal history. Respondents were asked about lifetime engagement in assault, property damage, theft, illicit drug dealing/trafficking (measured dichotomously). We used a composite variable to measure intimate partner violence (IPV) by combining three separate measures and then dichotomizing the composite variable. These measures were: 1) Physical Assault lifetime ('ever') prevalence sub-scale of the Revised Conflict Tactics Scale (35), 2) IPV perpetration against former partners, 3) IPV perpetration against current/former partners in the year preceding the homicide. Respondents were also asked whether they had ever been arrested and/or imprisoned in the year preceding the homicide. Similar to other studies of homicide (36, 37), we measured early onset of offending as having committed any type of criminal activity before the age of 13. Offending versatility was assessed by summing the number of offense categories the respondents had engaged in prior to the homicide (including theft, deception, property damage, assault, sexual assault, drugs, and robbery). The minimum versatility score possible was 0 (no criminal activity) and the maximum was 7 (engaged in all criminal activities).

Personality characteristics. Trait anger was measured through the Trait Anger sub-scale of the State-Trait Anger Expression Inventory-2 (38). Impulsivity was assessed through the 4-item Impulsivity sub-scale from the Self-Control scale constructed by Grasmick et al. (39). Risk-seeking was measured through the 4-item Risk-Seeking sub-scale, also taken from Grasmick et al.'s Self-Control scale (39). Cronbach's alpha indicated good reliability for all three scales (.92, .82, and .87 respectively).

Victim-offender relationship. Respondents were asked about the relationship with the person they killed, coded into three categories: family (including intimate partner), other known, and stranger.

Substance use at time of homicide. Respondents were asked whether they had been drinking and/or using drugs immediately prior to the incident.

Analyses

Bivariate chi-square analyses were used for categorical variables. The dependent variables had three categories (e.g., none/low, moderate, and high levels of alcohol or other drug problems) and column proportions within each category were compared using z-tests with Bonferroni correction applied. The continuous variables (e.g., offender age, trait anger) were not normally distributed (as assessed using Kolmogorov-Smirnov), and we therefore used the bivariate non-parametric Kruskal-Wallis test. Pairwise comparisons were made using Dunn's test of multiple comparison, again with Bonferroni correction applied.

Multivariate analyses were also performed. Multinomial regressions were used for levels of alcohol problems (none/low vs. high, and moderate vs. high) and levels of drug problems (none vs. high, and low/moderate vs. high). Logistic regressions were used for substance use overlap (alcohol-only vs. drug-only, alcohol-only vs. poly-use, and drug-only vs. poly-use). Model reductions were conducted due to the relatively small sample size, where regression models were first run thematically for each category of independent variables (i.e., socio-demographics, developmental experiences, offending history, drug type, personality characteristics, victim-offender relationship, and substance use at the time of the homicide). Statistically significant variables ($p < .05$) were retained in the full models.

Assumption violations (as tested through e.g., Tolerance, VIF, Box-Tidwell) led to the exclusion of the variable 'criminal versatility' (due to multicollinearity).

Missing data were below 5% for all variables except: Commonwealth benefits (6.3%), observing parental violence (14.3%), insecure attachment (maternal 18.1%; paternal 21.6%), early offending onset (13.6%), intimate partner violence perpetration (16.4%), trait anger (10.8%), impulsivity (15%), and risk-seeking (13.2%). Missing data were not imputed as they were generally not missing at random and sensitivity analyses using ‘best-worst-case’ scenarios (40) suggested the impact of the missing data were negligible. Analyses were conducted using SPSS (version 25). The research questions and analytical plan were not pre-registered on a publicly available platform, and the results should therefore be considered exploratory.

Results

Australian Homicide Project Sample Characteristics

As per Table 1, the majority of interviews were conducted within custodial facilities. The mean age of the AHP sample at the time of committing the homicide was 42.6 years. The majority of AHP participants were males with low levels of education (not completed high school) and with a history of criminal activity (most commonly assault, theft, and intimate partner violence).

Extent of Alcohol and Other Drug Use Among Homicide Offenders in the Year Before the Homicide

The first aim of the study was to examine the extent of homicide offenders’ alcohol and drug use in the year preceding the homicide. As per Table 2, 38.8% of respondents reported high levels of alcohol problems (≥ 16 on AUDIT) and 30.8% reported high levels of drug problems (≥ 6 on DAST-10). These figures are not mutually exclusive, and Table 3 shows the overlap between high levels of alcohol and/or drug use. Of the full sample, 18.9% had high levels of *both* alcohol and drug problems (‘poly-use’), with a further 20% classified as ‘alcohol-only’ and 12.4% classified as ‘drug-only’.

