Profile of Adolescent Drinking Drivers

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ABSTRACT

Although indicators of impaired driving among adolescents have declined over the past decade, drinking-driving crashes remain one of the largest causes of death for this age group. In this work we are developing a demographic and behavioural profile of the adolescent drinking driver, in order to identify possible countermeasures for those young people that continue to drink and drive. Approximately 1200 students with valid drivers licences in grades 11 and 12 were surveyed. The surveys were conducted in seven schools in two regions of the province of Ontario (one region in the North and one in the south). Regional differences in drinking-driving behaviour will be described. Similarly, the moderating effects on drinking-driving rates of rural vs. urban residence and accessibility of public transportation will be described. The behavioural measures examined driving frequency and locations, drinking frequency and locations, and use of drugs other than alcohol. Of particular interest will be the determination of factors, in the subset of students who report both recent drinking and recent driving, which distinguish those who drink and drive from those who do not.

INTRODUCTION

Alcohol-related motor vehicle fatalities remain one of the leading causes of death in young people. In Ontario, substantial variation in rates of impaired driving crashes exists among regions and between urban and rural areas. For example, drinking-driving fatality rates are higher in rural and northern regions of the province than in urban and southern regions (Beirness et al., 1992). One possible contributing factor to this phenomenon may be greater access to public transit as an alternate mode of transportation in urban areas. Thus, among adolescents with restricted access to public transportation, drinking-driving prevention efforts may be less successful.

A heavier pattern of drinking alcohol has been identified as the strongest predictor of likelihood of driving after drinking by young people (Stewart and Klitzner, 1990), and this suggests that efforts to reduce drinking and driving should also include efforts to reduce drinking. However, it is possible that this relationship is in part an artifact of including abstainers when assessing relationships and that when drinkers alone are considered the relationship weakens or disappears. Under these circumstances, countermeasures that target reductions in alcohol use might seem less important.
Reductions in the incidence of driving after drinking among adolescents have occurred over the past decade in the province of Ontario (e.g., Adlaf et al., 1993). Over this time, prevention efforts for young people have often highlighted strategies to avoid driving after drinking, such as use of designated drivers, and contracts permitting young people to call parents for a ride without punishment. As yet, there are few data on the extent to which these strategies are employed or their success.

In the work reported here we examine drinking-driving among male and female adolescent drivers in high school, focusing particularly on demographic and alcohol-related predictors of drinking and driving and the use of strategies to avoid driving after drinking.

**METHOD**

Questionnaires were administered to students in grade 11 and 12 with valid driver’s licences (held for not more than 2 years) in four secondary schools in north-east and three in southern Ontario between January and April, 1994. Students who returned signed parental consents and completed questionnaires were paid $5.00 for their participation.

The questionnaire (length=30 minutes) covered information on the following areas: demographics; driving behaviour; use of different modes of transportation; drinking and drug use behaviour; drinking-driving related measures; avoidance of drinking-driving; prevention of others’ drinking-driving; knowledge and attitudes about drinking-driving; and attitudinal factors that may influence drinking and driving. The response rate was 67% of all eligible students.

From the total sample of 1157 students, a subsample consisting of 555 students under the age of 19 (the legal drinking age in Ontario) who had driven within the last 12 months and had consumed alcohol within the previous 4 weeks was selected for analysis (310 males, 245 females). Comparisons between two groups, students who reported driving after drinking any amount of alcohol within the last 12 months and students who reported never driving after drinking any amount of alcohol were made using chi-square analysis and Student’s t-test.

**RESULTS**

Demographic characteristics of our subsample were examined by gender. Males and females were not significantly different in terms of age, school currently attending, region and location of residence. The majority of students were 16 or 17 years old (83.4%). About one quarter of the students lived in the north-eastern region of the province. About three-quarters of the students lived in urban areas (i.e., city population > 5,000). Frequency of public transit use differed between males and females significantly ($X^2=6.98, p<.05$); females reported more frequent use of public transit than males.

