

Binge drinking in 19 year old men

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Summary

Question under study: To describe alcohol use, binge drinking and drinking consequences in 19 year old men.

Methods: During a one-day army recruitment process mandatory for all Swiss males, a convenience sample of 1,004 men completed the "Health and Lifestyle Questionnaire", assessing demographics, alcohol use, binge drinking, and drinking consequences over the last 12 months. Binge drinking was defined as having 5 or more drinks on a single occasion at least once over the last 12 months. Among the 1,004 subjects, binge drinking could not be defined in 123 (12.3%) due to "don't know" responses, leaving 881 subjects with complete data.

Results: Of the 881 subjects, 690 (78.3%) reported binge drinking at least once over the last 12 months, 269 (30.5%) with infrequent binge drinking ($\leq 1 \times / \text{month}$) and 421 (47.8%) with frequent binge drinking ($\geq 2 \times / \text{month}$). In addition,

379 (43.0%) of the subjects experienced 3 or more drinking consequences over the last 12 months and the number of these consequences increased as the frequency of binge drinking increased (trend analyses significant for 9 of the 12 consequences evaluated). Among the 687 subjects with moderate average alcohol intake (< 14 drinks per week), 252 (36.7%) reported infrequent binge drinking, of whom 82 (32.5%) experienced 3 or more adverse drinking consequences over the last 12 months, whereas 246 (35.8%) reported frequent binge drinking and 128 (52.0%) of these experienced 3 or more adverse drinking consequences.

Conclusions: Binge drinking in this sample of young men is frequent and is associated with numerous consequences, even among those consuming moderate amounts of alcohol.

Key words: binge drinking; drinking consequences; young men; Switzerland

Introduction

Prevention of alcohol induced harm among young binge drinkers is a great concern of public health experts [1, 2]. The frequency of binge drinking, defined as 5 drinks or more on one occasion, is significantly associated with adverse consequences of alcohol use [3, 4]. Binge drinking is associated with various types of injuries, aggression and assault. Moreover it contributes to almost half of all motor vehicle fatalities, and it is the leading cause of death among young adults [2, 5].

Binge drinking increases during adolescence, peaks around 20, then stabilizes and decreases during the twenties; boys are more susceptible to this pattern than girls [6, 7]. In late teenagers binge drinking is associated with unplanned and unsafe sexual activity, physical and sexual assault, unintentional injuries, other criminal violations, interper-

sonal problems, physical or cognitive impairment, and poor academic performance [7-11].

Data demonstrate that the association between alcohol intake and drinking consequences is not defined solely by the average volume consumed [12]. For example, drinking one drink per day for seven days was found to be far less risky than drinking three or four drinks per day on two days of the week [13]. Even at low levels of total volume of alcohol consumed, binge drinkers were more likely to report adverse consequences than were non-binge drinking counterparts [4].

This study aims at describing frequency of binge drinking and drinking consequences at several levels of alcohol intake in a convenience sample of 19 year old men attending the Swiss military recruitment.

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Methods

Sample

Switzerland has a mandatory one-day army recruitment process for all males at age 19, and virtually all recruits complete the physical, medical, and cognitive assessments used to determine eligibility for service in the Swiss military. For the present study army authorities proposed a convenience sample of seven recruitment centres. At the request of the investigators these seven recruitment centres were in the three linguistic regions of the country.

From the 1,018 subjects assessed during 23 recruitment days, 1,004 (98.6%) agreed to complete the questionnaire. Under the supervision of a study investigator (FA), groups of 30 to 50 subjects completed the questionnaire during each recruitment day. Questionnaires were immediately verified for completeness and subjects were asked to fill in missing items whenever necessary. The choice of recruitment centres was opportunistic, not reflecting the exact proportions of each of the 3 linguistic groups in Switzerland. This resulted in an under-representation of German-speaking subjects (42.6% in the study sample *vs* 73.9% in the general population), an over-representation of French-speaking subjects (50.2% *vs* 19.5% in the general population) and a close to correct representation of Italian-speaking subjects (7.2% *vs* 6.6% in the general population).

Questionnaire

Subjects gave written informed consent and then completed an instrument entitled "Health and Lifestyle Questionnaire" which assessed weight, height, physical activity, medical history, use of medications, general health perceptions, alcohol, tobacco, and drug use. The questionnaire was translated from French to German and from French to Italian. Translations were discussed in a group of experts to avoid translation bias, but were not back-translated.

Binge drinking was assessed by asking: How many times have you drunk 5 or more drinks on a single occasion over the last 12 months? Infrequent binge drinking was defined as having 5 or more drinks on a single occasion once a month or less over the last 12 months, while frequent binge drinking was defined as having 5 or more drinks on a single occasion twice a month or more over the last 12 months.