Demographics, Criminality, Personality Characteristics, and Homicide Characteristics, by Level of Problematic Alcohol Use

Table 4 shows the socio-demographic, developmental, criminal history, personality characteristics, and homicide characteristics (victim-offender relationship and situational alcohol/drug use) across levels of problematic alcohol use. Offenders with high levels of problematic substance use were more socially disadvantaged (e.g., education and finances) than those with lower levels of problematic alcohol use. Adverse developmental experiences were prevalent within the whole sample, though these experiences (e.g., physical abuse and observing parental violence) were more common among offenders in the ‘high’ alcohol category. Those with high levels of problematic alcohol use were also more likely to have engaged in various offences, including assault, IPV, property damage, theft and illicit drug dealing/trafficking, and to have committed a greater variety of offences (as measured by criminal versatility). In terms of personality, analyses revealed consistently higher levels of trait anger, impulsivity, and risk-seeking among offenders in the ‘high’ alcohol category compared with the other two groups. Differences also emerged in terms of victim-offender relationship, with those in the ‘none/low’ category more likely to kill family members and those in the ‘moderate’ and ‘high’ categories more likely to kill someone other known to them. As expected, high levels of alcohol problems were associated with increased likelihood of situational alcohol use.

In the fully adjusted model (see Table 5), property damage and situational use of alcohol (either on its own or combined with other drugs) significantly increased the odds of moderate (compared with no/low) levels of alcohol problems, while younger age, being on commonwealth benefits, dealing or trafficking drugs, higher trait anger, and situational use of alcohol (again, either on its own or combined with other drugs) significantly increased the odds of high levels of alcohol problems (compared with no/low problems).

Demographics, Criminality, Personality Characteristics, and Homicide Characteristics, by Level of Problematic Drug Use

As shown in Table 6, the 'high' problematic drug use group displaying the most social disadvantage (e.g., unemployment, government assistance), and most extensive criminal history (e.g. robbery, drug dealing/trafficking, criminal versatility and contact with the criminal justice system), as well as the highest levels of trait anger, impulsivity and risk-taking. However, only a few differences emerge in terms of developmental experiences, with the 'high' drug problem offenders being more likely to have experienced physical abuse and neglect than the 'none' group (but not compared with the 'low/moderate' group). Similar to the comparisons across levels of alcohol problems, the 'low/moderate' and 'high' category groups were more likely to kill someone known to them (who was not a family member). Additional analyses were conducted to examine the *type* of drugs offenders had taken in the year leading up to the homicide. These revealed that the 'high' category group were more likely to use hallucinogens, opioids, sedatives and stimulates compared with the 'low/moderate' group, though no differences were observed in terms of cannabis. In addition, analyses revealed an association between problematic drug use in the year prior and situational drug use at the time of the homicide, with 72.8% of those in the 'high' category group reporting the use of drugs (on their own or combined with alcohol) when committing the homicide. This stands in contrast to 3.7% within the 'none' and 44.6% within the 'low/moderate' category who used drugs (on their own or combined with alcohol) at the time of the homicide.

In the fully adjusted model (see Table 5), younger age, dealing or trafficking drugs, and situational use of drugs at the time of the homicide (either on their own or combined with alcohol) significantly increased the odds of moderate (compared with no problems) levels of drug problems, while younger age, being on commonwealth benefits, dealing or trafficking

drugs, and situational use of alcohol (either on their own or combined with alcohol) significantly increased the odds of high levels of drug problems (compared with no problems).

Demographics, Criminality, Personality Characteristics, and Homicide Characteristics, by Type of Substance Problem

Table 7 shows differences in characteristics across homicide offenders with high levels of alcohol (only), drugs (only), and poly-use (both alcohol *and* drugs). As the focus is on differences across individuals with some form of substance problem, offenders who reported no problems were excluded. The analyses reveal few differences in terms of socio-demographics and adverse developmental experiences, but key differences were noted in their criminal histories. The poly-use group (i.e., those who displayed high problems across both alcohol and drug use) were more likely to start offending early and to engage in theft compared with the alcohol-only group, as well as more likely to engage in IPV compared with the drug-only group. Further, individuals with high level drug use problems (either in combination with alcohol, or independently) had an increased likelihood of engaging in robbery, drug dealing/trafficking, and a greater range of offences (as measured by criminal versatility). In terms of the type of drug used in the preceding year, poly-users were more likely to use stimulants compared with alcohol-only, and those with high problem drug use (either in combination with alcohol or independently) were more likely to report using opioids compared with alcohol-only.

