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Drug Alcohol Rev. Author manuscript; available in PMC 2019 March 01.

Published in final edited form as:

Drug Alcohol Rev. 2018 March ; 37(3): 365–374. doi:10.1111/dar.12591.

Examination of associations between early-life victimisation and alcohol's harm from others

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Abstract

Introduction and Aims—Study aims were to examine: (i) how physical and sexual victimisation in early life are associated with alcohol's harm from others; and (ii) whether respondents' current drinking is a mediator of the association between early-life victimisation and alcohol's harm from others among men and women.

Design and Methods—Data were from national computer-assisted telephone interviews, using the landline sample (3335 men and 3520 women ages ≥18) from the 2010 US National Alcohol Survey. Harms from someone else's drinking included family/marital problems, financial troubles, assault and vandalism in the past 12 months. Victimisation was measured with severe physical abuse or sexual assault before age 18.

Results—Severe physical or sexual victimisation before age 18 was reported by 3.4% of men and 8.1% of women. Significantly more men (5.2%) than women (2.4%) reported assault by other drinkers, and significantly more women reported family/marital (5.3%) and financial problems (2.8%) than did men (2.6% and 1%, respectively). Severe early-life victimisation was robustly associated with a greater likelihood of experiencing past-year harms from other drinkers for both men and women. Men's drinking partially mediated associations between early-life victimisation and recent assaults and vandalism by other drinkers.

Discussion and Conclusions—Early-life victimisation may increase risk of harms from someone else's drinking. Health services and interventions that screen for histories of victimisation may help decrease risk of later harms from others' drinking. Reductions in drinking among men with histories of victimisation also could help reduce their exposure to such harms.

Keywords

victimisation; alcohol; harm; violence

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Introduction

People with histories of victimisation are significantly more likely to experience re-victimisation and to engage in more drug and alcohol use than non-victims [1–5]. They also are more likely to report alcohol-related problems such as fights, arguments with partners, trouble with the law, and work problems due to their own drinking [5]. To our knowledge, no prior studies using nationally-representative samples from the United States (US) have examined whether early victimisation is associated with various harms from someone else's drinking or examined the role of the victim's drinking as a mediator of the potential association between early-life victimisation and these harms. Alcohol's harm from others in this study encompasses a range of harms that, while including violence, also extends to financial and family problems caused by other drinkers.

Adverse childhood experiences such as physical and sexual victimisation can have a range of negative impacts on later health and substance use problems. These early negative experiences can have a long-term impact on not only psychological well-being, but also on physiological functioning [6–8]. In addition to dysregulations in mental and physical health, impaired social functioning has been documented as well. Indeed, prior research demonstrates that men and women with histories of childhood sexual victimisation are 40 percent more likely to marry someone with a drinking problem and are more likely to report marital problems [9]. Those with histories of victimisation can suffer from low self-esteem, depression and anxiety, and harms from other drinkers may exacerbate these mental health problems [10, 11]. Normalisation of trauma may extend to avoidant coping strategies such as drug and alcohol use, so that victims may be more likely to find alcohol use socially acceptable and to be re-victimised by other drinkers [12].

Respondents' drinking has repeatedly been found to increase the risk of exposure to harm from other's drinking [13–15]. People with histories of victimisation are at an increased risk for alcohol problems; however such studies have typically focused on the respondents' own drinking problems rather than on harms from others' drinking [16]. The aims of this paper are to examine: (i) how victimisation in early life is associated with alcohol's harm from others in the past 12 months; and (ii) whether the respondents' current drinking is a mediator of the association between early-life victimisation and alcohol's harm from others.