The proportion of drivers who drove after drinking any amount of alcohol within the last 12 months differed by gender ($X^2=21.69, p<.001$). Over one third of male drivers who had consumed alcohol in the last 4 weeks reported having driven after drinking any amount of alcohol within the last 12 months (37.5%) compared to 19.3% of female drivers. Similar findings were revealed for driving within an hour of drinking 2 or more drinks during the same time period ($X^2=13.24, p<.001$).
Since analyses revealed significant gender differences in drinking-driving behaviour, subsequent analyses comparing groups were conducted separately for males and females. Drinking-driving groups were constructed by selecting students who reported having driven after drinking any amount of alcohol at least once (DRDR group) and those who had never driven after drinking any amount of alcohol within the last 12 months (non-DRDR group).

Comparisons between drinking-driving groups revealed no significant differences in demographic characteristics among males. For females, drinking-drivers differed significantly from non-DRDR on age ($X^2=9.23$, $p<.01$) and frequency of public transit use ($X^2=7.20$, $p<.05$). Among females, DRDR were older and used public transit less frequently or public transit was unavailable within the last 12 months compared to non-DRDR.

Few driving experience measures were found to be significantly related to drinking-driving behaviour. Among males and females, total number of kilometres ever driven was found to be significantly greater for DRDR ($X^2=22.41$, $p<.001$, females $X^2=25.46$, $p<.001$). Frequency of driving within the last 12 months was found to be significantly greater for female DRDR compared to female non-DRDR ($X^2=18.11$, $p<.01$). Among males, both number of moving violation tickets received ($X^2=17.8$, $p<.001$) and licence suspension for more than 24 hours received ($p<.05$, Fisher exact test) within the last 12 months, were found to be greater for DRDR than non-DRDR.

Table 1 presents alcohol use and related measures by gender and drinking-driving behaviour. Among males, a significant difference was found for frequency of drinking alcohol within the last 4 weeks between DRDR and non-DRDR ($X^2=21.37$, $p<.001$). A significantly larger proportion of male DRDR reported drinking 3 or more times a week within the previous 4 weeks (22.6%) compared to 9.4% of male non-DRDR. A similar significant relationship was found among females ($X^2=28.05$, $p<.001$). Frequency of being drunk within the last 4 weeks was found to be significantly greater for DRDR compared to non-DRDR for both males ($X^2=18.51$, $p<.001$) and females ($X^2=11.36$, $p<.01$). Similarly, frequency of drinking 5 or more drinks on the same occasion within the last 4 weeks was found to be higher among DRDR compared to non-DRDR ($X^2=24.74$, $p<.001$, females $X^2=15.19$, $p<.01$). Significant differences were found between DRDR and non-DRDR on the Alcohol Problem Scale (males sep.var.t=-4.13, df=206, $p<.001$, females pooled var.t=-3.11, df=242, $p<.01$) and on the Sensation Seeking Scale among males only (pooled var.t=-3.94, df=302, $p<.001$). Male and female DRDR reported more alcohol problems and male DRDR sought out thrilling experiences to a greater degree than non-DRDR.

Data on places where students had consumed alcohol within the last 12 months revealed that, among males, DRDR were significantly more likely to have consumed alcohol in a bar, tavern or pub ($X^2=16.15$, $p<.001$), at a restaurant ($X^2=9.53$, $p<.01$), at someone else's home ($X^2=4.27$, $p<.05$), at a dance ($X^2=11.07$, $p<.001$), at a dance club ($X^2=8.84$, $p<.01$), at a house party ($X^2=5.81$, $p<.05$), at a house party with an admission fee ($X^2=8.88$, $p<.01$), at a bush party ($X^2=18.11$, $p<.001$), at a public event ($X^2=21.65$, $p<.001$), outdoors ($X^2=15.05$, $p<.001$), in a motor vehicle ($X^2=45.02$, $p<.001$), and elsewhere ($X^2=12.29$, $p<.001$) compared to non-DRDR. Among females, DRDR were significantly more likely to have consumed alcohol in a bar, tavern or pub ($X^2=11.33$, $p<.001$), at a restaurant ($X^2=16.61$, $p<.001$), at someone else’s home ($X^2=4.01$, $p<.05$), at a house party ($X^2=4.31$, $p<.05$), at a keg party ($X^2=5.02$, $p<.05$), in a
motor vehicle ($X^2=20.25, p<.001$), at a public event ($X^2=13.0, p<.001$), and outdoors ($X^2=14.04, p<.001$) compared to non-DRDR.