As seen in Table 5 (the fully adjusted models), two variables (dealing or trafficking in drugs, and situational drug use at the time of the homicide) significantly increased the odds of respondents categorised as having drug-only problems (as opposed to alcohol-only), while situational alcohol use decreased these odds. The only variable increasing the odds of poly-use categorisation (as opposed to alcohol-only) was situational poly-use at the time of the

homicide. The variables increasing the odds of poly-use categorisation (as opposed to drug-only) were engagement in intimate partner violence, having taken hallucinogens in the year preceding the homicide, as well as situational alcohol use at the time of the homicide (either on its own or in combination with other drugs).

Discussion

Much of past research has focused on offenders' substance intoxication at the time they committed the homicide. Drawing on the work by scholars highlighting the importance of understanding 'chronic' substance misuse (6) and the contextual backgrounds of offenders (10), the current study aimed to determine the extent of problematic substance use within a sample of homicide offenders in Australia and to understand the individual and situational factors associated with such use. The current study adds value by using self-report data collected through interviews with homicide offenders serving custodial or community sentences to examine the extent to which a wide range of indicators correlate with levels of problematic substance use.

In the year prior to committing homicide, over one-third of offenders reported high levels of problematic alcohol use, over one-quarter reported high levels of problematic drug use, and approximately one-third reported high levels of both problematic alcohol and other drug use (poly-use). Offenders with high levels of substance use were the most likely to come from disadvantaged backgrounds, have extensive criminal histories, and report high levels of anger, impulsivity and risk-taking compared with offenders with lower levels of problematic substance use. Poly-users were similar to the alcohol-only and drug-only offenders across most variables except criminal history, where the poly-users and drug-only users tended to engage in offences such as robbery and drug dealing to a greater extent than the alcohol-only users. Crime may be committed as a means of sustaining one's drug use, with research showing particularly strong associations between more expensive drugs (e.g., cocaine and

heroin) and acquisitive forms of crime (41). This suggests the importance of not only examining the overall score on measures such as DAST-10, but also the drug *type*. In the current study, cannabis was by far the most prevalent class of drug used across the sample, followed by stimulants and opioids. In addition to the financial link, drug use may also be related to criminal activity through its effects on cognitive impairment (42) and this potential relationship between *specific* types of drugs and lethal violence needs further exploration.

These data suggest that substantial proportions of homicide offenders have a ‘chronic’ substance problem. The extent of the problem is particularly evident when compared with the general population. The World Health Organisation Data estimates that the global prevalence of ‘alcohol use disorders’ (as measured through survey data) is 5.1% (43). Problematic drug use is more difficult to establish, given the illicit nature of drugs. Using both national household surveys and a range of ‘indirect’ measures (e.g., mortality rates, treatment demand, and police data), estimates from the United Nations of Drugs and Crime suggest that the global prevalence of ‘problem drug users’ (of amphetamine, cocaine, or opioids) is 0.3-0.9% (44). These estimates of the prevalence of alcohol and drug problems are considerably lower than those reported in the current sample (38.8% and 30.8% respectively). Evidently, the extent of problematic substance use is much higher in samples who have come in contact with the criminal justice system. Available data using the same screening tools as those in the current study (i.e., AUDIT and DAST) show that 41% of offending populations display high levels of alcohol use (45) and 20% display high levels of drug use (46). These levels are more comparable to those in the current paper, and points to possible similarities between those who commit homicide and those who offend more generally.

No statistically significant gender differences were observed across categories of problematic substance use for homicide offenders in this sample. This finding is at odds with the large body of research showing that males are more likely to engage in higher levels of

problematic alcohol and drug use (i.e., long-term problems as opposed to at a set point in time such as at the time of an offence or other event) compared with females both within offender and general populations (though the gender gap is decreasing) (2, 47, 48). Similarly, the limited available research examining homicide offenders' substance problems suggests that males are more likely to misuse or be dependent on drugs and/or alcohol (2). Thus, the finding in the current study of similarities across gender in prevalence rates are unexpected and need to be examined further to fully understand the nature of these similarities.

There appears to be heterogeneity among homicide offenders with regards to alcohol and other drug use. A proportion of offenders in this sample displayed extensive substance use problems (which correlated with disadvantaged backgrounds, involvement in criminal activities, and personality characteristics suggestive of limited self-regulation). However, other homicide offenders report low levels of problematic substance use. There is precedence within the homicide literature for examining how various combinations of factors 'cluster' together (e.g., 49, 50, 51) and categorising violent offenders into 'typologies' based on variations across theoretically and empirically relevant characteristics such as past offending behaviour, trait anger, substance use, and situational characteristics of the incident (e.g., 52, 53). More work is needed to identify typologies that isolate the specific constellation of factors at play when homicides are committed.