Theoretical considerations

One overarching aim of this investigation was to contribute to the development of re-victimisation theories that explicitly take respondents' drinking patterns into account. Extant research indicates that drug and alcohol use play a role in both victimisation and perpetration of assault and vandalism [17]. Prior research also has found that perpetrators of crimes often have histories of victimisation [18,19]. Researchers focused on child abuse and family violence have used re-victimisation models such as the intergenerational transmission of family violence and the cycle of violence, which draw on principles of social learning to understand how family histories characterised by violence can perpetuate later exposure to violence [20,21]. Criminologists have focused more on routine activities theory, general strain theory, and self-control theory to understand links between criminal offending and victimisation [22–25]; these theories emphasise affiliation with deviant peers as drivers of

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increased risk, as well as importance of community ties and social bonds as checks on deviant behaviours. To date, these lines of research are not synthesised and do not explicitly include alcohol consumption [26]. Thus, the potential role of alcohol in re-victimisation remains understudied, and theories of re-victimisation could be informed by research that explicitly includes harms attributable to other people's alcohol use in tandem with the victim's own drinking.

It remains understudied whether those with histories of victimisation are more likely to be exposed to alcohol's harm from others. As the field continues to draw on sociological and other social theories to help explain health disparities, inclusion of alcohol into theories of re-victimisation could inform research on alcohol-related health disparities among victims of violence. By focusing on alcohol's harm from others, we help to extend victimisation research into the field of alcohol research and to expand the focus of victimisation from violent victimisation to include financial and family harms. Our conceptual model (see Figure 1) delineates two key processes by which early-life victimisation may be associated with later harms from other's drinking. First, early victimisation can increase frequency and intensity of alcohol use. Second, early victimisation may increase affiliation with people who are heavy drinkers or who engage in other risk behaviours. There also is a reciprocal relationship between these two factors. In this study, by examining whether intensity or frequency of alcohol use is a mediator of the association between early-life victimisation and harms from other's drinking among adult men and women, we can better understand the extent to which a victim's drinking contributes to their risk for harm.

Subgroup differences

Prior research suggests there are important gender differences in these relationships. A study utilising a nationally-representative sample of US adults found that alcohol use was a more salient factor in men's physical assault victimisation and perpetration than in that of women [27]. Little is known about the contribution of alcohol to other types of harms in the context of early-life victimisation. In sum, this work can help to inform research focusing on the role alcohol use may play in re-victimisation.

Prior research suggests women experience substantial harm from other's drinking, but the role of women's own drinking in these situations remains controversial and understudied. Women experience certain harms from other's drinking, such as problems with friendships or social occasions ruined due to some else's drinking, more than do men [13, 28]. Prior research aggregating a number of past-year alcohol harms found women experienced more alcohol harms from others' drinking [28]. Others kept harms disaggregated and found nuanced patterns by respondents' drinking, relationship to harmer and drinking context [13]. For example, women reported that assault occurred more often in the home, and attributed family or social problems more often to relatives; women also felt that these problems were more recurrent, as compared to men [13]. Others have found that men experience more alcohol-related physical assault than women [15, 29], while women experience more family and financial harms [15]. We expect early-life victimisation will be associated with different types of recent harms for men and women. Therefore, we disaggregate past-year harms from other drinkers and stratify by gender to examine how experiencing alcohol's harm from

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others can vary for men and women. By focusing both on women's and men's own drinking, as well as exposure to harms due to others' drinking, this study may inform the development of gender-specific theories of re-victimisation attributable to alcohol from both the victim and perpetrator.

Hypotheses

Based on the extant theoretical and empirical literature on early-life victimisation, we hypothesise that:

1. Early-life victimisation will be associated with adult experiences of alcohol's harm from others.
2. A respondent's own heavy drinking will partially mediate the association between early-life victimisation and exposure to alcohol's harm from others.

We examine these hypotheses separately for men and women to assess whether there are gender differences in these relationships.

Methods

The Public Health Institute's Institutional Review Board approved the consent script and survey protocols for the US National Alcohol Survey. Signed documentation of consent was not feasible in a telephone survey and was waived as a requirement by the Institutional Review Board.

Sample

We utilised the landline sample of the 2010 US National Alcohol Survey (NAS). The survey involved computer-assisted telephone interviews with a list-assisted, random digit dialled sample of US adults (aged 18 or over), with geographically-targeted oversamples of Black and Hispanic respondents, as well as residents from sparsely-populated US states. Non-response was minimised by using multiple, largely unlimited call-backs and refusal conversion attempts, and bilingual interviewers conducted interviews in Spanish when needed. The co-operation rate was 49.9%. Comparisons of prior NAS telephone and face-to-face surveys (with higher response rates) [30], as well as analysis of the 2010 NAS's landline sampling replicate subsamples (involving varying response rates), indicated no significant bias in alcohol estimates associated with this level of survey response. Data were weighted to the general population of the US using the 2010 Census, taking into account non-response, age, sex, racial/ethnic group and geographic area. The analytic sample includes 6,855 landline telephone interview respondents.

