

The association between drinking habits, socio-economic status and drinking and driving in Stockholm County

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ABSTRACT

The aim of this study was to analyse the association between alcohol habits, socio-economic status, and self-reported drinking and driving (DaD) and apprehension for drunk driving (ADD) factors in the general population. The expressions "drunk driving" and "drinking while intoxicated (DWI)" are used, as judicial terms. *Material:* The study is based on survey data from Stockholm County collected in 1996 on men and women between the ages of 18 and 54, including questions about their drinking habits, alcohol dependence, socio-economic group, and DaD or ADD. A random sample was drawn and 3,064 (64 %) of 4,807 respondents answered. *Results:* The prevalence of DaD varied by age and was highest in the 25–34 age group, where 17.2 % of women and 36.6 % of men reported DaD. The prevalence increased with increased consumption, frequency of binge drinking, and was high among those with alcohol dependence. However, the great majority of subjects who admitted to DaD did not belong to any of these categories, which supports the preventive paradox theory in the field of DaD. For instance, 93 high consumers and 411 low to moderate consumers reported DaD. At the same time, binge drinking increased the likelihood among low and moderate consumers. *Discussion and conclusion:* Especially among men, there was a large proportion of high consumers reporting DaD. Although the proportion increased with consumption level and binge drinking the majority of the cases were among low to moderate consumers, supporting a broad population approach in policy to influence this behaviour.

INTRODUCTION

Driving while intoxicated (DWI) is a common alcohol-related social and judicial problem. In 1996, there were 15,023 suspected DWI offenders and 9,433 convictions (1). This figure corresponds with 0.17 % of the population for that year. The proportion of female offenders was 9.4 %.

However, survey data show a much higher prevalence of self-reported drinking and driving (DaD) in the general population. In a 1996 Swedish National Road Administration (SRTA) survey of a random sample of the Swedish population, performed yearly since 1981, 7.4 % in the 18–74 age group reported having driven a car after drinking more than one low-alcohol beer, during the previous twelve months (2). In a 1996 survey, called Customs and Safety (CS), 4.0 % of men and 0.9 % of women between the ages of 18 and 54 reported DaD over

the limit for drunk driving (at the time, this was 0.02 % in blood alcohol level) during the previous 12 months (3).

In several other countries, DaD is possibly more common than in Sweden (4). Binge drinking is a type of drinking that could be related to DaD and enhance the risk of driving a car when highly impaired by alcohol by people who normally do not consume much alcohol on a daily basis (5). By combining analyses of alcohol consumption, drinking patterns and alcohol dependence, as well as socio-economic status, with self-reports of DaD and apprehension for drunk driving (ADD) we aim to improve the knowledge of the characteristics of the drinking driver in order to help prevent drinking and driving.

MATERIAL AND METHOD

Earlier studies in Sweden restricted themselves to questions about DaD over the previous twelve months (2-3, 6-7). As DaD is not very frequent in the population, the frequency of positive answers was usually low, especially among women, who constitute only about 10 % of the drunk driving population. In our study, we analysed DaD over life, in addition to DaD and ADD during the previous twelve months. The study is based on a survey in 1996, conducted by a Swedish public opinion institute, with several years' experience of surveys including alcohol-related data. Two simple random samples of 2,500 subjects between 18 and 54 years of age was drawn from the population in Stockholm County, with a total population of 895,000 in the selected age groups. The two samples were added together, and the actual size of the postal questionnaire sample was 4,807, some moved away from the area or were deceased. The number of respondents after two reminders was 3,064, or 64 %.

The questionnaire consisted of 50 questions concerning, among others, socio-economic group, and alcohol-related questions including two questions, of special interest in this study, about driving while under the influence of alcohol. One question was about drinking and driving (DaD) during the previous twelve months or before that. The other question was about having been apprehended for drunk driving (ADD) during the previous twelve months or previously.

In this study, the period-specific normal week (PSNW) approach, a variation of the quantity/frequency (QF) method was used to ask questions about alcohol consumption (8-9). With this method, respondents reported consumption of every different type of alcoholic beverage, and were asked how much they drank during a "normal" week between Monday and Thursday, and separately for Friday, Saturday, and Sunday. Respondents who had not consumed a specific type of alcoholic beverage during a normal week were asked how often they consumed this beverage and also, how much they drank on average (QF questions). By adding QF questions we hoped to minimise the non-response rate. The answers to the PSNW questions were used in the first place. In the absence of such answers, they were replaced with answers to QF questions. The reported consumption was recalculated to grams of 100 % alcohol per day, and different levels of alcohol consumption were studied. The limit for high consumption was set at a consumption corresponding to 20 g of 100 % alcohol per day for women, and 30 g per day for men. Binge drinking meant a consumption of alcohol corresponding to 60–80 g of 100 % alcohol on one occasion. Those who had three positive answers out of seven questions about alcohol dependence were considered alcohol-dependent. This measure is based on the DSM-IV criteria (10).

We report the proportion (%), mostly with a 95 % confidence interval. Multivariate logistic

regression analysis was also performed, with the relative risk (RR) for drinking and driving as outcome.

RESULTS

The proportion of subjects reporting drinking and driving (DaD) varied by sex and age (Table I).

Table I. Percentage of reported drinking and driving and apprehension for drunk driving by age and sex, with 95 % confidence interval.

