

This is a pre-copy-editing, author-produced PDF of an article accepted for publication in European Journal of Public Health following peer review. The definitive publisher-authenticated version Alcohol-related sickness absence among young employees: Gender differences and the prevention paradox. Schou LA, Storvoll EE, Moan IS. Eur J Public Health (2014) doi: 10.1093/eurpub/cku035] is available online at: at:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=Alcohol-related+sickness+absence+among+young+employees>

Alcohol-related sickness absence among young employees: Gender differences and the prevention paradox

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Alcohol-related sickness absence among young employees: Gender differences and the prevention paradox

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This research was funded by the Norwegian Research Council (grant no. 196573).

Abstract

Background: Few studies have examined alcohol-related sickness absence among young employees, although young adults are known to drink quite heavily. There are substantial differences in drinking patterns between men and women, yet gender differences have rarely been the main focus in research on alcohol-related sickness absence. Thus the present paper aims to examine gender differences in the prevalence of alcohol-related sickness absence among young employees in Norway, and in the associations between drinking patterns and such absence. Further, to examine whether the prevention paradox applies to alcohol-related sickness absence among both genders. **Methods:** A sample of employed young adults, 49.7% male (N = 1762, mean age = 28.3 St.Dev. = 1.9) was obtained from a general population survey of Norwegians. Self-reported measures on alcohol-related sickness absence and various drinking measures were applied. **Results:** Men reported absence from work due to drinking almost twice as often as women. There was a statistically significant gender difference in the drinking-absence association only for one of the three alcohol measures, indicating a stronger relationship among women. The heaviest drinkers (about 6 % of the sample) reported a disproportionately large share of alcohol-related sickness absence (19 %), yet, the vast majority of such absence was found among the moderate drinkers (81 %). **Conclusions:** Alcohol-related sickness absence is more common among men than women. This gender difference may reflect differences in drinking habits rather than the likelihood of being absent after drinking. The results indicate that the prevention paradox applies to alcohol-related sickness absence among young employees of both genders.

Keywords: sickness absence, alcohol, gender, prevention paradox, young employees

Introduction

A number of studies suggest that there is a link between alcohol consumption and sickness absence.¹⁻⁶ Both acute consequences of heavy episodic drinking, such as accidents and hangovers^{3,4} and health problems such as cancer and liver cirrhosis caused by chronic heavy drinking elevate the risk of sickness absence^{5,6}. Hence, absenteeism from work may both stem from heavy drinking over time and episodes of heavy drinking.⁷ Estimates of the costs of sickness absence due to alcohol are consistently found to be high, e.g., in the United Kingdom it was estimated to 1.8 billion £ for 2003 (2.1 billion Euro), and cost estimates in the USA and Canada are consistently above 1 billion \$ (0.8 billion Euro).⁸ In Norway, the costs was estimated to 1.7 billion Norwegian kroner for 2001 (0.2 billion Euro).⁹

Relatively few studies have examined the prevalence of alcohol-related sickness absence among young employees, a group which drinks quite heavily. For this group most sickness absence will probably be short term, and a relatively large fraction is likely to be caused by heavy episodic drinking. Since such sickness absence is not systematically registered, the best possible method of collecting this kind of information in large groups of young employees is through self-report. Although gender differences have been reported in some studies of alcohol-related sickness absence^{1,6}, this aspect has been secondary rather than the main focus and should due to different drinking habits be addressed more carefully. Finally, there is some evidence suggesting that alcohol-related workplace problems such as absenteeism are attributable to the majority of moderate consumers, and not the chronic heavy drinkers, as one might suspect.^{10,11} However, to our knowledge no study have yet examined whether this so called prevention paradox¹² applies to young employees and to both genders. If this is the case, it will have implications for prevention strategies aimed at reducing alcohol-related sickness absence. The above questions will be empirically addressed using

data from a sample of young employees from a general population survey conducted in Norway.