Table 1
Alcohol Use Behaviour by Sex and Drinking-Driving Behavior

<table>
<thead>
<tr>
<th></th>
<th>Male DRDR (n=115)</th>
<th>Female DRDR (n=47)</th>
<th>Male non-DRDR (n=192)</th>
<th>Female non-DRDR (n=197)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Freq. of drinking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>once or twice</td>
<td>41.7</td>
<td>55.3</td>
<td>67.7</td>
<td>88.3</td>
</tr>
<tr>
<td>once or twice/week</td>
<td>35.7</td>
<td>36.2</td>
<td>22.9</td>
<td>9.1</td>
</tr>
<tr>
<td>3 or more times/week</td>
<td>22.6</td>
<td>8.5</td>
<td>9.4</td>
<td>2.5</td>
</tr>
<tr>
<td>% Freq. of being drunk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>32.5</td>
<td>40.0</td>
<td>47.2</td>
<td>60.8</td>
</tr>
<tr>
<td>once</td>
<td>19.3</td>
<td>31.1</td>
<td>27.2</td>
<td>28.4</td>
</tr>
<tr>
<td>twice</td>
<td>16.7</td>
<td>17.8</td>
<td>12.8</td>
<td>6.2</td>
</tr>
<tr>
<td>3 or more times</td>
<td>31.6</td>
<td>11.1</td>
<td>12.8</td>
<td>4.6</td>
</tr>
<tr>
<td>(n/a)</td>
<td>(1)</td>
<td>(2)</td>
<td>(12)</td>
<td>(3)</td>
</tr>
<tr>
<td>% Freq. of drinking 5+ drinks/occasion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none</td>
<td>18.4</td>
<td>38.3</td>
<td>35.7</td>
<td>56.8</td>
</tr>
<tr>
<td>once</td>
<td>16.7</td>
<td>21.3</td>
<td>28.0</td>
<td>28.1</td>
</tr>
<tr>
<td>twice</td>
<td>20.2</td>
<td>19.1</td>
<td>14.8</td>
<td>6.8</td>
</tr>
<tr>
<td>3 or more times</td>
<td>44.7</td>
<td>21.3</td>
<td>21.4</td>
<td>8.3</td>
</tr>
<tr>
<td>(n/a)</td>
<td>(1)</td>
<td>(10)</td>
<td>(2)</td>
<td>(5)</td>
</tr>
<tr>
<td>Alcohol Problem Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean</td>
<td>1.58</td>
<td>1.34</td>
<td>0.78</td>
<td>0.64</td>
</tr>
<tr>
<td>s.d.</td>
<td>1.74</td>
<td>1.56</td>
<td>1.46</td>
<td>1.33</td>
</tr>
</tbody>
</table>

