

# The Effect of Childhood Victimization on Binge Drinking

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**ABSTRACT** The purpose of this epidemiological study was to examine the effect of childhood victimization on binge drinking. Although this association is well established in the literature, knowledge of the effects associated with different abuse types is limited. This study used the Statistics Canada General Social Survey, Cycle 28, 2014, which sampled a nationally representative cross-sectional sample of Canadian citizens and permanent residents aged 15 and over living in the provinces and territories (final study sample  $N = 32,038$ , 54.3% female, mean age group = 45 to 54). Types of childhood victimization examined in this study were physical abuse, sexual abuse, and witnessing inter-personal violence. Using multiple linear regression analysis, we found that, adjusting for age, sex, marital status, and parental presence in the household, only physical ( $B = 0.222$ , 95% CI = 0.135, 0.309,  $p < 0.001$ ) and sexual abuse ( $B = 0.190$ , 95% CI = 0.047, 0.323,  $p < 0.001$ ) in childhood predicted higher levels of binge drinking. These findings highlight the need for early identification and treatment of childhood victimization for prevention of alcohol abuse later in life.

## INTRODUCTION

Childhood victimization is defined as all types of violence experienced by a child (Chan, 2019). Childhood victimization includes but is not limited to physical abuse, sexual abuse, emotional or psychological abuse, and neglect occurring before age 18 (World Health Organization, 2010). Recent research showed that one in three Canadians have experienced at least one form of childhood victimization before the age of 15 (Raising Canada, 2021).

Childhood victimization can have adverse lifelong and even intergenerational impacts (Salisbury & Voorhis, 2009). Longitudinal research has reported a relationship between victimization broadly and poor developmental outcomes, including low self-esteem and mental and physical health problems in adulthood (Fergusson et al., 2013; Gilbert et al., 2015). Other studies have shown that childhood victimization is associated with criminal behaviour, substance use problems, and continued victimization throughout the victimized person's life (Werner et al., 2016). Adults who had been physically abused in childhood are more likely to have externalizing or internalizing disorders, low physical health, and to have been convicted of a crime (Lansford et al., 2021). Similarly, adults who had been sexually abused in childhood are more likely to have higher levels of depression, eating disorders, anxiety, and sexual problems, with depression being the most common long-term symptom among survivors (Hall & Hall, 2011). Collectively, this research underscores the public health importance of childhood victimization.

While there is ample evidence supporting the association between childhood victimization and long-term physical and mental health problems (e.g., Fergusson et al., 2013; Gilbert et al., 2015), there is a paucity of research which includes witnessing interparental violence as a form of childhood victimization when examining the association of childhood victimization with alcohol use disorders and binge drinking. This is significant because a growing body of research has documented the harmful impacts of witnessing violence between parents, including low self-esteem and trauma-related symptoms (Edelson et al., 2003) as well as subsequent violent behaviours and aggression (Abrahams & Jewkes, 2005).

Furthermore, most prior research examining childhood victimization as a risk factor for problematic alcohol consumption has focused on alcohol use disorder (AUD), specifically. AUD is an umbrella term which encompasses multiple conditions including alcohol abuse, alcohol dependence, and alcohol addiction (NIAAA, 2021). While AUDs are well-studied, binge drinking is also an important outcome because it is a harmful risk-taking behaviour associated with serious injuries, multiple diseases, and sudden death (Esser et al., 2014). It has also been linked to a higher risk of developing AUD (Esser et al., 2014).

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Previous research findings have shown that age (Bohm et al., 2021), sex (Tavolacci et al., 2019), marital status (Hamplová, 2018), and current parental presence in the household (Mair et al., 2015) are all significantly correlated with binge drinking behaviour. Studying the associations between different childhood victimization types, including witnessing interparental violence, and binge drinking, while controlling for other related variables is an important avenue of research to understand the isolated impact of childhood victimization on binge drinking. A better understanding of this association can inform the practice of clinicians working with persons with childhood victimization experiences, potentially leading to early identification and treatment of those at risk for alcohol use disorders. Several researchers have emphasized the importance of this “trauma-informed approach,” which acknowledges the need to understand a patient’s life experiences to provide effective care and improve treatment adherence, patient engagement, and health outcomes (Cocozza et al., 2005; Morrissey & Ellis, 2005; Menschner & Maul, 2014).