The findings suggest directions for policy and practice. Here we agree with Darke (6) that preventing substance-related homicides is not a case for the 'too hard' basket. Our findings highlight the importance of ensuring individuals with substance dependence receive evidence-based interventions shown to be effective in reducing substance use and associated harms. Addressing addiction would reduce the number of people who are vulnerable due to intoxication, prevent them using violence to obtain drugs/money and remove individuals from high-risk drug networks/environments (54). However, the findings of this research

suggest that homicide offenders with high levels of alcohol and drug use in the year preceding the homicide also led chaotic lives. Therefore, interventions aimed at reducing substance use, whether delivered in primary health care settings or within the criminal justice system, must coincide with a thorough case review of the personal circumstances of that individual. A single focus on addiction, without addressing any concurrent issues, is likely to be unsuccessful as each individual has their own set of complex circumstances which may be precipitating or perpetuating the addiction (see e.g., 55). Importantly, the heterogeneity of offenders in the current sample indicates that focussing on developmental and other life characteristics that may be associated with chronic substance use should be just one component of a much broader strategy designed to address both chronic and acute substance use. Importantly, until factors that may be unique to homicide offending in the context of drug and alcohol problems are better understood (see 'limitations' below), we recommend that a range of holistic interventions be brought to bear on addressing substance use. In terms of acute substance use, the data reported herein show an association between having problems with alcohol or other drugs in the past and using substances at the time of the homicide offence. Research demonstrates a macro-level link between availability/consumption of various substances and rates of violent crime (e.g., 56, 57) and the role restrictive alcohol control policies can play in reducing the incidence of homicide (58). Therefore, interventions aimed at restricting accessibility must also be considered in the range of efforts to prevent violent deaths.

Limitations and Future Directions

Homicide scholars have the benefit of hindsight by retrospectively searching for risk indicators (e.g., substance misuse). Indeed, hindsight often lends itself to the generation of sweeping conclusions about risk and prediction – sometimes with limited support or practical utility. It is important to note that homicides represent rare events and knowledge gained after

the fact may be difficult to convert to prediction. While longitudinal data is the preferred method of establishing risk factors, in light of the rarity of homicide offending, the small number of offenders found in such data typically precludes disaggregation across levels of problematic substance use. The current use of retrospective cross-sectional data avoids this problem by providing a larger sample, but we suggest applying due caution about interpretations of 'risk'. Despite being retrospective, our data provide important contributions to research examining the nexus between substance misuse and lethal violence by using self-report data (as opposed to administrative data) from a large sample of homicide offenders. This type of data is valuable, yet rare, within the homicide literature. Nevertheless, while the current study improves our understanding of problematic substance use among homicide offenders, and the factors associated with such use, almost half of homicide offenders did not report high level substance use problems. Further research is needed to better characterise the different 'types' of homicide offenders and the associated risk factors.

A further point to consider about the current work is that while the results provide insights into drug and alcohol problems among homicide offenders, the study does not consider the question of homicide offending (a very small number of offenders) among a general population with drug and alcohol problems or among non-lethal violent offenders with drug and alcohol problems (i.e., considerably larger populations). This is a particularly salient caveat in relation to developmental and other life history factors. While the findings indicate that many in this sample led 'chaotic lives', they cannot tell us whether those characteristics are peculiar to homicide offenders with high level drug and alcohol problems or whether they are shared with persons who have high level drug and alcohol problems more generally (and who do not commit homicide). It is recommended that future studies consider a sample of non-homicide offenders, who have comparable drug and alcohol use patterns

with the offenders in the current sample, in order to better identify characteristics that may be unique to homicide offenders in the context of drug and alcohol misuse.

Conclusion

The findings of this study show that a large proportion of offenders convicted of murder or manslaughter report high levels of alcohol and/or other drug problems in the year leading up to the offence. Those offenders who displayed 'chronic' substance problems were more likely to report adverse childhoods, prior criminal involvement, low socio-economic status, and low levels of self-regulation. This suggests that certain factors may be particularly likely to 'cluster' together. These offenders were also the most likely to have used substances at the time of the homicide offence. At the same time, it is also important to focus attention on those offenders within the sample who did not report problems with alcohol and/or drugs and who displayed lower levels of developmental adversities, to establish what is unique about this particular group of offenders.

