Addictive Behaviors 38 (2013) 2115–2118

Contents lists available at SciVerse ScienceDirect

Addictive Behaviors

Short Communication

Risky drinking and its detection among medical students

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HIGHLIGHTS

- Half of male and quarter of female medical students are risky alcohol drinkers.
- During the first study year drinking increases among half of the students.
- After the first study year female risky drinkers decrease but men increase drinking.
- AUDIT-3 is an effective drinking screen among male but not for female students.

ARTICLE INFO

Keywords:
AUDIT-3
AUDIT-C
Questionnaire
Screening

ABSTRACT

The drinking patterns of physicians may affect their own health and how they treat patients with substance use disorders. This is why we wanted to find out risky drinking among medical students. A questionnaire was delivered to all medical students at the University of Tampere and risky alcohol drinking was defined as a minimum score of five for women and six for men in the AUDIT-C alcohol screen (rating 0 to 12). The respondent rate was 94% (n = 465). Of the whole sample 33% were risky drinkers, 24% of women and 49% of men. After the first study year the female risky drinkers significantly decreased and men increased their drinking. Significantly more men but not women with moderate alcohol use reduced drinking during the first year of studies compared with risky drinkers of the same gender. The AUDIT-C scored higher in the subgroups of risky drinkers willing to reduce drinking compared with those who did not want to cut down drinking (7.3. and 6.5., $p<0.001$). In the male sample the third AUDIT-C sub-question on binge drinking (= AUDIT-3, rating 0 to 4) at a cut-off point of ≥2 was nearly as effective as the whole AUDIT-C at a cut-off point of ≥6. This was not the case in the female sub-sample. Risky drinking is common among medical students and continues throughout the studies especially among men. AUDIT-3 is a short and reliable screening tool for male but not for female students.

1. Introduction

Physicians' own health habits can significantly influence the amount and quality of work with patients suffering from alcohol or drug related disorders (Brotons et al., 2005, Frank, 2004, Frank, Rothenberg, Lewis, & Belodoff, 2000). Also, health habits during the medical studies can affect students' attitudes to counselling (Frank, Galuska, Elon, & Wright, 2004). However, the licensed medical personnel including medical students generally thinks that it is the doctor's duty to intervene/confront the patients' alcohol problem (Aalto, Pekuri, & Seppä, 2001; Cape, Hannah, & Sellman, 2006).

Studies among medical students show that about 90% drinks alcohol (Akvardar, Demiral, Ergor, & Ergor, 2004; Pickard, Bates, Dorian, Greig, & Saint, 2000; Thakore et al., 2009). Both the number of drinkers and the drinking amount have increased during the past three decades (Boland et al., 2002). However, medical students drink alcohol less in comparison with other academic students (Kunttu & Huttunen, 2008). Compared with students in dentistry, medical students tend to drink alcohol less frequently during all phases of their studies (Newbury-Birch, Lowry, & Kamali, 2002). In a German study it was observed that risky alcohol drinking is more frequent among medical students than in a matched age group of 18 to 29 year old individuals in general population, the difference being more robust in male than female subgroup (Voigt et al., 2009). Another German study showed that more than half of medical students using alcohol occasionally drank in binges and almost one third of them at least twice a week (Keller, Maddock, Laforge, Velicer, & Basler, 2007).

Based on interviews the prevalence or risky alcohol drinking among medical students has been estimated at about 30% (Ashton & Kamali, 1995; Granville-Chapman, Yu, & White, 2001; Voigt et al., 2009). Using the Alcohol Use Disorders Identification Test (AUDIT) questionnaire (Saunders, Aasland, Babor, de la Fuente, & Grant,

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http://dx.doi.org/10.1016/j.addbeh.2013.01.016

1993) the prevalence has varied between 18 to 52% (Granville-Chapman et al., 2001; Shah, Bazargan-Hejazi, Lindstrom, & Wolf, 2009). The short version of the AUDIT (AUDIT-C) which comprises the three AUDIT questions on drinking quantities is as sensitive as the whole AUDIT to detect risky drinking according to findings in various studies (Meneses-Gaya et al., 2010). Using the AUDIT-C the prevalence of risky alcohol drinking among university students was 68% (Kypri et al., 2009). No prevalence data is available using the AUDIT-C screening instrument among medical students.

The aim of this study was to explore the prevalence of risky alcohol drinking detected by the AUDIT-C and the predictive factors associated with it among medical students. Further, the aim was to evaluate the feasibility of the structured binge drinking question (AUDIT-3) in detecting risky drinking among them.

2. Subjects and methods

The study was approved by the Dean of the University and the Study Director. All the students in the faculty were presented with the anonymous survey questionnaire at the compulsory exam of cumulative medical knowledge in April 2007. The study sample consisted of replies of 465 students yielding to 94% reply rate.

Basic demographic data, information on alcohol use (including the AUDIT-C questionnaire), smoking and experimenting with illicit drugs were collected (Meriläinen, Heinälä, & Seppä, 2010). Further, questions on reasons to alcohol use (for pleasure, better self-confidence, relaxation, social pressure, some other reason), parents' alcohol use (no alcohol use, moderate use, problem use) and alcohol problem in family (mother and/or father being a problem drinker) were included.

In connection to student life changes in patterns of alcohol use during the first study year and later, the quantity of alcohol use compared with fellow students and whether the subject thought that alcohol was an essential part of student life were asked. Further, a yes/no question on imminent plans to cut down alcohol drinking was stated.