Motivated by the identified gaps in the literature, the objectives of this study were to determine the prevalence of and characteristics associated with different forms of childhood victimization in Canada and to examine the relationship between childhood victimization and excessive binge drinking.

## METHODS

### Sample and data source

The data for this study was from Statistics Canada’s General Social Survey, Cycle 28 – Victimization (Statistics Canada, 2014). Excluding those with missing data (N = 1,051, representing 3.2% of all respondents), the final analytic sample included 32,038 individuals. The sample represented individuals aged 15 years and older living in private households in Canada and excluded residents of the Yukon, Northwest Territories, and Nunavut as well as full time residents of institutions (Statistics Canada, 2014). The survey was based on a stratified design that employed probability sampling. Survey responses were collected from one randomly selected household member aged 15 or older by using computer assisted telephone interviewing (CATI) technique.

### Measures

**Outcome.** The outcome of interest was binge drinking in adolescence and adulthood (15 years and over). The National Institute on Alcohol Abuse and Alcoholism (2021) defines binge drinking as excessive alcohol use in a short amount of time, corresponding to consumption of 4 or more drinks for females or 5 or more drinks for males in about 2 hours. Like prior studies (e.g., McKetta & Keyes, 2019; Chen et al., 2015), the present study used this definition of “binge drinking.” Binge drinking was a continuous variable, captured by asking participants, “How many times in the past month have you had five or more drinks on the same occasion?”

**Exposure.** The main exposure of interest was childhood victimization. Childhood victimization was represented by three

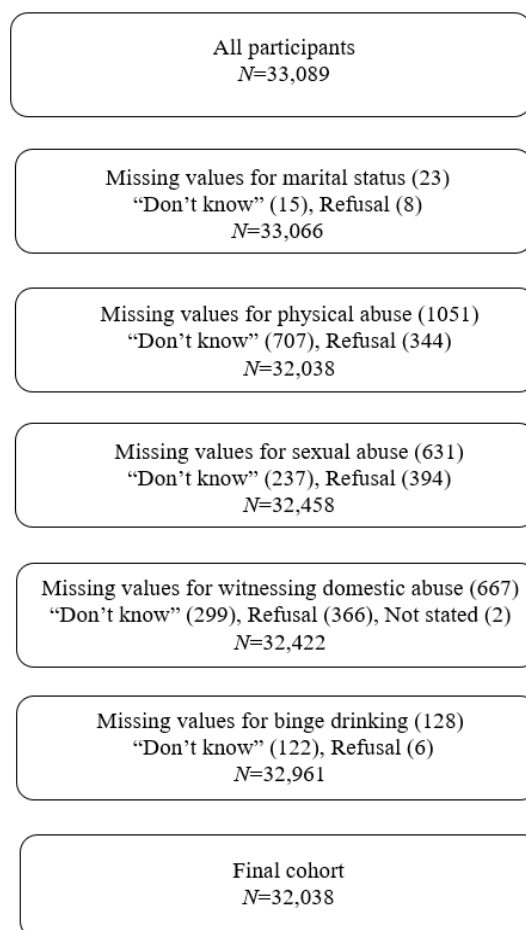


Figure 1 Missing Data Values (N = 32,038)

different variables: physical assault, sexual assault, and witnessing violence between parents before age 15. Physical assault was assessed by asking respondents, “Before age 15, were you ever physically assaulted by an adult (someone who was aged 18 years or older)?” Experience of sexual assault was measured by asking respondents, “Before age 15, were you ever sexually assaulted by an adult (someone who was aged 18 years or older)?” For both questions, response options were “never”, “yes, at least one”, “don’t know”, and “refusal.” Witnessing violence between parents was assessed by asking the respondents, “Before age fifteen, how many times did you see or hear any one of your parents, step-parents or guardians hit each other or another adult?” Responses were 1= “never,” 2= “one or two times,” 3= “three to five times,” 4= “six to ten times,” and 5= “more than ten times” and treated as numerical data.

**Covariates.** We first ran correlational analyses using the Pearson’s correlation coefficient  $\textcircled{R}$  and found that age, sex, marital status, and current parental presence in the household were all significantly correlated with binge drinking. Thus, we included these variables in our model as covariates. Age of the respondent at the time of the survey was a seven-level ordinal variable with the categories 15-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, 65-74 years, and 75 years or older. Sex was coded as 0= female and 1= male. Marital status was dummy coded as a binary variable with responses of “married” and “living common law” responses coded as 1 and the responses “widowed,” “separated,” “divorced,” and “single” coded as 0. Finally, the number of the respondent’s parents who are currently living in the household was re-coded from 0= “no parents”, 1= “one parent”, 2= “two parents” to 1= “one or more parents”, and 0= “no parents.”

