

# Alcohol-related Victimization among Young Adult Canadian Drinkers: The Explanatory Roles of Hazardous Drinking and Illicit Drug Use

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## ABSTRACT

**Objectives:** Consistent evidence has shown that young people are significantly overrepresented among victims of violence due to another person's drinking. Yet little research has examined factors that explain alcohol-related victimization among young adults, particularly in Canada. The present study examines the influence of hazardous drinking and illicit drug use on the likelihood of experiencing alcohol-related physical victimization among young adult drinkers in a Canadian general population sample and determines whether gender differences exist in the roles of these explanatory variables.

**Methods:** A secondary analysis of the 2004 Canadian Addiction Survey (CAS) was conducted, restricting analyses to young adult (ages 18 to 25) drinkers (785 females, 745 males). Logistic regression analyses were conducted to examine associations between explanatory variables and victimization. To assess gender differences in effects, interaction effects of gender by hazardous drinking and illicit drug use were tested.

**Results:** Alcohol-related victimization was more likely among men than among women, hazardous drinkers than non-hazardous drinkers, and illicit drug users than non-users. Multivariate analyses indicated that, among women, illicit drug use was associated with victimization whereas, among men, hazardous drinking was significant. An interaction effect between gender and hazardous drinking indicated that hazardous drinking was more strongly associated with victimization among men than among women.

**Conclusion:** These results highlight the important role of substance use in explaining alcohol-related victimization among young adult Canadian drinkers and suggest that gender-specific prevention programs may be needed.

**Key words:** Violence; cannabis; street drugs; alcohol drinking; crime victims; sex

La traduction du résumé se trouve à la fin de l'article.

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Between 40 and 50 percent of incidents of violent victimization involve a perpetrator who has been drinking,<sup>1,2</sup> resulting in considerable harm to the victim, including physical and psychological harm as well as financial loss.<sup>3,4</sup> Of particular concern is the high rate of alcohol-related victimization among young people. Consistent evidence has shown that young people are significantly over-represented among victims of violence due to another person's drinking;<sup>5-9</sup> however, relatively little research has focused on identifying explanatory factors for the alcohol-related victimization of young people. Moreover, to our knowledge, no published studies have specifically examined alcohol-related victimization among Canadian young adults.

Hazardous drinking as well as illicit drug use by the victim may increase the likelihood of alcohol-related victimization among young adults. In studies of university and college populations, evidence suggests a link between heavy drinking and the likelihood of victimization.<sup>10,11</sup> Additionally, victims of physical assault and predatory victimization were more likely than non-victims to report illicit drug use, including marijuana and crack.<sup>12-14</sup>

Importantly, men and women may differ both in terms of their likelihood of being physically victimized and in terms of factors related to victimization. Studies of general populations have shown higher rates of alcohol-related physical victimization among men than among women,<sup>6,7</sup> and a stronger role of alcohol in explaining victimization among women than men.<sup>6,9</sup> However, these studies did not focus specifically on young adults. In a study of students at nine post-secondary institutions in the United States, while the rate of predatory victimization was higher among men than among women, drinking behaviours were more important in explaining predatory

victimization among men than among women whereas illegal drug use was a more important explanatory factor for women.<sup>14</sup>

A limitation of existing studies on young adult victimization is that they focus mostly on university and college student populations.<sup>15-17</sup> The purpose of the present study was to examine the associations of alcohol-related physical victimization with hazardous drinking and illicit drug use among young adult drinkers in a Canadian general population sample and to assess whether there are gender differences in these associations.

## METHODS

A secondary analysis of the 2004 Canadian Addiction Survey (CAS) was conducted. The CAS used a two-stage stratified random sample of Canadian residents aged 15 and over. Details regarding the sample and methods are published elsewhere.<sup>18,19</sup> The response rate for the CAS was 47.0%. While not optimal, this response rate is on par with other Canadian and American national population surveys.<sup>20,21</sup> The present analyses are restricted to young adults (i.e., ages 18 to 25). Because only 10% of young adults were non-drinkers (i.e., they did not consume alcohol in the previous 12 months) and a separate analysis of this group would have produced unstable esti-

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mates due to insufficient cell sizes, the present analyses are restricted to drinkers (n=1530).