Average alcohol intake was assessed with quantity/frequency questions: (1) on average, over the last 12 months, how many days per week did you drink alcohol? (2) on average, over the last 12 months, in a drinking day, how many alcoholic drinks did you have in 24 hours? The questionnaire included a figure illustrating the most popular alcoholic beverages, where one drink was defined as a 250 ml can or bottle of beer, a 120 ml glass of wine, or a 40 ml shot of liquor straight or in a mixed drink. Average weekly alcohol intake was computed by multiplying frequency and quantity items. Subjects were classified as abstinent (zero for average frequency and quantity items), moderate drinkers (average volume <14 drinks per week) and heavy drinkers (average volume \geq 14 drinks per week) according to definitions generally accepted in the United States and Switzerland [11, 14].

Twelve questions were extracted from a questionnaire assessing the adverse consequences of binge drinking in 17,000 college students [3]. Subjects were asked about the extent to which they had experienced the following consequences of their drinking over the last 12 months: had a hangover; missed a class or work; got behind in school-work; did something that they later regretted; forgot where they were or what they did; argued with friends; engaged in unplanned sexual activity; did not use protection when having sex; damaged property; got into trouble with police; got hurt or injured; or required medical treatment for an alcohol overdose [3]. The questionnaire was usually completed in 20 to 30 minutes and participants received 5 Swiss francs (3.5 Euros). A research assistant was present during the administration of the questionnaire to verify that subjects answered every item. The Lausanne University Medical School Ethics Committee approved the study protocol.

Data analyses

Descriptive statistics were used to classify subjects according to binge drinking, average alcohol intake and drinking consequences. A chi-square test for trend was used to assess whether alcohol consumption and drinking consequences increased linearly as a function of binge drinking frequency.

Results

Data indicate that 693 (78.7%) of the subjects continued their education beyond obligatory school and 407 (46.2%) practiced sports at least twice a week. Although the majority of subjects reported good general health, 112 (12.7%) were overweight, 421 (47.8%) were regular cigarette smokers, and 374 (42.5%) reported some cannabis use over the last 12 months.

Average alcohol intake for the 881 subjects was 9.5 ± 12.1 drinks per week over the last 12 months, while 93 (10.6%) reported abstinence. Table 1 indicates that 191 (21.7%) subjects did not qualify for the binge drinking criteria, 269 (30.5%) were classified as infrequent binge drinkers and 421 (47.8%) were classified as frequent binge drinkers. Moreover, 379 (43.0%) experienced 3 or more drinking consequences over the last 12 months,

with hangovers being most often endorsed. Approximately one third reported doing things that they later regretted, forgetting where they were or what they did, or engaging in unplanned sexual activity, while approximately one fifth argued with friends or damaged property. Other consequences were less frequent but were also potentially hazardous, such as getting hurt or injured, getting into trouble with police or having sex without protection. Table 1 indicates a strong positive association between the frequency of binge drinking and drinking consequences; subjects with frequent binge drinking were more likely to endorse 9 of the 12 drinking consequences than were their counterparts. Exceptions consisted of drinking consequences with relatively low rates of occurrence, eg medical treatment for alcohol overdose (reported

Table 1

Alcohol use and drinking consequences according to binge drinking frequency in 881 young men.

N (%)	Total	Binge drinking*			p trend
		Never 0	Infrequent (≤1x/month)	Frequent (≥2x/month)	
Drinks per week	881	191 (21.7)	269 (30.5)	421 (47.8)	<0.0001
<14 drinks per week	687 (78.0)	189 (99.0)	252 (93.7)	246 (58.4)	
≥14 drinks per week	194 (22.0)	2 (1.0)	17 (6.3)	175 (41.6)	
Drinking consequences (≥1x over the last 12 months)					
Had a hangover	535 (60.7)	53 (27.8)	167 (62.1)	315 (74.8)	<0.0001
Missed a class or work	79 (9.0)	3 (1.6)	17 (6.3)	59 (14.0)	<0.0001
Got behind in school work	103 (11.7)	5 (2.6)	26 (9.7)	72 (17.1)	0.190
Did something you regret	307 (34.8)	24 (12.6)	84 (31.2)	199 (47.2)	<0.0001
Forgot where you were or what you did	300 (34.1)	14 (7.3)	69 (25.7)	217 (51.5)	<0.0001
Argued with friends	200 (22.7)	11 (5.8)	46 (17.1)	143 (34.0)	<0.0001
Engaged in unplanned sexual activity	197 (22.4)	13 (6.8)	47 (17.5)	137 (32.5)	0.069
Did not use protection when having sex	74 (8.4)	7 (3.7)	13 (4.8)	54 (12.8)	<0.0001
Damaged property	213 (24.2)	16 (8.4)	53 (19.7)	144 (34.2)	<0.0001
Got into trouble with police	114 (12.9)	6 (3.1)	22 (8.2)	86 (20.4)	<0.0001
Got hurt or injured	88 (10.0)	4 (2.1)	22 (8.2)	62 (14.7)	0.220
Required medical treatment for alcohol overdose	10 (1.1)	0 (0.0)	1 (0.4)	9 (2.1)	0.010
≥3 drinking consequences	379 (43.0)	24 (12.6)	90 (33.4)	265 (63.0)	<0.0001

* ≥5 drinks per occasion, one drink defined as a 250 ml can or bottle of beer, a 100 ml glass of wine, or a 25 ml shot of liquor straight or in a mixed drink.