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Table 1. Overall AHP sample characteristics (n=302)

	Mean	Valid %
Interview location		
Custodial corrections (prison facility)		91.1
Community corrections (probation/parole office)		8.9
Age at time of homicide	42.6	
Gender		
Female		13.6
Male		86.4
Level of education		
Completed high school		67.3
Not completed high school		32.7
Criminal history		
Assault		76.8
Intimate partner violence		53.0
Property damage		51.9
Theft		75.5
Drug dealing/trafficking		45.2

Table 2. Prevalence of self-reported alcohol (n=276) and drug (n=286) problems in the year preceding the homicide

	n (valid %)
Alcohol problems	
None/Low	103 (37.3)
Moderate	66 (23.9)
High	107 (38.8)
Drug problems	
None	112 (39.2)
Low/Moderate	86 (30.1)
High	88 (30.8)

Table 3. Overlap of self-reported substance problems in the year preceding the homicide

High level alcohol problems	High level drug problems	Category	n (valid %)
No	No	'None'	134 (48.7)
Yes	No	'Alcohol-only'	55 (20.0)
No	Yes	'Drug-only'	34 (12.4)
Yes	Yes	'Poly-use'	52 (18.9)

Table 4. Characteristics of homicide offenders across levels of alcohol problems (n=276)

	None/Low (n=103) valid %	Moderate (n=66) valid %	High (n=107) valid %	χ^2	<i>p</i>
Socio-demographics					
Age at homicide M(SD)	34.2(12.1) ^a	30.1(10.4) ^{a,b}	27.3(7.6) ^b	16.52	.000
Male	80.6	90.9	89.7	5.17	.076
Aboriginal and Torres Strait Islander	5.9	10.6	11.2	2.04	.361
Did not complete high school	53.9 ^a	70.8 ^{a,b}	76.6 ^b	12.76	.002
Unemployed (at time of homicide)	15.5 ^a	19.7 ^a	41.1 ^b	19.70	.000
Commonwealth benefits (year prior)	32.6 ^a	40.0 ^a	68.9 ^b	28.66	.000
Developmental experiences					
Physical abuse	49.5 ^a	63.1 ^{a,b}	70.8 ^b	9.97	.007
Sexual abuse	25.7	12.5	27.6	5.61	.061
Physical neglect	26.7 ^a	29.0 ^{a,b}	47.6 ^b	11.27	.004
Observed parental violence	39.4 ^a	46.2 ^{a,b}	62.8 ^b	10.69	.005
Insecure attachment (maternal)	24.4 ^a	42.0 ^{a,b}	43.0 ^b	8.00	.018
Insecure attachment (paternal)	42.9 ^a	51.0 ^{a,b}	63.7 ^b	7.76	.021
Offending history					
Early offending onset (<13 yrs.)	50.6	51.7	62.1	2.95	.229
Assault (ever)	67.3 ^a	75.8 ^{a,b}	87.7 ^b	12.39	.002
Intimate partner violence (ever)	44.1 ^a	38.6 ^a	70.6 ^b	18.20	.000
Property damage (ever)	35.3 ^a	58.5 ^b	66.0 ^b	20.83	.000
Theft (ever)	62.7 ^a	80.0 ^{a,b}	87.9 ^b	18.92	.000
Drug dealing/trafficking (ever)	34.3 ^a	40.0 ^a	62.3 ^b	17.78	.000
Criminal versatility M(SD)	2.4(1.9) ^a	3.0(1.7) ^a	3.7(1.5) ^b	30.25	.000
Arrested (year prior)	15.2 ^a	23.1 ^{a,b}	41.0 ^b	17.87	.000
In prison (year prior)	15.0	7.7	16.2	2.68	.262
Personality					
Trait anger M(SD)	18.3 ^a	18.4 ^a	23.0 ^b	28.06	.000
Impulsivity M(SD)	9.1 ^a	9.4 ^a	11.5 ^b	23.21	.000
Risk-seeking M(SD)	9.0 ^a	9.5 ^a	11.8 ^b	29.14	.000
Victim-offender relationship					
Family member (incl. partner)	47.6 ^a	36.4 ^{a,b}	23.4 ^b	13.98	.007
Other known	27.2 ^a	37.9 ^{a,b}	43.0 ^b		
Stranger	25.2 ^a	25.8 ^a	33.6 ^a		
Substance use at time of homicide					
None	59.6 ^a	30.8 ^b	9.5 ^c	99.89	.000
Alcohol only	11.1 ^a	33.8 ^b	41.9 ^b		
Drugs only	25.3 ^a	13.8 ^{a,b}	6.7 ^b		
Both alcohol and drugs	4.0 ^a	21.5 ^b	41.9 ^c		

Note. Each subscript letter denotes a subset of overlap of alcohol and drug problems categories whose column proportions do not differ significantly from each other at the .05 level (Bonferroni-adjusted). Mean and standard deviations are presented for the continuous variables (age, criminal versatility, trait anger, impulsivity, and risk-seeking).