Gender differences in alcohol-related sickness absence

The prevalence of alcohol-related sickness absence in a society will depend on several factors, e.g. drinking culture and sick benefit system, and is likely to differ between various sub-groups of employees, e.g. gender. Few studies using a direct measure of alcohol-related sickness absence have been conducted^{4,13-15}, and gender differences have not been the main focus of this research. However, in a general population study from Australia 4.5 % of male and 2.5 % of female employees reported that they had been absent due to alcohol use in the past three months.¹³

Some previous studies have also examined gender differences in the prevalence of alcohol-related sickness absence in Norway. One survey found that 9.5 % of the men and 6.4 % of the women had been absent from work or “failed to do the work they would normally have done” due to alcohol use in the past year.¹⁴ Moreover, another study found that 6.1 % of men and 2.8 % of women had alcohol-related sickness absence in the past year.¹⁵ Thus, based on previous studies; we expect alcohol-related sickness absence to be more prevalent among men than women. Possible explanations of a higher prevalence among men than women might be that men have a higher alcohol consumption than women, have more heavy drinking episodes¹⁷ and/or that they are more likely to be absent from work after drinking.

Gender differences in the alcohol use-sickness absence association

Men consume alcohol both more often and in larger amounts on each occasion than women do, in all societies surveyed, including Norway^{16, 17}. However, the pattern of gender differences in the alcohol use-absence association seems to be less clear. Most studies which

have examined the relationship between alcohol use and *general sickness absence* (i.e. all sickness absence, not only the absence directly related to alcohol use) find a stronger association among men, see for examples.^{18,19} However, others find that the association is stronger among women¹ or that it is similar for the two genders.^{20,21} Moreover, time series analyses from Norway and Sweden indicate that an increase in per capita alcohol consumption produces an increase in the sickness absence rate for male employees, while no significant increase was found for female employees.^{22,23} Thus, although women generally have a higher level of sickness absence than men,²⁴ their level of sickness absence seems to be less affected by the overall alcohol consumption in society. To our knowledge no previous study has examined gender differences in the strength of the association between alcohol use and *self-reported absence due to drinking*.

The prevention paradox

Prevention strategies to reduce alcohol-related sickness absence may logically be assumed to be more effective if they are targeted at the heaviest drinkers, as they are individually most at risk of having such absence. However, if only a small fraction of total alcohol-related sickness absence can be attributed to the small group of heavy drinkers, while most of it is found among the majority of light and moderate drinkers, prevention strategies targeting all drinkers may in fact be more adequate. This applies to many types of alcohol-related harm, and is referred to as the prevention paradox.^{12,25} A study from New Zealand conducted among 14 - 65 year old employees indicates that the prevention paradox also applies to alcohol-related sickness absence: The 10 % drinking most heavily were responsible for 41 % of the sickness absence, i.e. the majority of the absence (59 %) was attributable to the more moderate drinkers¹⁰. Similarly, an American study found that the majority of alcohol-related workplace problems, such as absenteeism, were attributable to more moderate drinkers.¹¹ To our

knowledge no study have yet examined whether the prevention paradox applies to young employees and to both genders.

Aims

The aim of this study was threefold: (i) to examine whether there are gender differences in the prevalence of alcohol-related sickness absence in Norway using a sample of young employees from a general population survey, and (ii) to examine gender differences in the strength of the associations between alcohol use and such absence. Finally, (iii) the distribution of absence by frequency of heavy episodic drinking will be examined to determine whether the prevention paradox applies to young employees of both genders.

Methods

Participants and procedure

Data were obtained from the Young in Norway Longitudinal Study, a survey following the same sample four times from early adolescence to young adulthood. The study considered various aspects of the respondents' lives, including substance use. The sample analyzed in the present paper is from the fourth survey, which is the only time a question about alcohol-related sickness absence was included.