Table 2

Frequency of binge drinking according to average volume of alcohol consumed weekly.

N = 881	Binge drinking*		
	Never	Infrequent (≤1x/month)	Frequent (≥2x/month)
	N = 191	N = 269	N = 421
Drinks per week			
<14 drinks per week N = 687	189	252	246
≥14 drinks per week N = 194	2	17	175

* ≥5 drinks per occasion, one drink defined as a 250 ml can or bottle of beer, a 100 ml glass of wine, or a 25 ml shot of liquor straight or in a mixed drink.

Table 3

Drinking consequences according to average weekly alcohol use and binge drinking frequency.

N = 881	Binge drinking*					
	Never		Infrequent (≤1x/month)		Frequent (≥2x/month)	
	<3 problems	≥3 problems	<3 problems	≥3 problems	<3 problems	≥3 problems
	N = 191		N = 269		N = 421	
Drinks per week						
<14 drinks per week N = 687	166	23	170	82	118	128
≥14 drinks per week N = 194	1	1	9	8	38	137

* ≥5 drinks per occasion, one drink defined as a 250 ml can or bottle of beer, a 100 ml glass of wine, or a 25 ml shot of liquor straight or in a mixed drink.

by 9 subjects in the frequent binge drinking group and virtually absent in the other groups).

In order to evaluate relationships between alcohol intake, binge drinking, and problems, further analyses explored whether binge drinking subjects experienced many adverse consequences

if their average alcohol intake was moderate (<14 drinks per week). Table 2 indicates that although 687 (78.0%) of all subjects reported moderate volumes, 252 (36.7%) of them were infrequent binge drinkers and 246 (35.8%) of them were frequent binge drinkers. Table 3 shows that among the 252

subjects with moderate average alcohol intake and infrequent binge drinking, 82 (32.5%) also experienced 3 or more drinking consequences, while

among 246 subjects with moderate alcohol intake and frequent binge drinking, 128 (52.0%) experienced 3 or more drinking consequences.

Discussion

These results confirm that binge drinking is widespread and is associated with potentially hazardous consequences. The large proportion of binge drinkers found in this study among young Swiss men is similar to that observed in a United States sample of college students [16]. This suggests that binge drinking is a major public health concern in Switzerland, despite its lowest rates among teenagers in Europe [15], and despite the belief that binge drinking is only a concern among college students in the US [16].

The data show that binge drinking is often found among individuals whose average alcohol intake is moderate. In this sample frequent binge drinking is more frequent among moderate drinkers, compared to heavy drinkers (246 vs 175 in table 2) simply because there are more moderate than heavy drinking subjects. In this sense, the association between binge drinking and adverse drinking consequences is not a direct function of the total volume of alcohol consumed. Similarly, the number of individuals with ≥ 3 drinking consequences observed among subjects with moderate alcohol intake and frequent binge drinking (128 subjects in table 3) was relatively similar to that observed among subjects with a high average alcohol intake (137 subjects in table 3). This supports the finding that most people who drink immoderate quantities occasionally are moderate drinkers. It is this group of moderate drinkers who binge drink that accounts for most of the drinking consequences reported [5]. These findings are consistent with data indicating that intoxication is more closely associated with adverse consequences than is frequency of alcohol use or average alcohol intake [17, 18].

One limitation of the study regards the choice of sample subjects. The convenience sample of this study may not reflect the true prevalence of binge drinking in 19 year old men in Switzerland, as the recruitment centres were not randomly selected and are not geographically representative. More-

over, different results might be found among women, older persons, ethnic groups, or individuals recruited within medical settings.

Another limitation is the potential self-report induced decrease in response validity, despite studies defending this form of data collection on alcohol and substance use [19]. The questionnaire was translated from English to French, and from French to Italian and German. Although native speakers from the three linguistic regions adapted the questionnaires and researchers were always present to provide explanations and to help subjects understand the translated content of all items, various equivalency problems might have occurred.

This study showed a high prevalence of binge drinking among young Swiss men which is associated with numerous potentially hazardous consequences. Brief counselling interventions have demonstrated effectiveness in modifying the drinking patterns and consequences of binge drinking, even in the absence of changes in total volume of alcohol intake [20]. Community interventions like those evaluated by Holder et al. [21] as well as institutions such as schools, universities, and other associations where young people are concentrated, should consider establishing prevention programmes aimed at reducing the consequences of binge drinking.

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