Age	N	Drinking and driving**	Apprehension for drunk driving
Women			
18–24	247	5.9 *	0.5*
25–34	566	17.2 (13.9–20.5)	1.0*
35–44	390	7.0*	0.6*
45–54	480	5.2*	1.1 (0.1–2.1)
Total	1528	9.7 (8.2–11.1)	0.8 (0.4–1.3)
Men			
18–24	222	22.2 (16.4–27.9)	2.0*
25–34	412	36.6 (31.7–41.4)	5.0 (2.8–7.2)
35–44	330	25.2 (20.3–30.1)	2.9 (1.0–4.8)
45–54	409	23.3 (19.4–27.6)	6.3*
Total	1270	27.5 (25.1–30.0)	4.4 (3.3–5.6)

* = Number of observations (n) times P (percentage) and n*(P-100) does not exceed 500, which is why no confidence interval could be estimated.

** "Apprehension for drunk driving" excluded from the group of drinking drivers.

For women, there was little difference between socio-economic groups for DaD and ADD, except for students. The highest proportion of ADD was among unemployed (1.3 %, 16.7%). The proportion of respondents reporting DaD or ADD increased with consumption, but was also influenced by binge drinking (Table II).

Table II. Percentage of respondents who reported drinking and driving by consumption classes of 100 % of alcohol and drinking patterns, with 95 % confidence interval.

Drinking patterns	Alcohol consumption		
	<i>0.01-9.99 g/day</i>	<i>10-19.99 g/day</i>	<i>20 g/day or more</i>
Women			
No binge drinking	5.5 (3.6-7.3)(n=605)	4.2*(n=72)	-
Binge drinking less than once month	13.4 (10.3-16.5) (n=471)	12.2 (7.7-16.7) (n=205)	16.7* (n=36)
Binge drinking once a month or more often	20.0 (3.1-36.8) (n=25)	12.5 (1.8-23.2) (n=40)	12.2* (n=49)
Men			
No binge drinking	12.7 (7.9-17.5) (n=189)	17.1* (n=76)	33.3* (n=3)
Binge drinking less than once a month	24.8 (19.9-29.7) (n=302)	28.1 (23.4-32.7) (n=360)	36.5 (24.3-48.7) (n=63)
Binge drinking once a month or more often	42.9 (13.2-72.5) (n=14)	38.0 (29.7-46.2) (n=137)	44.3 (35.3-53.2) (n=122)

* = Number of observations (n) times P (percentage) and n*(P-100) does not exceed 500, which is why no confidence interval is given

The large majority of those who admitted to DaD were not high consumers or binge drinkers. Ninety-three high consumers and 411 low or moderate consumers reported DaD.

Table III. Relative risk (RR) of reporting drinking and driving. Multivariate logistic regression analysis with 95 % confidence interval.

	Women RR	Men RR
Age 18-24*	1.2 (0.7-2.2)	1.0 (0.7-1.5)
Age 25-34*	3.3 (2.0-5.5)	1.7 (1.2-2.4)
Age 35-44*	1.2 (0.6-2.6)	0.8 (0.5-1.3)
Manual workers**	1.0 (0.5-1.8)	0.8 (0.5-1.1)
Assistant non-manual employees**	1.3 (0.6-2.0)	1.1 (0.7-1.8)
Intermediate non-manual employees**	0.9 (0.5-1.7)	1.4 (0.9-2.1)
Unemployed**	1.0 (0.4-2.4)	0.4 (0.2-0.9)
Students**	0.3 (0.1-0.8)	0.7 (0.4-1.2)
Binge drinking less than once month***	2.2 (1.4-3.4)	1.9 (1.2-2.7)
Binge drinking once a month or more often***	1.8 (0.8-4.0)	2.9 (1.7-5.0)
High alcohol consumption****	1.0 (1.0-1.0)	1.0 (1.0-1.0)
Alcohol dependency*****	3.4 (1.4-7.9)	1.0 (0.5-1.9)

* = compared with the 45-54 age group, ** = compared with higher non-manual employees, *** = compared with no binge drinking, **** = compared with an amount corresponding to 0.01-9.99 g of 100 % alcohol a day, ***** = compared with no signs of alcohol dependency.

According to the multivariate analysis, RR for DaD among women between 25 and 34 years old was three times that for women aged between 45 and 54 years. The risk was also substantially increased for women who binge drank less than once a month or were alcohol-dependent. The risk was significantly increased in men aged 25-34.in binge drinkers, but not among high alcohol consumers or those who were alcohol-dependent. The risk varied with socio-economic status, although there were no significant differences compared with those who were higher non-manual employees.

DISCUSSION

We found that the probability of reporting DaD was related to age, volume of alcohol consumption, binge drinking, alcohol dependence. There were also differences between socio-economic categories. These were not statistically significant, compared to higher non-manual employees. However the differences in probability was more than three times greater in female intermediate non-manual employees than in unemployed women (Table III). Under-reporting is usually the central problem with survey questions about alcohol consumption. It is not known whether under-reporting is different in different socio-economic categories. In our study, we gave two different alternatives with respect to time: DaD/ADD during the last twelve months, or previously. Most other surveys only covered a period of 12 months. Thus the figures from surveys with different time spans are not directly comparable. Both women and men who binge drank less than once a month had a significantly increased risk for DAD. This is consistent with the results of Midanik et al.'s 1996 study (5). The fact that the largest proportion of drinking drivers were young, is surprising, as the question was whether respondents had ever driven a car under the influence of alcohol. The gender differences with regard to unemployment and alcohol dependence are difficult to explain. The great majority of drinking drivers were neither high alcohol consumers, binge drinkers nor alcohol dependent. This is consistent with the existence of a prevention paradox (11). In another study based on data from a survey of conscripts to military service, Karlsson and Romelsjö found some support for the preventive paradox in drinking and driving (12).

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