### Statistical Analysis

Multivariable linear regression was used to measure the effect of childhood victimization on binge drinking adjusting for potential confounders and predictors of binge drinking, including age, sex, marital status, and current parental presence. All assumptions of multivariable linear regression were met. To test for multicollinearity, we tested for variance inflation factor (VIF) and found that none of the pairwise correlation coefficients between independent variables were high enough (VIF = 1.–5 - 1.12) to raise concerns about multicollinearity among covariates (James et al., 2013). The data also met the assumption of independent errors (Durbin-Watson value = 2.00). Moreover, a histogram of standardized residuals demonstrated that the errors were approximately normally distributed (results not shown). All analyses were conducted using IBM SPSS Statistics (Version 28).

### RESULTS

#### Sample characteristics

Table 1 shows characteristics of the study sample. The age of respondents ranged from 15 to 75 years or older. 45.7% of the respondents reported being male and 54.3% reported being female. 7,587 (35.8%) participants reported binge-drinking at least one time in the past month. Of all respondents, 27.4% reported experiencing physical abuse and 9.4% reported experiencing sexual abuse before age 15. While a higher proportion of males (15.3%) than females (12.1%) reported experiences of childhood physical abuse, a higher of proportion of females (7.3%) than males (2.1%) reported being sexually abused before age 15. The proportion of respondents reporting being physically or sexually abused in childhood was lowest among individuals aged 75 or older (1.3%) and 15 to 24 (0.3%), respectively; and highest among respondents aged 55 to 64 (6.3% physically abused, 2.5% sexually abused). Most respondents (88.8%) reported they had not witnessed violence between parents before age 15. Of the 11.2% of respondents who reported witnessing violence between parents before age 15, approximately half were female (7%), and half were male (6%).

#### Childhood Abuse and Excessive Binge Drinking

Table 2 presents the standardized and unstandardized coefficients from the multivariable regression analysis. Together, the independent variables explained 5.6% of the variance in frequency of binge drinking (adjusted R<sup>2</sup> = 0.056, p < 0.001).

Results partially supported our hypothesis. Of the victimization types, experiencing physical and sexual abuse in childhood was associated with a 0.222 (95% CI = 0.135, 0.309, p < 0.001) and 0.190 (95% CI = 0.057, 0.323, p < 0.005) increase in the number of binge drinking occasions in the past month, respectively. Witnessing violence between parents before age 15 did not significantly predict binge drinking (B = 0.017, 95% CI = -0.033, 0.068, p = 0.508).

### DISCUSSION

Consistent with prior research, females in our sample were more likely to report a history of childhood sexual abuse (e.g., Briere & Elliott, 2003; Dube et al., 2005), whereas males were more likely to report childhood physical abuse (e.g., Thompson et al., 2004). In addition, our findings were consistent with the reports in the

Table 1: Descriptive Statistics of Variables in the Analyses (N = 32,038)

Dependent Variable	N	%
<b>Binge Drinking (N = 21,210)</b>		
Never	13623	64.20%
1 time	2963	14.00%
2 times	1907	9.00%
3 times	683	3.20%
4+ times	2034	9.60%
<b>Independent Variables</b>		
<b>1. Age (years)</b>		
15-24	3958	12.00%
25-34	3966	12.00%
35-44	4832	14.60%
45-54	5585	16.90%
55-64	6599	19.90%
65-74	5026	15.20%
75+	3123	9.40%
<b>2. Sex (male)</b>		
15134		45.70%
<b>3. Marital Status (married/ common law)</b>		
15085		45.60%
<b>4. Parental Presence (yes)</b>		
4273		12.90%
<b>5. Physical Abuse (yes; total)</b>		
9075		27.40%
male (yes)		
5067		15.30%
female (yes)		
4008		12.10%
15-24 (yes)		
886		2.67%
25-34 (yes)		
1052		3.18%
35-44 (yes)		
1525		4.60%
45-54 (yes)		
1816		5.48%
55-64 (yes)		
2112		6.38%
65-74 (yes)		
1240		3.74%
75+ (yes)		
444		1.34%
<b>6. Sexual Abuse (yes; total)</b>		
3071		9.40%
male (yes)		
686		2.10%
female (yes)		
2385		7.30%
15-24 (yes)		
101		0.31%
25-34 (yes)		
254		0.78%
35-44 (yes)		
469		1.43%
45-54 (yes)		
692		2.11%
55-64 (yes)		
832		2.55%
65-74 (yes)		
546		1.67%
75+ (yes)		
177		0.54%
<b>7. Witnessing Domestic Abuse</b>		
Never		
28798		88.80%
1-2 times		
1644		5.10%
3-5 times		
711		2.20%
6-10 times		
323		1.00%
10+ times		
946		2.90%