Table 5. Multivariate analyses of characteristics across levels of alcohol problems and drug problems (multinomial regressions), and substance problem overlap (logistic regressions)

	Alcohol problems		Drug problems		Substance problem overlap		
	None/Low vs. Moderate OR (95% CI)	None/Low vs. High OR (95% CI)	None vs. Low/Moderate OR (95% CI)	None vs. High OR (95% CI)	Alc.-only vs. Drug-only OR (95% CI)	Alc.-only vs. Poly-use OR (95% CI)	Drug-only vs. Poly-use OR (95% CI)
Socio-demographics							
Age at homicide	0.97 (0.93-1.01)	0.90 (0.85-0.96)	0.93 (0.88-0.98)	0.90 (0.84-0.97)	#	#	#
Male	#	#	#	#	#	#	#
Aboriginal and Torres Strait Islander	#	#	#	#	#	#	#
Did not complete high school	#	#	0.66 (0.25-1.75)	0.59 (0.17-1.99)	#	#	#
Unemployed (at time of homicide)	#	#	#	#	#	#	#
Commonwealth benefits (year prior)	1.41 (0.56-3.51)	2.94 (1.01-8.56)	1.42 (0.55-3.64)	3.69 (1.21-11.21)	#	#	#
Developmental experiences							
Physical abuse	#	#	1.57 (0.62-3.95)	1.69 (0.56-5.10)	#	#	#
Sexual abuse	#	#	#	#	#	#	#
Physical neglect	#	#	#	#	#	#	#
Observed parental violence	#	#	#	#	#	#	#
Insecure attachment (maternal)	#	#	#	#	#	#	#
Insecure attachment (paternal)	#	#	#	#	#	0.39 (0.11-1.41)	#
Offending history							
Early offending onset (<13 yrs.)	#	#	#	#	#	#	#
Assault (ever)	#	#	#	#	#	#	#
Intimate partner violence (ever)	0.70 (0.29-1.72)	1.74 (0.59-5.09)	#	#	#	3.54 (0.99-12.68)	11.26 (1.99-63.56)
Property damage (ever)	2.62 (1.05-6.56)	0.91 (0.31-2.69)	2.51 (0.92-6.87)	2.20 (0.68-7.13)	#	#	#
Theft (ever)	#	#	#	#	#	#	#
Drug dealing/trafficking (ever)	1.97 (0.75-5.23)	4.86 (1.53-15.42)	8.13 (2.88-22.92)	33.98 (9.74-118.53)	5.93 (1.21-29.12)	2.55 (0.70-9.31)	#
Criminal versatility	(multicollinearity)	(multicollinearity)	(multicollinearity)	(multicollinearity)	(multicollinearity)	(multicollinearity)	(multicollinearity)
Arrested (year prior)	#	#	#	#	#	#	#
In prison (year prior)	#	#	#	#	#	#	#
Drug use class (year prior)							
Cannabis	n/a	n/a	n/a	n/a	n/a	n/a	#
Hallucinogens	n/a	n/a	n/a	n/a	n/a	n/a	7.75 (1.26-47.57)
Opioids	n/a	n/a	n/a	n/a	n/a	n/a	#
Sedatives	n/a	n/a	n/a	n/a	n/a	n/a	#
Stimulants	n/a	n/a	n/a	n/a	n/a	n/a	#
Personality							
Trait anger	1.02 (0.95-1.10)	1.10 (1.01-1.20)	#	#	#	#	#
Impulsivity	#	#	1.05 (0.89-1.25)	1.19 (0.96-1.46)	(multicollinearity)	#	#
Risk-seeking	0.98 (0.87-1.12)	1.16 (0.98-1.36)	0.90 (0.76-1.06)	0.93 (0.76-1.14)	#	#	#
Victim-offender relationship							
Family member (incl. partner)	2.22 (0.69-7.15)	3.42 (0.87-13.49)	1.29 (0.35-4.75)	2.31 (0.50-10.63)	#	#	#
Other known	2.52 (0.81-7.81)	3.13 (0.88-11.10)	1.75 (0.51-6.02)	1.71 (0.43-6.76)	#	#	#
Stranger	Ref	Ref	Ref	Ref	#	#	#
Substance use at time of homicide							
None	Ref	Ref	Ref	Ref	Ref	Ref	Ref