The initial sample for the Young in Norway Longitudinal Study was obtained by selecting schools from a national register of all junior and senior high schools. The sampling procedure was designed to obtain a nationwide, representative sample of this population. In 1992 (t1; time 1), 98.5% of the actual age group attended the ordinary public junior high schools, and 97% began in the voluntary senior high school. The response rate at t1 was 97.0% (N = 11985). Those who attended the same school in 1994 as in 1992 (t2, response rate =

91.8 %) and were willing to participate in future follow-ups (91.2%) were followed up in 2005 (t4, response rate = 82.4 %, N = 2890). Thus, the cumulative response rate was 66.9 %. Characteristics such as being male, frequent involvement in deviant behaviors, poor grades, few hours spent on homework, and vocational training have been found to be associated with attrition from the study.²⁶ In 2005 (t4), the respondents could choose to fill out the questionnaire in a paper version (89%), be interviewed by phone (1%) or complete a web-based version (10%). The survey has been described in detail elsewhere.²⁷

For the purpose of this paper respondents missing information about gender (n = 24) were excluded. This study focuses on sickness absence from work, and the outcome variable is measured by the survey question: “Have you been absent from work *or school* due to alcohol in the past 12 months?” We therefore chose to exclude respondents who were not employed or who were studying in addition to working (n = 1012). Information about current employment status and studies was obtained from the survey. Moreover, people who are abstainers from alcohol cannot possibly have alcohol-related sickness absence. A survey question about drinking frequency was used to exclude the respondents who did not drink alcohol (n = 92). After these adjustments, the sample consisted of 1762 employees, with slightly more women (n = 887) than men (n = 875). The respondents were between 25 and 37 years of age, but the vast majority (97 %) was between 26 and 32. The mean age was 28.3 (SD = 1.9). There were no gender differences in the distribution of age.

Measures

Alcohol-related sickness absence was measured with the following question; “Have you been absent from work or school due to alcohol in the last 12 months?” The response options were: never (coded 0), once (1), 2 – 4 times (3), 5 – 10 times (7.5) and 11 or more times (15). In the regression analyses, this variable was used in dichotomous form (once or more coded as 1 and

never as 0). When addressing the prevention paradox, we calculated the number of episodes each respondent had been absent.

As young employees in Norway are more likely to be involved in heavy episodic drinking than chronic heavy alcohol use, and because how much one “typically” drinks may not necessarily be indicative of the amount consumed prior to an absence event,² measures of heavy episodic drinking seems most relevant when examining the association with sickness absence. We considered two different measures. First, we employed a measure based on the frequency of drinking five or more units on one occasion during the past 12 months. Because men generally drink larger amounts on each occasion,¹⁷ we also included a more subjective measure of heavy episodic drinking, namely frequency of self-perceived drinking to intoxication during the past 12 months. Since few studies have examined the relative impact of various measures of alcohol use on sickness absence, we also chose to include a measure of frequency of alcohol use in general during the past 12 months.

Thus, for heavy episodic drinking, there were two different questions; “During the past 12 months, have you drunk so much that you felt clearly intoxicated?” and “During the past 12 months did you have more than 5 drinks in one evening? By “drink” we mean 0,33 dl. beer, 1 big glass (12 cl) of wine, 1 glass of strong wine or 1 drink of liquor (4 cl)” The response options were: never (coded 0), once (1), 2 to 5 times (3.5), 6 to 10 times (8), 11 to 50 times (30), and more than 50 times (55). The definition of “drink” corresponds to the standard serving unit in Norway and contains 12 – 14 grams of pure alcohol²⁸, which is more than the standard drink defined by WHO, i.e. containing 10 grams. However, the measure of heavy episodic drinking still corresponds to that of the WHO as their limit is set to 6 or more drinks (60 grams of alcohol) on one occasion²⁹.

Frequency of drinking was measured with the question: “In the past 12 months, how often did you drink more than a couple of sips of alcohol?” The response options were: never

this year/ never drank alcohol (coded 0), 1 – 4 times (2), 5 – 10 times (7), about once a month (12), 2 – 3 times a month (30), about once a week (52), 2 – 4 times a week (100) and every day or almost every day (200).

When testing the prevention paradox we compared the most frequent heavy drinkers, i.e. those drinking 5+ units/ felt intoxicated 55 or more times last year, with other alcohol users. Approximately 6 per cent of the sample were above cut off for both variables.