Measures

Alcohol's harm from others—Four harms attributed to someone who had been drinking were based on items drawn from the 1989 Canadian Alcohol and Other Drug Survey [31]; these have been asked in the NAS since 2000 [14]. The primary outcomes included "family problems or marital difficulties"; "financial trouble"; "being pushed, hit or assaulted"; and "having property vandalised" during the prior 12 months by someone who had been drinking. Due to the small percentage of men reporting either family/marital or financial

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problems, these two harms were combined in the men's analysis; family/marital and financial problems were significantly and positively correlated among men (Pearson r = .28; $P > 0.001$).

Early-life victimisation—For women, we utilised a measure of victimisation before age 18 categorised as no victimisation, severe physical victimisation (being hit with something, beaten, intentionally burned or scalded, or harmed or threatened with a weapon), sexual victimisation (forced touching of sexual parts or sexual intercourse), and both severe physical and sexual victimisation. For men, due to the lower prevalence of sexual victimisation, we coded victimisation before age 18 as no victimisation, physical *or* sexual victimisation, and physical *and* sexual victimisation.

Socio-demographic controls—Socio-demographic controls were respondent's age, measured as a continuous variable (18 years or older); mutually-exclusive indicator variables for non-Hispanic Black/African American (hereafter referred to as Black), Hispanic and Other race/ethnicity (referent = White); marital status (using indicators for separated, divorced or widowed, and for never married; referent = married/living with someone); education (using indicators for less than high school education, high school diploma or general equivalency diploma, and some college; referent = college degree); employment status (using indicators for unemployment/out of workforce, retired, and homemaker; referent = employed either full- or part-time); and a categorical variable indicating household income, allowing for a category of missing income with indicators for less than $10,000 USD/year, $10,001–20,000, $20,001–40,000, $40,001–60,000, $60,001–80,000 (referent = $80,001 or more).

Alcohol's harms from others may be associated both with prior victimisation and the respondent's own alcohol use, so we included *respondents' heavy alcohol consumption*, assessed by 12-month maximum drink quantity on a single drinking occasion in the past year. For men, a threshold of 12+ drinks was used and for women a threshold of 8+ drinks was employed [14]. We also included *respondents' alcohol use frequency,* assessed using a graduated quantity-frequency measure that ascertained frequency of alcohol use at levels ranging from 1 drink to 24 or more drinks/day; this measure was a continuous variable ranging from 0–365 days in the past year. Alcohol problems in the family in early life have been found to be associated with current alcohol-related problems and with harms from other drinkers [14, 32]. Therefore, we controlled for *number of first-degree relatives with a history of alcohol problems*. Impulsivity can be heightened among those with histories of victimisation [33], and it has been found to be related to alcohol-related problems [34]. Thus, we used a 7-item scale of impulsivity/sensation seeking [35] as a covariate (Cronbach's alpha = .82, $\bar{x} = 5.57$; SD = 4.59).

Analysis

We used weighted binary logistic regression to assess how early-life victimisation was associated with harms from others' drinking. All analyses were stratified by gender. In adjusted models, victimisation, socio-demographic controls, respondents' drinking, family history of alcohol problems and impulsivity were entered simultaneously. Preliminary model

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fit was assessed in an unweighted dataset using Hosmer-Lemeshow goodness-of-fit tests, classification information, the area under the receiver operating characteristic curve, and tests of the logit link function using Stata (version 14) [36]; all models showed acceptable fit.

Results

Descriptive statistics

Sample characteristics are provided in Table 1. Significantly more men reported severe physical victimisation than women. Men reported significantly higher levels of impulsivity, higher frequencies of drinking, and were significantly more likely to drink above both the 8+ and 12+ maximum than women. Women reported significantly more sexual and combined (severe physical and sexual victimisation) than men. Women reported significantly more family/marital and financial problems from drinkers than men. Significantly more men experienced assault by a drinker than did women, but vandalism rates did not differ by gender.