Alcohol only	6.96 (2.34-20.38)	56.34 (13.14-241.52)	0.59 (0.22-1.62)	2.14 (0.56-8.19)	0.10 (0.02-0.56)	5.37 (0.52-55.35)	27.24 (1.58-468.53)
Drugs only	0.62 (0.19-2.00)	0.26 (0.05-1.31)	23.43 (1.59-344.69)	74.64 (4.31-1292.11)	8.66 (1.42-52.66)	4.07 (0.10-173.71)	0.46 (0.03-6.81)
Both alcohol and drugs	9.16 (1.99-42.12)	58.93 (10.31-336.95)	21.95 (3.19-151.06)	107.71 (12.85-902.8)	0.50 (0.11-2.21)	35.13 (3.25-379.25)	30.69 (2.54-370.96)
Model fit χ^2	67.403 (p<.000)		203.432 (p<.000)		48.953 (p<.000)	31.764 (p<.000)	53.279 (p<.000)
Nagelkerke pseudo R ²	.258		.671		.588	.468	.693

Variable not included in the full model as it was not statistically significant (p<.05) in the model reduction exercise (where regression models were first run thematically for each category of independent variables (e.g., socio-demographics, developmental experiences).

Table 6. Characteristics of homicide offenders across levels of drug problems (n=286)

	None (n=112) valid %	Low/Mod. (n=86) valid %	High (n=88) valid %	χ^2	<i>p</i>
Socio-demographics					
Age at homicide M(SD)	35.5(11.6) ^a	27.4(8.7) ^b	27.2(7.9) ^b	36.15	.000
Male	83.0	90.7	88.6	2.82	.245
Aboriginal and Torres Strait Islander	11.6	15.3	9.1	1.60	.449
Did not complete high school	53.3 ^a	72.1 ^b	78.4 ^b	15.29	.000
Unemployed (at time of homicide)	18.8 ^a	22.1 ^a	44.3 ^b	18.00	.000
Commonwealth benefits (year prior)	28.0 ^a	51.2 ^b	72.8 ^c	37.39	.000
Developmental experiences					
Physical abuse	49.1 ^a	64.2 ^{a,b}	69.3 ^b	10.87	.010
Sexual abuse	24.8	22.2	20.9	0.43	.808
Physical neglect	26.6 ^a	38.5 ^{a,b}	43.0 ^b	6.93	.045
Observed parental violence	47.0	49.3	55.3	1.21	.545
Insecure attachment (maternal)	28.0	34.8	45.3	5.49	.064
Insecure attachment (paternal)	53.9	50.0	54.9	0.37	.832
Offending history					
Early offending onset (<13 yrs.)	41.8 ^a	53.6 ^{a,b}	70.2 ^b	13.54	.001
Assault (ever)	59.5 ^a	89.3 ^b	87.4 ^b	31.66	.000
Intimate partner violence (ever)	50.5 ^{a,b}	43.7 ^b	64.0 ^a	6.34	.042
Robbery (ever)	7.3 ^a	19.0 ^b	47.7 ^c	44.98	.000
Property damage (ever)	27.3 ^a	63.1 ^b	71.6 ^b	44.60	.000
Theft (ever)	57.3 ^a	81.2 ^b	95.5 ^c	41.03	.000
Drug dealing/trafficking (ever)	9.1 ^a	52.4 ^b	84.1 ^c	113.30	.000
Criminal versatility M(SD)	1.8(1.5) ^a	3.3(1.3) ^b	4.4(1.3) ^c	110.17	.000
Arrested (year prior)	9.3 ^a	26.5 ^b	50.0 ^c	39.47	.000
In prison (year prior)	6.5 ^a	16.7 ^{a,b}	22.4 ^b	10.18	.006
Drug use class (year prior)					
Cannabis	-	83.5	82.8	0.03	.893
Hallucinogens	-	17.6 ^a	34.5 ^b	6.31	.012
Opioids	-	8.2 ^a	49.4 ^b	35.38	.000
Sedatives	-	3.5 ^a	12.6 ^b	4.78	.029
Stimulants	-	43.5 ^a	72.4 ^b	14.74	.000
Personality					
Trait anger M(SD)	18.1(6.8) ^a	19.5(7.1) ^a	22.9(7.3) ^b	22.16	.000
Impulsivity M(SD)	8.9(3.6) ^a	9.9(3.6) ^a	11.8(2.9) ^b	27.61	.000
Risk-seeking M(SD)	8.8(3.6) ^a	10.1(4.1) ^a	12.0(3.1) ^b	29.84	.000
Victim-offender relationship					
Family member (incl. partner)	53.6 ^a	27.9 ^b	22.7 ^b	24.82	.000
Other known	25.0 ^a	43.0 ^b	40.9 ^b		
Stranger	21.4 ^a	29.1 ^a	36.4 ^a		
Substance use at time of homicide					
None	52.8 ^a	28.9 ^b	11.4 ^c	102.74	.000
Alcohol only	43.5 ^a	26.5 ^b	15.9 ^b		
Drugs only	0.9 ^a	20.5 ^b	27.3 ^b		
Both alcohol and drugs	2.8 ^a	24.1 ^b	45.5 ^c		