Analytic strategy and statistical analyses

First, we described gender differences in alcohol-related sickness absence and alcohol consumption. Differences in proportions were tested using Pearson's χ^2 while differences in means were tested using t-tests. Second, logistic regression analyses were used to examine how drinking habits predicted sickness absence. Separate analyses were conducted for each drinking variable. To assess whether the drinking-absence association differed between men and women, interaction terms (drinking variable * gender) were included in the models. Third, we calculated the distribution of alcohol-related sickness absence among heavy episodic drinkers and others.

Results

A total of 8.1 % reported that they had been absent from work due to drinking during the past 12 months (Table 1). Men reported absence more often than women, especially in the category “more than once the past year”. Since relatively few reported absence more than once, we chose to treat those with any alcohol-related sickness absence as one category (10.5 % of the males and 5.7 % of the females), when studying the association with drinking habits.

/ Table 1 about here /

Men also drank more often than women, and reported higher frequencies of heavy drinking episodes, both drinking 5+ units on one occasion and of feeling intoxicated during the past 12 months (Table 2).

/ Table 2 about here /

Table 3 presents logistic regression analyses of variables for drinking habits on the probability of alcohol-related sickness absence. Frequency of drinking in general and heavy drinking episodes (5+ units and self-perceived intoxication) had statistically significant effects on absence both in the overall sample and for men and women. As shown in Table 3, this association appeared to be stronger among women than among men. Possible gender differences in the strength of the drinking-absence associations were tested using interaction terms. When considering the 5+ units-absence association, the model fit improved when adding the interaction term (gender * 5+ units) into the model (Change in -2 Log likelihood = 9.50, df = 3, p=.024). There was no statistically significant improvement of the models when considering frequency of drinking (Change in -2 Log likelihood = 3.28, df = 3, p=.349) and frequency of self-perceived intoxication (Change in -2 Log likelihood = 6.39, df = 3, p=.132), implying that the associations between the latter drinking variables and absence were not significantly different for men and women.

/ Table 3 about here /

The respondents reported 225 episodes of absence from work due to alcohol during the previous year (Table 4). Men reported to have been absent 160 times and women 65 times.

When considering frequency of drinking 5+ units, the heavy episodic drinkers (i.e. those who

had drunk 5+ units 55 or more times in the last year), were responsible for 19% of the total absence. The same proportion was found when using the measure of feeling intoxicated. Thus, the vast majority of the absence (81 %) was attributable to more moderate drinkers. Although there were some variation in the findings for men and women, the prevention paradox seems to apply for both genders.

/Table 4 about here/

Discussion

We found that young men are absent from work due to drinking more often than young women. A gender difference was observed in the association between frequency of drinking 5+ units and absence, indicating that among this group of young employees women were somewhat more likely to be absent from work after heavy drinking episodes than men. Finally, our findings indicate that the prevention paradox applies to alcohol-related absence among young employees of both genders.

In our study, 10.5 % of the male and 5.7 % of the female respondents defined as alcohol users reported that they had been absent from work due to drinking during the past twelve months. This corresponds quite well with the findings from a recent pilot study among Norwegian employees where 13.4 % of young males had been absent from work due to alcohol use during the past year.⁴ Unfortunately, women's rate of absence was not calculated in the pilot study due to few female participants. Our findings also correspond nicely with findings from older Norwegian surveys.^{14,15} These studies show some variations in the prevalence of alcohol-related sickness absence which may partly be due to different samples and measures of absence. However, the finding indicating a higher level of alcohol-related absence among men than among women was consistent across all studies. Similar gender

differences were also found in an Australian study.¹³ The higher level of alcohol-related absence among men may reflect a higher consumption level or a higher frequency of heavy episodic drinking and/or that men are more likely to be absent after drinking.

Consistent with previous studies,^{16,17} we found that men both drink more often and more heavily than women. We also found that the association between various patterns of alcohol use and alcohol-related sickness absence was stronger among women compared to men. This gender difference was only statistically significant when considering frequency of drinking 5+ units. This finding seems reasonable given that 5+ units of alcohol will make the average woman more intoxicated than the average man, and thus more likely to cause sickness absence. We have not found any previous studies that have examined gender differences in the strength of the association between drinking habits and self-reported *absence due to drinking*. Previous studies that have addressed gender differences in the alcohol-absence association have considered sickness *absence in general*. As shown in the introduction, most of these studies indicate that the association is strongest among men, but it is difficult to compare the findings from such studies with ours. To sum up, our findings indicate that the higher level of alcohol-related sickness absence among men than among women could be attributed to higher alcohol consumption rather than a greater likelihood of being absent from work after drinking.