Multivariate analysis

As shown in Tables 2 and 3, for both men and women early-life victimisation was significantly associated with experiencing assault and vandalism due to other drinkers. For men, the respondent's own heavy drinking was significantly associated with greater likelihood of assault. Men's heavy drinking also was associated with greater likelihood of vandalism, but the confidence interval was wide and the association was not statistically significant.

For both men and women, early-life victimisation also was significantly associated with experiencing family/marital or financial harms from other drinkers (see Table 4). First degree relatives' alcohol problems were associated with a significant increase in the likelihood of experiencing family/marital or financial problems from someone else's drinking among men; family history also was significantly associated with family/marital problems for women. Respondents' own drinking was not significantly associated with experiencing family/marital or financial problems from another's drinking.

Because people who are single may be at reduced risk of family/marital problems due to someone's drinking, to further examine family/marital harms, we restricted the analysis to currently-married respondents (results available upon request). For married women, victimisation and family history of alcohol problems remained significantly and positively associated with family/marital problems. When restricted to married women, early victimisation was only marginally associated with financial harm (P=0.08); similarly, when restricted to married men, early victimisation was only marginally associated with family/financial harm (P=0.09). Family history of alcohol problems was significantly and positively associated with family/financial harm from another's drinking among married men.

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Mediation analysis

In order to examine whether men's drinking was a mediator of the association between victimisation and past-year harms from others' drinking, we used Stata's binary_mediation command to calculate bias-corrected bootstrap confidence intervals for the indirect effects in accordance with the recommendations of Preacher and Hayes [37]; these mediation analyses did not use the sample weights, and there were not enough cases to use bootstrapping with a full list of covariates. This unadjusted multiple-mediator analysis showed early victimisation had an indirect effect on men's assault and vandalism by other drinkers through effects on men's own heavy drinking. Early victims of physical and/or sexual violence had heavier and more frequent alcohol consumption than their non-victimised counterparts, but only heavy drinking was associated with assault and vandalism by other drinkers. The bias-corrected bootstrap 95% confidence intervals for the indirect effects (ab = 0.05 for assault and 0.04 for vandalism) were entirely above zero (95% confidence interval 0.02, 0.08 for assault and 95% confidence interval 0.01, 0.06 for vandalism), suggesting men's heavy drinking partially mediated associations between early-life victimisation and past-year assault and vandalism by someone who had been drinking.

Discussion

Adding to prior research showing that early-life victimisation is a robust predictor of later substance use disorders, our results indicate childhood and adolescent victimisation also can have a negative impact on adult risk of harms from someone else's drinking. Overall, the risk of such harms was highest for those with both early-life sexual and severe physical victimisation. This indicates that early-life victimisation can have an additive/cumulative effect for both men and women; when multiple types of victimisation are experienced, the risk of harm from other drinkers is substantially higher than when a single type of victimisation is experienced. As with past research, more women than men reported histories of childhood sexual victimisation, whereas severe physical victimisation was more prevalent among men than among women [9]. However, due to the smaller numbers of men reporting sexual victimisation, we collapsed sexual and physical victimisation among men in our analysis. Different types of victimisation histories (e.g. physical or sexual trauma) may have a differential impact on later harms for men and women due simply to the relative prevalence of these traumas by gender.

Consistent with prior research [15], women in our sample reported more family or financial harms from others' drinking (likely to be that of a spouse or partner) and men reported more assaults (more likely to involve strangers). Utilising diverse measures of harm across a range of domains and disaggregating by gender can extend our understanding of harms from other drinkers. Notably, men's heavy drinking was significantly associated with more assault by someone who had been drinking, but it was not significantly associated with their reporting family/marital or financial problems from others' drinking. This could be because men's (male) peers may be heavy drinkers who engage in violence after drinking, while their (female) partners may be abstainers or light drinkers who do not typically cause these types of alcohol-related problems.