Note. Each subscript letter denotes a subset of overlap of alcohol and drug problems categories whose column proportions do not differ significantly from each other at the .05 level (Bonferroni-adjusted). Mean and standard deviations are presented for the continuous variables (age, criminal versatility, trait anger, impulsivity, and risk-seeking).

Table 7. Characteristics of homicide offenders across type of problematic substance use (n=141)

	Alc.-only (n=55) valid %	Drug-only (n=34) valid %	Poly-use (n=52) valid %	χ^2	<i>p</i>
Socio-demographics					
Age at homicide M(SD)	27.4(7.5)	27.3(8.4)	27.2(7.7)	0.11	.946
Male	92.7	91.2	86.5	1.21	.547
Aboriginal and Torres Strait Islander	14.5	11.8	7.7	1.26	.534
Did not complete high school	76.4	79.4	76.9	0.12	.943
Unemployed (at time of homicide)	30.9	32.4	51.9	6.62	.055
Commonwealth benefits (year prior)	60.4	63.3	78.0	3.99	.136
Developmental experiences					
Physical abuse	72.2	73.5	69.2	0.21	.899
Sexual abuse	29.6	14.7	25.5	2.56	.278
Physical neglect	49.1	36.4	46.2	1.38	.503
Observed parental violence	62.5	44.8	63.0	2.94	.230
Insecure attachment (maternal)	42.6	50.0	43.5	0.43	.805
Insecure attachment (paternal)	75.6	60.0	52.2	5.45	.066
Offending history					
Early offending onset (<13 yrs.)	50.0 ^a	63.6 ^{a,b}	75.5 ^b	7.16	.028
Assault (ever)	90.7	93.9	84.6	2.04	.361
Intimate partner violence (ever)	61.0 ^{a,b}	43.3 ^b	79.5 ^a	10.26	.006
Robbery (ever)	20.4 ^a	51.5 ^b	45.1 ^b	10.83	.004
Property damage (ever)	59.3	70.6	73.1	2.53	.282
Theft (ever)	80.0 ^a	94.1 ^{a,b}	96.2 ^b	8.40	.015
Drug dealing/trafficking (ever)	46.3 ^a	91.2 ^b	78.8 ^b	23.30	.000
Criminal versatility M(SD)	3.3(1.5) ^a	4.7(1.4) ^b	4.2(1.3) ^b	20.46	.000
Arrested (year prior)	34.0	51.6	48.1	3.24	.198
In prison (year prior)	17.0	31.3	15.4	3.56	.169
Drug use class (year prior)					
Cannabis	90.9	73.5	88.2	4.76	.093
Hallucinogens	21.2 ^a	20.6 ^a	43.1 ^a	6.76	.034
Opioids	6.1 ^a	58.8 ^b	41.2 ^b	21.00	.000
Sedatives	3.0	11.8	13.7	#	#
Stimulants	45.5 ^a	70.6 ^{a,b}	72.5 ^b	7.21	.027
Personality					
Trait anger M(SD)	23.0(7.5)	23.0(8.1)	22.9(6.9)	0.04	.981
Impulsivity M(SD)	11.0(3.7)	11.4(3.1)	12.0(2.8)	1.79	.409
Risk-seeking M(SD)	11.3(3.8)	11.4(3.3)	12.4(2.8)	2.46	.293
Victim-offender relationship					
Family member (incl. partner)	21.8	20.6	25.0	0.42	.981
Other known	43.6	41.2	42.3		
Stranger	34.5	38.2	32.7		
Substance use at time of homicide					
None	17.0 ^a	26.5 ^a	1.9 ^b	83.43	.000
Alcohol only	60.4 ^a	5.9 ^b	23.1 ^b		
Drugs only	3.8 ^a	52.9 ^b	9.6 ^a		
Both alcohol and drugs	18.9 ^a	14.7 ^a	65.4 ^b		

Note. Each subscript letter denotes a subset of overlap of alcohol and drug problems categories whose column proportions do not differ significantly from each other at the .05 level (Bonferroni-adjusted). Mean and standard deviations are presented for the continuous variables (age, criminal versatility, trait anger, impulsivity, and risk-seeking). # = Violates assumptions of chi-square test for independence.