**Measures**

Alcohol-related physical victimization was determined by asking respondents whether they had been hit or physically assaulted and/or pushed or shoved by someone who had been drinking in the past 12 months. These two items were combined to form a dichotomous variable reflecting any physical victimization (i.e., hit/physically assaulted and/or pushed/shoved) versus no physical victimization.

Hazardous drinking was assessed with the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT was developed by the World Health Organization as a brief screening scale to identify individuals at risk for developing alcohol problems.<sup>22</sup> The 10-item instrument assesses three domains: quantity and frequency of alcohol use (3 items), alcohol dependence symptoms (4 items) and consequences of use (3 items). Because the AUDIT is better suited to identify hazardous or high-risk drinking (i.e., a pattern of drinking that puts a person at risk for mental or physical problems) than alcohol dependence in young adults as well as general population samples,<sup>23,24</sup> the present study used the AUDIT to detect hazardous drinking. The AUDIT is a reliable measure (Cronbach’s Alpha = .77 in present data) and has been validated in samples of young adult and college student drinkers.<sup>25-27</sup> In the present study, two groups were compared: non-hazardous drinkers (i.e., low-risk drinking, meaning a pattern of drinking that is not linked to a greater risk of health problems; AUDIT <8); and hazardous drinkers (i.e., high-risk drinking; AUDIT ≥8).<sup>28</sup>

Cannabis use was measured by asking respondents to report any use of cannabis, marijuana or hashish in the previous 12 months (yes/no). Other illicit drug use was assessed by asking respondents to report whether they had used cocaine or crack; speed (amphetamines); ecstasy (MDMA) or similar drugs; hallucinogens, PCP or LSD (acid); or heroin in the previous 12 months. These 5 items were combined to form a dichotomous variable reflecting any illicit drug use (excluding cannabis) versus no illicit drug use.

The demographic indicators, age and student status, were included as control variables in the analysis. Age, calculated from respondents’ year of birth, was coded into two categories: 18-21 and 22-25. Student status was assessed by asking respondents whether or not they were currently attending a university, college, or a school on a full-time basis. A dichotomous variable was created with those indicating any full-time university, college, or school attendance coded as students and all others coded as non-students.

**Table 2.** Associations between Alcohol-related Physical Victimization and Explanatory Variables

Explanatory Variables		Victimization (n=522)	No Victimization (n=1004)	OR (95% CI) (Unadjusted)	OR (95% CI) (Adjusted)
Gender	Female (ref)	27.1	72.9	1.00	1.00
	Male	38.9	61.1	1.71 (1.17-2.50)**	1.48 (0.98-2.23)
Age	18-21 (ref)	36.4	63.6	1.00	1.00
	22-25	30.2	69.8	0.76 (0.52-1.10)	0.83 (0.55-1.24)
Student Status	Non-student (ref)	37.0	63.0	1.00	1.00
	Student	28.3	71.7	0.67 (0.46-1.00)*	0.65 (0.43-0.99)*
Drinking Behaviour	Non-hazardous Drinker (ref)	23.6	76.4	1.00	1.00
	Hazardous Drinker	49.9	50.1	3.22 (2.16-4.80)***	2.79 (1.82-4.27)***
Cannabis Use	No (ref)	29.1	70.9	1.00	1.00
	Yes	39.2	60.8	1.57 (1.08-2.30)*	1.06 (0.68-1.65)
Other Illicit Drug Use	No (ref)	31.3	68.7	1.00	1.00
	Yes	44.7	55.3	1.77 (1.08-2.90)*	1.16 (0.66-2.03)

\* p<0.05      \*\* p<0.01      \*\*\* p<0.001

**Table 1.** Characteristics of the Sample

		Percent of Participants (n=1530)
Physical Victimization	No	66.8
	Yes	33.2
Gender	Female	47.8
	Male	52.2
Age	18-21	48.5
	22-25	51.5
Student Status	Non-student	56.3
	Student	43.7
Drinking Behaviour	Non-hazardous drinker	64.1
	Hazardous drinker	35.9
Cannabis Use	No	58.6
	Yes	41.4
Other Illicit Drug Use	No	85.7
	Yes	14.3