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Heavy drinking partially mediated the association between early-life victimisation and past-year assault and vandalism, but only among men. This indicates that the mechanisms involved in re-victimisation, particularly in regards to alcohol-related harm, may not only be gender-specific, but can also extend to risk factors beyond drinkers themselves. One possibility is that partnered women with histories of victimisation may have social networks characterised by more heavy drinkers and aggressive collaterals, even when they themselves do not engage in heavy drinking. Normalisation of violence and alcohol use could affect the formation of social ties and contribute to the development and maintenance of social networks characterised by aggression and alcohol problems. Unfortunately, in the current study we were unable to assess the characteristics of respondents' social networks as a risk factor for alcohol's harm; this deserves further study.

Because men tend to drink more heavily and have been found to be more likely to use alcohol to cope with stress than women [38–40], it is not surprising that men's own drinking was a stronger mediator of the association between early-life victimisation and harms from others' drinking than was the case for women. With recent high profile cases of sexual assault at elite academic institutions, the gendered conceptions of alcohol in sexual assault have started to enter public discourse, shedding light on the ways drinking has been used to blame victims while paradoxically pardoning those who harm them. Further, because harms from others' drinking are dependent on exposure to other drinkers, they represent an intrinsically social harm, and thus may be better understood in the context of respondents' social networks and the drinking culture within which such networks are embedded (not assessed here). Our results are consistent with the hypothesis for later evaluation that re-victimisation stems from an involvement in a social milieu characterised by heavier drinking and more risk-taking among peers.

Study Limitations

Cross-sectional US national population data were examined using descriptive multivariate statistical techniques; thus, causality *per se* could not be determined. Reports of victimisation up to age 18 formally preceded the recent harm outcomes, and respondents' current drinking was examined as a mediator. Other potential mediators, as well as potential moderators, involved in pathways from early-life victimisation to past-year harms were not formally examined. It also is possible that recall bias or another reporting bias could result in differential reporting of recent victimisation by people who are willing to report victimisation experienced early in life. Our findings merit replication and extension in other samples. Also, the patterning of harms may differ for more disadvantaged populations such as those living in more socially disorganised neighbourhoods [29]. Although the survey response rate was lower than those often seen in face-to-face interviews, it is typical for random-digit dial telephone surveys in the US; furthermore, this level of response does not necessarily produce biased population estimates, because many refusals (hang-ups) occur before the study topic has been mentioned [41, 42]. A final limitation is that our findings may not generalise to people who did not have a landline telephone in 2009–10. Despite these caveats, this analysis of alcohol's harm from others identified early-life victimisation as a significant risk factor for a range of alcohol's harms from another person's drinking in adulthood. The inclusion of family/marital and financial harms extends prior research

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focusing primarily on assaults [27]. Our findings also add to our understanding of gender differences in sequences of risks for later harms, with one identified pathway for men going from early trauma to current heavy drinking and alcohol's harm from others.

Conclusion

Early-life victimisation can place men and women at an increased risk for various harms from others' drinking in adulthood. Family histories of alcohol problems also increase the risk of alcohol-related family harms in adulthood. Early-life experiences of abuse and neglect, sometimes due to or involving family alcohol problems, could disrupt later social relationships and exacerbate exposures to other people's heavy drinking. Interventions which target general adult populations by screening for early histories of alcohol-related problems and physical and sexual trauma (such as when presenting for preventive health services), might help identify people at risk of continued victimisation later in the lifecourse who would benefit from targeted preventive intervention. Additionally, intervening in cases of alcohol-related harm, if and when such harms come to the attention of health or social services, could help to prevent the proliferation of such harm to others in the household. We conceptualise respondents' drinking as a modifiable behavioural risk factor that, when targeted by intervention and policy, has the potential to reduce the public health burden of harm attributable to alcohol, which may partly stem from early-life victimisation. Reducing drinking among men with histories of victimisation could help to prevent their repeated exposure to harms attributable to heavy alcohol use by themselves and others. Screening or interventions aimed at reducing the exposure to alcohol's harm among women with histories of victimisation should identify and target other potential risk factors beyond a woman's own drinking—particularly other heavy drinkers who may be a source of harm. Interventions may need to be tailored and targeted for men and women, as our results indicate that mechanisms linking early-life traumatic events with later harm may be gender-specific.