Within the previous 12 months male and female DRDR were significantly more likely to have: had someone try to prevent them from drinking and driving (males $X^2=56.66, p<.001$, females $X^2=25.7, p<.001$); been in the company of someone who intended to drink and drive (males $X^2=17.9, p<.001$, females $X^2=11.41, p<.001$); seen someone attempt to drink and drive (males $X^2=9.65, p<.01$, females $X^2=8.86, p<.01$); and been a passenger of a drinking-driver (males $X^2=17.39, p<.001$, females $X^2=5.34, p<.05$). Male and female DRDR were also significantly more likely to report having had a girlfriend/boyfriend, or close friend or relative who drove after having too much to drink within the last 4 weeks (males $X^2=24.31, p<.001$, females $X^2=6.85, p<.05$).
Data on strategies used to avoid driving after drinking, presented in Table 2, revealed that proportionately more DRDR than non-DRDR used the following strategies: asked someone else to drive (males $X^2=19.69, p<.001$, females $X^2=4.93, p<.05$); stayed overnight (males $X^2=5.4, p<.05$, females $X^2=4.65, p<.05$); stopped drinking early or waited at least one hour before driving (males $X^2=28.69, p<.001$, females $X^2=37.61, p<.001$); and designated a driver who would not drink (males $X^2=17.17, p<.001$, females $X^2=13.03, p<.001$). Among males, DRDR were also significantly more likely to have taken alternate transportation ($X^2=10.7, p<.01$).

### Table 2
**Strategies Used to Avoid Driving after Drinking by Sex and Drinking-Driving Behavior**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DRDR (n=115)</td>
<td>non-DRDR (n=192)</td>
</tr>
<tr>
<td>asked someone else to drive</td>
<td>65.2 %</td>
<td>39.1 %</td>
</tr>
<tr>
<td>took a taxi, bus, streetcar, subway or walked</td>
<td>41.7 %</td>
<td>24.0 %</td>
</tr>
<tr>
<td>stayed overnight</td>
<td>62.6 %</td>
<td>49.0 %</td>
</tr>
<tr>
<td>stopped drinking early or waited one hour</td>
<td>34.8 %</td>
<td>9.9 %</td>
</tr>
<tr>
<td>used a breathalyzer test before driving</td>
<td>1.6 %</td>
<td>1.7 %</td>
</tr>
<tr>
<td>called my parents to pick me up</td>
<td>13.0 %</td>
<td>19.8 %</td>
</tr>
<tr>
<td>designated a driver who would not drink</td>
<td>63.5 %</td>
<td>39.1 %</td>
</tr>
<tr>
<td>planned not to drink any alcohol</td>
<td>42.6 %</td>
<td>31.8 %</td>
</tr>
<tr>
<td>planned not to drive</td>
<td>55.7 %</td>
<td>45.8 %</td>
</tr>
<tr>
<td>planned for my parents to pick me up</td>
<td>14.8 %</td>
<td>13.0 %</td>
</tr>
<tr>
<td>other</td>
<td>1.7 %</td>
<td>5.7 %</td>
</tr>
</tbody>
</table>

### DISCUSSION

Our results present an interesting perspective on adolescent drinking-driving. While some demographic factors were associated with drinking-driving in the expected manner, others were not. The proportion of drinkers who were drinking-drivers did not differ by region of the province or by urban vs. rural residence. Thus, the stereotype of the rural adolescent at high risk for impaired driving doesn’t seem to be supported by these data. Among females, access to or use of public transit was lower for drinking-drivers, but not among males. This gender difference suggests that drinking-driving is more likely to serve the simple instrumental purpose of transportation among females than among males.
Although our subsample was restricted to recent drinkers, adolescents who reported driving after drinking differed from those who did not on nearly all measures of alcohol use, including frequency of drinking and being drunk, number of alcohol-related problems, and drinking locations. These differences were generally consistent for both males and females. It appears, then, that the association of drinking-driving with heavier patterns of drinking is not simply an artifact of including non-drinkers in the sample. Our data suggests that the likelihood of being a drinking-driver is to a great extent determined by the likelihood of being a heavier drinker, and would support countermeasures aimed at reducing alcohol use in general among young people, in particular heavier alcohol use.

Contrary to our expectation, proportionately more drinking-drivers reported using many strategies to avoid driving after drinking than those who did not drink and drive. These findings do not support the idea that young people who use designated drivers and similar strategies avoid completely driving after drinking. We need to explore, in more detail, prevention efforts aimed at providing strategies to separate drinking from driving. While these strategies may still enable a reduction in the frequency of driving after drinking, further information on this issue is needed before unqualified promotion of these strategies is warranted.

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REFERENCES