The findings indicating that the prevention paradox apply to alcohol-related sickness absence among young employees is consistent with findings from previous studies of larger age groups.^{10, 11} Moreover; our analyses indicate that the prevention paradox applies to both genders. To our knowledge, no other studies have addressed this question. The finding showing that moderate drinkers account for the majority of alcohol-related sickness absence has implications for prevention strategies: Targeting all drinkers would be more adequate than targeting only the small group of heavy episodic drinkers.

Methodological considerations

Our sample of young working adults stem from a nationally representative school survey with a high response rate. However, the levels of heavy episodic drinking are probably higher among those who do not participate in such studies.²⁷ Moreover, a recent pilot study using both self-report and analysis of oral fluid to assess the prevalence of heavy drinking during the last 24 hours, indicate that such behaviour is underreported in surveys.⁴ It is likely that this also applies to alcohol-related absence. Moreover, the greater cultural stigma attached to female drunkenness,³⁰ may have resulted in more underreporting among women than among men. Thus, the gender differences in heavy episodic drinking and alcohol-related sickness absence may have been somewhat overestimated in our study.

The measure of alcohol-related sickness absence was fairly rough. Since the respondents were asked only how many times they had been absent from work, we do not know the length of the periods. Moreover, it is difficult to know how the respondents interpreted “one time”, i.e. whether they referred to one day or one period of sick leave. However, in a group of young employees most of the absence is probably short term and in most cases one day. Using a time period of one year may result in reduced accuracy due to recall bias, as people usually remember their actions in the last few months more correctly than further back in time. However, asking about a low prevalent phenomenon such as alcohol-related sickness absence using a shorter time period would increase the risk of excluding employees with only occasional alcohol-related sickness absence.

In order to address whether the male preponderance in alcohol-related sickness absence reflects (a) that male employees drink more often and/or more heavily than female employees or (b) whether they are more likely to be absent from work after drinking, we examined gender differences in the strength of the alcohol use-sickness absence association. Given that the focus of our paper is on the prevalence of alcohol-related sickness absence and

the applicability of the prevention paradox in this respect, we did not control for possible confounding variables when estimating the use-absence association. However, future studies addressing the alcohol use-sickness absence association, including gender differences in the strength of the association, might benefit from such controls.

Conclusion

The gender differences in how often young employees report alcohol-related sickness absence is considerable, men being absent almost twice as often as women. This difference reflects gender differences in consumption of alcohol, especially in frequency of heavy episodic drinking. It does not seem to be due to a gender difference in the likelihood of being absent from work after drinking. Although heavy episodic drinkers had a disproportionately large share of alcohol-related sickness absence, the majority of such absence was found among the more moderate drinkers. This suggests that the prevention paradox also applies to alcohol-related sickness absence among young employees. Moreover, our findings suggest that it applies to both genders.

Acknowledgement

This research was funded by the Norwegian Research Council (grant no. 196573). We wish to thank NOVA – Norwegian Social Research, for collecting the data and allowing us to use them. However, they are not responsible for the presented analyses or the interpretation of the findings.

Conflicts of interest

None declared

Key points

- Alcohol-related sickness absence among young employees in Norway is considerable; 8 % reported being absent at least once during the past year.
- There is a large gender difference in the prevalence of alcohol-related sickness absence; men reporting such absence nearly twice as often as women.
- The heaviest drinkers held a disproportionately large share of the alcohol-related sickness absence, but the majority of such absence was found among more moderate drinkers. This so called prevention paradox applied to both genders.
- These results suggest that prevention strategies aimed at reducing alcohol-related sickness absence would be most effective if targeted at all drinking employees, and not only the heaviest drinkers.

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