**Data analyses**

The proportion of respondents reporting physical victimization due to another person’s drinking and those reporting no victimization were computed for categories of the explanatory variables. Bivariate logistic regression analyses were conducted to compute odds ratios and confidence intervals reflecting the likelihood of victimization for each explanatory variable. Multivariate logistic regression analyses were conducted to assess the role of each variable in explaining victimization, controlling for the potential confounding effects of all other variables. Interaction terms reflecting gender by hazardous drinking, cannabis use and other illicit drug use were tested in a multivariate logistic regression model. To assess gender-specific effects, analyses were conducted for females and males separately. Variance estimates and confidence intervals were adjusted to correct for the complex sampling design. To account for disproportionate sampling within provinces, data were weighted based on 252 population classes for 21 regional strata by six age groups and gender, thereby restoring population representation.<sup>19</sup>

**RESULTS**

As shown in Table 1, 33.2% of young adult drinkers were physically victimized by someone who had been drinking. Bivariate associations shown in Table 2 indicate that victimization was more likely to be reported by males than females, non-students than students, hazardous drinkers than non-hazardous drinkers, cannabis users than non-users, and other illicit drug users than non-illicit drug users. In a multivariate logistic regression model (i.e., adjusted ORs), variables that remained significant included student status and hazardous drinking.

Table 3 presents the multivariate model that includes tests for interaction of gender by hazardous drinking, cannabis use, and other illicit drug use. The interaction model identified one significant interaction effect between gender and hazardous drinking,

**Table 3.** Multivariate Logistic Regression Model including Tests for Interaction of Gender by Hazardous Drinking and Illicit Drug Use

		OR (95% CI) (Adjusted)
Gender	Female (ref)	1.00
	Male	1.14 (0.62-2.09)
Age	18-21 (ref)	1.00
	22-25	0.79 (0.53-1.18)
Student Status	Non-student (ref)	1.00
	Student	0.67 (0.45-1.02)
Drinking Behaviour	Non-hazardous drinker (ref)	1.00
	Hazardous drinker	1.39 (0.75-2.59)
Cannabis Use	No (ref)	1.00
	Yes	1.15 (0.61-2.17)
Other Illicit Drug Use	No (ref)	1.00
	Yes	2.32 (0.99-5.45)
Gender X Hazardous Drinker		3.28 (1.39-7.76)**
Gender X Cannabis Use		0.87 (0.36-2.11)
Gender X Other Illicit Drug Use		0.34 (0.11-1.04)

\* p<0.05      \*\* p<0.01      \*\*\* p<0.001

indicating a stronger association between hazardous drinking and victimization for men than for women. Gender-specific models shown in Tables 4 and 5 indicate that, among women, other illicit drug use was significantly associated with victimization whereas among men, hazardous drinking was significant.

**DISCUSSION**

Identifying factors associated with the likelihood of alcohol-related victimization among young adults is important for developing programs aimed to reduce victimization in this population. Consistent with crime<sup>29-31</sup> and victimization data from the general population,<sup>6,7</sup> men were more likely than women to be physically victimized by someone who had been drinking. Interestingly, this effect became non-significant in the multivariate model, suggesting that other factors related to gender, such as hazardous drinking, explained this association. That is, men are more likely than women to be hazardous drinkers, and this may at least partly explain the higher rate of victimization among men.