This analysis allowed for investigation of basic associations of different types of early-life victimisation with a range of alcohol-related harms, including family, financial, violent and property harms. This, along with a focus on gender, helps lay the foundation for more sophisticated analysis of the pathways from sexual and physical victimisation in early life to additional harm in adulthood, including collecting information on perpetrators and drinking acquaintances. This future research will further inform systematic integration of alcohol into theories of, and approaches to address, re-victimisation among vulnerable groups exposed to childhood trauma.

Acknowledgments

We would like to thank Deidre Patterson and Yu Ye for their help with data preparation.

This work was supported by Center grant P50AA005595 and research grant R01AA022791 from the US National Institute on Alcohol Abuse and Alcoholism (NIAAA) to the Alcohol Research Group, Public Health Institute and by Training Award T32AA007240 from NIAAA to the University of California, Berkeley. The content is solely the responsibility of the authors and does not necessarily represent the official view of the NIAAA or US National Institutes of Health.

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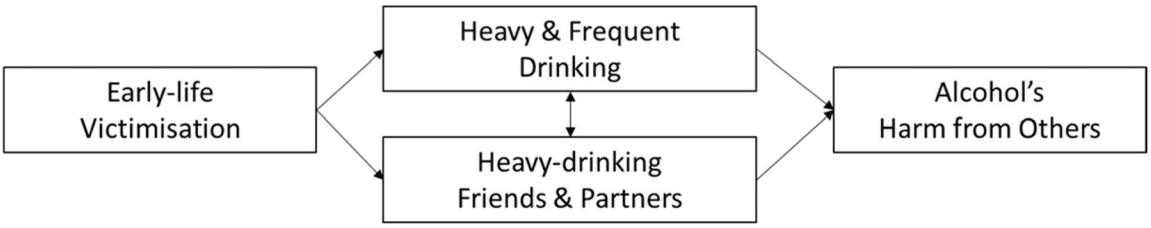

Figure 1.
Conceptual model

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Table 1

Descriptive statistics for the sample and tests of gender differences

	Women n (%)	Men n (%)	*P* value
Family/marital problems	180 (5.3)	84 (2.6)	<0.001
Financial harm	95 (2.8)	32 (1.0)	<0.001
Assault	83 (2.4)	168 (5.2)	<0.001
Vandalism	76 (2.3)	76 (2.4)	0.70
Early-life victimisation			<0.001
Physical victimisation	320 (11.3)	685 (26.1)	
Sexual victimisation	228 (8.1)	53 (2.0)	
Both physical and sexual victimisation	228 (8.1)	90 (3.4)	
Age, mean (SD)	47.5 (17.9)	44.9 (17.3)	<0.001
Race/ethnicity			0.48
White	2415 (68.6)	2270 (68.1)	
Black	414 (11.7)	358 (10.7)	
Hispanic	429 (12.2)	467 (14.0)	
Other	263 (7.5)	239 (7.2)	
Marital status			<0.001
Married/living with someone	1831 (63.8)	1718 (64.5)	
Separated/divorced/widowed	565 (19.7)	237 (8.9)	
Never married	473 (16.5)	707 (26.6)	
Education			0.76
College graduate	921 (26.2)	856 (25.9)	
Less than high school	511 (14.6)	512 (15.5)	
High school graduate	1053 (30.0)	1026 (31.0)	
Some college	1023 (29.2)	914 (27.6)	
Employment status			<0.001
Employed	1684 (48.0)	2077 (62.3)	
Unemployed	701 (20.0)	743 (22.3)	
Retired	656 (18.7)	510 (15.4)	
Homemaker	465 (13.3)	2 (<1.0)	
Income (USD)			<0.001
Missing	653 (18.6)	377 (11.3)	
Less than $10,000	394 (11.1)	279 (8.4)	
$10,001–20,000	457 (13.0)	441 (13.3)	
$20,001–40,000	592 (16.8)	658 (19.7)	
$40,001–60,000	423 (12.0)	422 (12.7)	
$60,001–80,000	343 (9.7)	386 (11.6)	
$80,001 or more	658 (18.7)	772 (23.1)	
Heavy drinking (8+ women; 12+ men)	176 (5.0)	306 (9.2)	<0.001
Drinking frequency (days/year), *Mean (SD)*	42.4 (98.3)	83.8 (104.1)	<0.001
Impulsivity, *Mean (SD)*	4.40 (3.80)	6.82 (5.03)	<0.001