Table 2: Multiple regression analysis results, (standardized and unstandardized coefficients are reported, N = 21,210) (Adjusted) R-squared = 0.056 F = 176.408 \*p < 0.005; \*\*p < 0.001

Model	B	SE B	Unstandardized beta (B) 95% CI [LL, UL]
1. Age (years)	-0.242**	0.013	[-0.267, -0.217]
2. Sex (male)	-0.947**	0.039	[-1.024, -0.870]
3. Marital Status (married/ common law)	-0.433**	0.041	[-0.515, -0.351]
4. Parental Presence (yes)	-0.489**	0.072	[-0.637, -0.342]
5. Physical Abuse (yes)	0.222**	0.044	[0.135, 0.309]
6. Sexual Abuse (yes)	0.190*	0.068	[0.057, 0.323]
7. Witnessing Domestic Abuse	0.017	0.026	[-0.033, 0.068]

literature that early childhood experiences of violence are associated with problematic alcohol use, including excessive binge drinking in adolescence and adulthood (Widom et al., 2010). As expected, physical and sexual violence in childhood significantly predicted more binge drinking in adolescence and adulthood. Individuals who were physically or sexually assaulted by an adult before age 15 reported higher levels of heavy drinking on any

given occasion. A similar pattern was found in previous studies, which reported that adolescents who experienced physical or sexual abuse were three times as likely to use substances than those who had not (National Child Traumatic Stress Network, 2008). Others have also observed significant associations between child physical and sexual abuse and problematic alcohol consumption patterns in adulthood, including heavy episodic drinking, alcohol dependence, and alcohol consequences (e.g., Lown et al., 2010; Moran et al., 2004; Shin et al., 2015). This finding might be explained by theories of coping (Lazarus, 1966). When individuals experience psychological stress, they often report increased alcohol consumption and misuse (Keyes et al., 2012). Similarly, among numerous devastating effects of childhood abuse is the increased likelihood to turn to alcohol later in life to manage nightmares, flashbacks, and feelings of rage. Although alcohol can dull the effects of stress, it also increases the risk of experiencing further trauma (National Child Traumatic Stress Network, 2008).

Contrary to the findings of previous studies (see World Health Organization, 2004), we did not find a significant association between witnessing parental violence and binge drinking, possibly due to a small effect size. That is, this study might have been underpowered to detect rare small effects, since very large sample sizes are needed to find small effects in the population (Open Science Collaboration, 2015). Further studies with larger sample sizes, therefore, might be required to examine the relationship between witnessing domestic violence in childhood and binge drinking.

The present study has a few limitations. First, our study included self-reported variables. Social desirability or recall bias could have led to misclassification of exposure, outcome, and covariates, which would have biased our regression estimates. Second, comparisons between our results and other studies are limited by different definitions of 'binge drinking' (i.e., having five or more drinks on the same occasion). Some studies (e.g., Fillmore & Jude, 2011; Pearson et al., 2016) have reported low validity evidence for the 5+ standard drinks per occasion threshold to measure 'binge drinking.'

Results of this study are consistent with prior research linking childhood victimization experiences to binge drinking in later life, while suggesting that different types of victimization can differentially influence binge drinking patterns. Furthermore, our results call attention to the need for further research aimed at understanding the relationship between the response to childhood abuse and elevations in substance intake. Future studies should include studies of interactions between sex, age, childhood abuse, personality types, and excessive alcohol use, and should focus on the overall contribution of variables. Individual differences in coping styles and personality may influence the strategies people develop in the face of trauma to help manage their painful or difficult emotions. Therefore, more studies, particularly those that use qualitative research methods, should consider the potential effects of different coping mechanisms more carefully and evaluate whether they act as moderators between childhood abuse and binge drinking.

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## CONFLICT OF INTERESTS

The author declares no conflicts of interest.

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