Hazardous drinking was found to be significantly associated with the likelihood of victimization. Tests for interaction by gender revealed that the role of hazardous drinking in explaining victimization was different for men and women. In particular, consistent with evidence regarding factors associated with predatory victimization among male and female college/university students, hazardous drinking was more strongly associated with victimization among young adult men than among young women. Drinking can impair cognitive and psychomotor abilities<sup>32,33</sup> and thus may be linked to decreases in the ability to recognize, avoid, or escape danger.<sup>34,35</sup> The effects of alcohol on victims may increase the likelihood that they will be chosen as a target for aggression,<sup>32,36,37</sup> or result in behaviours that precipitate violence, such as reacting with physical aggression<sup>38</sup> or engaging in risky or provocative behaviour.<sup>39</sup> This latter effect may be especially true for men given that they have been shown to become more aggressive when drinking than women.<sup>40</sup> Moreover, hazardous drinking may influence the likelihood of victimization among men more than among women because men tend to drink considerably more than women<sup>41</sup> and reach higher levels of intoxication,<sup>42</sup> which may increase their vulnerability.

In the total sample, both cannabis and other illicit drug use (i.e., any use of cocaine, speed, ecstasy, hallucinogens and heroin) were associated with victimization in the bivariate analyses but not in the multivariate model, suggesting that other variables, such as hazardous drinking, explained their effects. Interestingly, other illicit drug use was associated with the victimization of young adult women but not of men in both the bivariate and multivariate analyses. This finding may reflect that young women who use illicit substances are targeted by offenders, such as other illicit drug users or drug dealers.<sup>43-45</sup> It is also possible that the victimization experiences of women increase their subsequent likelihood of using illicit substances, as has been found in longitudinal research.<sup>46</sup> However, the confidence intervals for this effect were somewhat

**Table 4.** Associations between Alcohol-related Physical Victimization and Explanatory Variables for Females

Explanatory Variables		Victimization (n=203)	No Victimization (n=582)	OR (95% CI) (Unadjusted)	OR (95% CI) (Adjusted)
Age	18-21 (ref)	29.7	70.3	1.00	1.00
	22-25	24.5	75.5	0.77 (0.44-1.34)	0.98 (0.55-1.74)
Student Status	Non-student (ref)	29.4	70.6	1.00	1.00
	Student	24.2	75.8	0.77 (0.44-1.34)	0.77 (0.42-1.39)
Drinking Behaviour	Non-hazardous drinker (ref)	23.6	76.5	1.00	1.00
	Hazardous drinker	34.5	65.5	1.71 (0.94-3.12)	1.46 (0.79-2.68)
Cannabis Use	No (ref)	23.5	76.5	1.00	1.00
	Yes	33.5	66.6	1.64 (0.93-2.88)	1.15 (0.62-2.16)
Other Illicit Drug Use	No (ref)	25.1	74.9	1.00	1.00
	Yes	49.2	50.8	2.88 (1.31-6.35)**	2.42 (1.02-5.74)*

\* p<0.05      \*\* p<0.01      \*\*\* p<0.001

**Table 5.** Associations between Alcohol-related Physical Victimization and Explanatory Variables for Males

Explanatory Variables		Victimization (n=319)	No Victimization (n=422)	OR (95% CI) (Unadjusted)	OR (95% CI) (Adjusted)
Age	18-21 (ref)	43.1	56.9	1.00	1.00
	22-25	35.2	64.8	0.72 (0.43-1.21)	0.67 (0.39-1.16)
Student Status	Non-student (ref)	43.5	56.5	1.00	1.00
	Student	32.4	67.6	0.62 (0.36-1.08)	0.60 (0.34-1.07)
Drinking Behaviour	Non-hazardous drinker (ref)	23.7	76.3	1.00	1.00
	Hazardous drinker	58.5	41.5	4.53 (2.57-7.97)***	4.54 (2.48-8.31)***
Cannabis Use	No (ref)	35.1	64.9	1.00	1.00
	Yes	43.3	56.7	1.41 (0.84-2.38)	0.99 (0.53-1.85)
Other Illicit Drug Use	No (ref)	37.8	62.2	1.00	1.00
	Yes	43.0	57.0	1.24 (0.67-2.29)	0.78 (0.37-1.63)

\* p<0.05      \*\* p<0.01      \*\*\* p<0.001

wide due to the small proportion of respondents reporting illicit drug use. Additionally, the interaction between gender and other illicit drug use was non-significant. Therefore, further evidence is needed to confirm this finding.