Note. P-values based on chi-square tests (dichotomous and categorical variables) and independent samples t-tests (continuous variables)

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Table 2

Unadjusted (OR) and adjusted odds ratios (aOR) showing associations of early life victimisation with assault by another drinker

	Women (N=3430)		Men (N=1931)	
	OR (95% CI)	***P* value**	**OR (95% CI)**	***P* value**
Victimisation (before 18)				
Physical	4.66 (1.51, 14.37)	0.01		
Sexual	7.2 (2.25, 23.09)	0.00		
Physical or sexual			2.87 (1.21, 6.82)	0.02
Both	9.24 (3.52, 24.23)	0.00	13.82 (4.42, 43.21)	0.00
	Women (N=3296)		**Men (N=1881)**	
	OR (95% CI)	***P* value**	**OR (95% CI)**	***P* value**
Age (White as ref.)	0.94 (0.91, 0.98)	0.00	0.95 (0.92, 0.99)	0.01
Race/ethnicity				
Black	1.37 (0.46, 4.06)	0.58	4.48 (1.25, 16.12)	0.02
Hispanic	1.13 (0.43, 3.02)	0.80	1.21 (0.37, 3.97)	0.75
Other	1.03 (0.28, 3.72)	0.97	0.61 (0.06, 6.43)	0.68
Marital status (Married/living with partner as ref.)				
Single/divorced/widowed	2.6 (0.62, 10.95)	0.19	4.61 (1, 21.22)	0.05
Never married	0.6 (0.23, 1.55)	0.29	1.38 (0.54, 3.55)	0.50
Education (College degree as ref.)				
Less than high school	0.46 (0.12, 1.79)	0.26	12.74 (2.41, 67.28)	0.00
High school diploma/GED	0.93 (0.26, 3.26)	0.91	8.16 (2.54, 26.21)	0.00
Some college	1.29 (0.5, 3.35)	0.60	5.11 (1.41, 18.48)	0.01
Employment status (Employed as ref.)				
Unemployed	0.69 (0.23, 2.08)	0.51	0.31 (0.11, 0.86)	0.03
Retired	1.19 (0.23, 6.06)	0.83	0.18 (0.03, 1.16)	0.07
Homemaker	0.08 (0.01, 0.63)	0.02	---	
Income (>= $80,001 USD as ref.)				
Missing	1.32 (0.26, 6.74)	0.74	0.73 (0.11, 4.84)	0.75
< $10,000	1.08 (0.18, 6.4)	0.94	0.69 (0.16, 3)	0.62
$10,001–20,000	1.59 (0.4, 6.34)	0.51	1.16 (0.33, 4.09)	0.82
$20,001–40,000	0.75 (0.16, 3.41)	0.71	0.52 (0.11, 2.45)	0.41
$40,001–60,000	0.23 (0.03, 1.54)	0.13	0.51 (0.08, 3.46)	0.49
$60,001–80,000	0.14 (0.02, 0.82)	0.03	0.62 (0.12, 3.16)	0.56
Victimisation (before 18)				
Physical	3.86 (1.23, 12.12)	0.02		
Sexual	5.37 (1.19, 24.21)	0.03		
Physical or sexual			1.95 (0.73, 5.2)	0.18
Both	6.29 (1.95, 20.28)	0.00	10.37 (2.04, 52.71)	0.01
# First degree relative problem drinkers	1.22 (0.84, 1.76)	0.30	0.76 (0.42, 1.39)	0.37

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	Women (N=3430)		Men (N=1931)	
	OR (95% CI)	***P* value**	**OR (95% CI)**	***P* value**
Heavy drinking	2.48 (0.53, 11.65)	0.25	5.05 (1.8, 14.18)	0.00
Frequency of drinking	0.998 (0.994, 1.002)	0.28	0.999 (0.996, 1.003)	0.75
Impulsivity	1.11 (1.01, 1.22)	0.02	1.15 (1.05, 1.27)	0.00

CI, confidence interval; GED, general equivalency diploma.