Male and female risky alcohol users as well as moderate users and risky alcohol users in both genders were statistically compared. In comparison of moderate and risky drinkers 34 individuals were excluded, because they had not drunk any alcohol during the past twelve months. The cut-off point for risky alcohol use was AUDIT-C score ≥ 6 for men and ≥ 5 for women (Aalto, Tuunanen, Sillanaukee & Seppa, 2006; Kaarne, Aalto, Kuokkanen, & Seppä, 2010; Tuunanen, Aalto, & Seppä, 2007). The sensitivity, specificity and positive and negative predictive values for the AUDIT-3 were calculated using the AUDIT-C results as the golden standard.

SPSS 15.0 Windows program was used for statistical analyses. Cross-tabulations and χ^2-test was used to analyse the differences in variables connected to alcohol and drug use in risky and moderate users. Mann Whitney test was used to analyse the relationship of AUDIT-C score in risky alcohol drinkers to their decision of cutting down drinking.

3. Results

The mean AUDIT-C score (range 0–12) for women ($n = 292$) was 3.3 (range 0–10) and 5.5 (range 0–12) for men ($n = 173$). Risky alcohol drinkers accounted for 155 (33%), in subsample of women (AUDIT-C ≥ 5) 71/292 (24%) and men (AUDIT-C ≥ 6) 84/173 (49%).

The drinking patterns of risky drinkers during the first study year were almost identical in both genders, but consequently women significantly decreased and men increased their drinking. Significantly more men than women had thought of reducing drinking (Table 1).

During the first study year, 93 men (56.7%) reported having increased their drinking with no difference between moderate and risky drinkers. Consequently, male moderate drinkers reduced drinking more often (63.1 vs. 31.0%, $p<0.001$). The male risky drinkers 48.8% and the moderate drinkers 16.0% had thought of reducing drinking ($p<0.001$). Alcohol was considered as an essential part of study life, male risky alcohol drinkers were more often of this opinion (88.0 vs. 60.5%). Among male risky drinkers smoking was more frequent than among moderate drinkers (24.1 vs. 6.2%, $p = 0.005$) as was experimenting with illicit drugs (40.5 vs. 23.5%).

Among women, drinking changes in the first study year compared with subsequent years show no statistically significant differences between moderate ($n = 195$) and risky ($n = 71$) drinkers. Otherwise the trends go the same way as with men: the risky drinkers were more likely to think about reducing drinking (28.2 vs. 9.8%, $p<0.001$) and more often evaluated alcohol as an essential part of student life (83.1 vs. 53.7%, $p<0.001$). Among female risky alcohol users there were more smokers (21.1 vs. 4.1%, $p<0.001$) and experimenting with illicit drugs (32.4 vs. 15.5, $p = 0.002$) than among moderate drinkers. In contrast to men, there were more alcohol problem users in female risky drinker families compared to moderate users (22.5 vs. 11.9%, $p = 0.031$).

Among male and female risky drinkers reporting willingness to reduce their alcohol drinking ($n = 61$) the AUDIT-C scored significantly higher than among those who were unwilling to change ($n = 94$), (7.34 vs. 6.49, $p<0.001$).

In Table 2 the effectiveness of the AUDIT-3 is presented (sensitivity, specificity as well as positive and negative predictive value) taking into account different cut-off points among men (AUDIT-C ≥ 6) and women (AUDIT-C ≥ 5). Among women the AUDIT-3 is not valid at any cut-off point. Instead, for men the AUDIT-3 at cut-off of ≥ 2 is almost as valid as the AUDIT-C.

4. Discussion

Risky drinking among medical students was common, especially among men. Men increased more significantly their alcohol drinking after the first study year than women and more male than female risky alcohol drinkers had thought of reducing drinking. Among men the AUDIT-3 was almost as reliable as AUDIT-C in detecting risky alcohol use.

This study captured a representative sample of students in the faculty. The weakness of it is that the AUDIT-C was used as the golden standard. Because of this we do not get as precise as the estimate of actual alcohol consumption by interviewing the subjects. However, in screening for hazardous alcohol use the AUDIT-C has proven to be nearly as reliable as the original AUDIT (Meneses-Gaya et al., 2010). In Finnish patient populations the AUDIT-C has proven best reliability for men at a cut-off score of ≥ 6 and ≥ 5 for women (Aalto et al., 2006; Kaarne et al., 2010; Tuunanen et al., 2007).

In this study the prevalence of risky alcohol drinkers among medical students was significantly lower compared to findings in the earlier study also using the AUDIT-C among all university students (Kypri et al., 2009). This difference can be explained on basis of different cut-off points: the previous study used cut-off points at ≥ 4 for all the subjects, whereas in this study separate cut-off points were used (≥ 6 for men and ≥ 5 for women). The difference can also be explained on basis that medical students have been shown to drink less than other students (Kunttu & Huttunen, 2008; Newbury-Birch et al., 2002). Interview-based prevalences are almost identical with the present results (Ashton & Kamali, 1995; Granville-Chapman et al., 2001). Thus, it seems that despite of its shortness the AUDIT-C is applicable if sex-specific cut-off points are used.

We do not know of previous studies about feasibility to use the AUDIT-3 in young adults. The applicability of the AUDIT-3 among men in this study was identical to that found in previous Finnish studies among middle-aged men (Tuunanen et al., 2007) or occupational health care population (Kaarne et al., 2010). The AUDIT-3 was not applicable to female students, which we also previously concluded in our study among middle-aged women (Aalto et al., 2006).