An important strength of the present paper is that a general population sample of young adults was used rather than a sample of post-secondary students, making the findings relevant to both students and non-students. Nevertheless, several limitations are of note. First, the response rate of the 2004 CAS was low (i.e., 47%) and possibly lower for young adults. High-risk drinkers and illicit drug users may have been less likely than others to participate in the survey. Second, the CAS sample of young adults under-represents youth who did not complete secondary or post-secondary education, although the use of weights restores the study's generalizability to Canadian young adult drinkers.<sup>47</sup> Third, the measure of physical victimization did not distinguish between intimate partner violence, sexual assault, and other forms of victimization that are relevant to the assessment of gender differences.<sup>43</sup> A separate analysis of these different forms of victimization may identify different causal factors for both men and women. For example, among women, the role of alcohol in sexual victimization or partner violence may be more important than was found in the present study.<sup>48,49</sup> Fourth, additional variables that may shed light on the present associations, including living arrangement and various lifestyle and routine activities that have been found to be associated with victimization,<sup>14,32</sup> were not included in the CAS and thus could not be examined. Fifth, due to the exclusion of non-drinkers, the findings are only generalizable to young adult drinkers. In future studies with a larger sample size, it will be necessary to include non-drinkers. Finally, drinking and drug use were not assessed at the time of specific victimization experiences. Therefore, the true mechanism of the association between substance use and victimization cannot be determined with the present data. Moreover, the data are cross-sectional, making it difficult to draw conclusions regarding the direction of relationships. Therefore, it is possible that drinking and/or illicit drug use may be consequences rather than predictors of victimization.<sup>50</sup>

Overall, the present results indicate that hazardous drinking is an important factor associated with alcohol-related physical victimization, particularly among young adult male drinkers. These results illustrate the importance of examining gender-specific effects and suggest that programs aimed at preventing victimization among young adults may need to target men and women differently, with a focus on addressing hazardous drinking among men and perhaps illicit drug use among women.

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## RÉSUMÉ

**Objectifs :** Des preuves convergentes montrent que les jeunes sont significativement surreprésentés parmi les victimes d'actes violents perpétrés par des personnes ayant bu de l'alcool. Pourtant, rares sont les études qui portent sur les facteurs pouvant expliquer la victimisation liée à l'alcool chez les jeunes adultes, particulièrement au Canada. Dans cet article, nous examinons l'influence des excès d'alcool et de la consommation de drogue sur la probabilité d'être victime de voies de fait liées à l'alcool chez les buveurs au début de l'âge adulte dans un échantillon représentatif de la population canadienne; nous cherchons aussi à déterminer si ces variables explicatives diffèrent selon le sexe.

**Méthode :** Nous avons effectué une analyse secondaire des données de l'Enquête sur les toxicomanies au Canada (2004) en ne tenant compte que des jeunes adultes consommateurs d'alcool (785 femmes et 745 hommes, 18 à 25 ans). Par régression logistique, nous avons analysé les associations entre les variables explicatives et la victimisation. Enfin, nous avons testé les effets d'interaction entre le sexe, les excès d'alcool et la consommation de drogue pour détecter des sexospécificités, le cas échéant.

**Résultats :** La victimisation liée à l'alcool était plus courante chez les hommes que chez les femmes, chez les buveurs excessifs que chez les autres consommateurs d'alcool, et chez les utilisateurs de drogue que chez les non-utilisateurs. Selon des analyses multivariées, chez les femmes, la consommation de drogue était associée à la victimisation, tandis que chez les hommes, ce sont les excès d'alcool qui étaient statistiquement significatifs. Nous avons observé un effet d'interaction entre le sexe et l'excès d'alcool, à savoir : une plus forte association entre l'excès d'alcool et la victimisation chez les hommes que chez les femmes.

**Conclusion :** Ces résultats font ressortir le rôle important de la consommation d'alcool ou de drogue pour expliquer la victimisation liée à l'alcool chez les jeunes adultes canadiens qui boivent, ce qui donne à penser que des programmes de prévention sexospécifiques pourraient être nécessaires.

**Mots clés :** violence; cannabis; drogue; consommation d'alcool; victimes de crimes; sexe