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Table 3

Unadjusted (OR) and adjusted odds ratios (aOR) showing associations of early life victimisation with vandalism by another drinker

	Women (N=3365)		Men (N=1867)	
	OR (95% CI)	***P* value**	**OR (95% CI)**	***P* value**
Victimisation (before 18)				
Physical	3.93 (1.11, 13.95)	0.03		
Sexual	3.98 (1.31, 12.14)	0.02		
Physical or sexual			2.15 (0.79, 5.87)	0.13
Both	7.25 (2.46, 21.41)	0.00	11.54 (3.1, 42.9)	0.00
	Women (N=3238)	**Men (N=1821)**		
	OR (95% CI)	***P* value**	**OR (95% CI)**	***P* value**
Victimisation (before 18)				
Physical	3.33 (0.89, 12.49)	0.08		
Sexual	2.97 (0.89, 9.87)	0.08		
Physical or sexual			1.79 (0.6, 5.31)	0.30
Both	4.99 (1.66, 14.97)	0.00	26.68 (7.42, 95.94)	0.00
# First degree relative problem drinkers	0.92 (0.67, 1.26)	0.59	0.84 (0.39, 1.79)	0.65
Heavy drinking	0.96 (0.24, 3.75)	0.95	2.84 (0.57, 14.1)	0.20
Frequency of drinking	1.003 (0.999, 1.007)	0.21	1.003 (0.997, 1.009)	0.38
Impulsivity	1.06 (0.96, 1.17)	0.25	0.98 (0.89, 1.07)	0.60

Note: As in Table 2, models for all adjusted odds ratios also include respondent's age, race/ethnicity, marital status, education, employment, and household income as covariates (estimates omitted). CI, confidence interval.

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Table 4

Unadjusted and adjusted odds ratios showing associations of early life victimisation with family/marital and financial problems by another drinker

	Family/marital problems		Financial problems		Family/financial problems	
	Women (N=3434)		Women (N=3439)		Men (N=1904)	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Victimisation (before 18)						
Physical	1.82 (0.84, 3.92)	0.13	1.33 (0.36, 4.97)	0.67		
Sexual	3.16 (1.52, 6.57)	0.00	3.9 (1.43, 10.63)	0.01		
Physical or sexual					2.76 (1.03, 7.37)	0.04
Both	7.11 (3.64, 13.92)	0.00	10.06 (4.02, 25.18)	0.00	1.8 (0.32, 10.31)	0.51
	Women (N=3300)		Women (N=3305)		Men (N=1890)	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Victimisation (before 18)						
Physical	1.32 (0.61, 2.86)	0.49	1.23 (0.3, 5.03)	0.78		
Sexual	2.2 (1.05, 4.6)	0.04	3.02 (1.03, 8.86)	0.04		
Physical or sexual					1.73 (0.7, 4.26)	0.23
Both	4.27 (1.96, 9.32)	0.00	7 (2.17, 22.6)	0.00	1.12 (0.12, 10.52)	0.92
# First degree relative problem drinkers	1.41 (1.09, 1.83)	0.01	0.95 (0.68, 1.33)	0.77	1.84 (1.22, 2.77)	0.00
Heavy drinking	1.06 (0.25, 4.51)	0.93	1.2 (0.28, 5.2)	0.81	0.56 (0.16, 2.02)	0.38
Frequency of drinking	1.001 (0.998, 1.004)	0.37	1.001 (0.997, 1.005)	0.71	0.998 (0.995, 1.001)	0.26
Impulsivity	1.06 (1, 1.12)	0.04	1.05 (0.95, 1.17)	0.35	1.06 (0.97, 1.17)	0.19

Note: As in Table 2, models for all adjusted odds ratios include respondent's age, race/ethnicity, marital status, education, employment, and household income as covariates (estimates omitted). CI, confidence interval; OR, odds ratio.