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Short Communication

Substance abuse in Iranian high school students

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Abstract

Adolescent substance abuse potentially holds a number of negative implications for the health and well-being of the individual, including increased risk for injury and death from interpersonal violence, motor vehicle accidents, and drowning, increased probability of engaging in high risk sexual behaviors; and increased risk for suicidal ideation and behaviors. The aim of this paper is to estimate prevalence of substance abuse among the sample of 10th grade male students in Tabriz City, and to evaluate the associated factors.

Of all 10th grade male students in Tabriz, Iran, 1785(13.7%) were randomly sampled. Mean age of the subjects was 16.3±0.87 years. A self-administered questionnaire was used to collect demographic data, substance abuse, smoking status and friends smoking. The influence of different factors on substance abuse was evaluated with a logistic regression model.

Among 1785 students 226 (12.7%, 95% CI: 11.2–14.3) had ever used alcohol and 36 (2.0%, 95% CI: 1.5–2.8) had used drugs. The results indicate that older age (OR=1.55), having general risk taking behavior (OR=1.70), higher smoking stage (OR=3.70), having self-injury (OR=1.22), higher socioeconomic class (OR=1.62), and ever use of illicit drugs (OR=5.72) were factors associated with student's ever use of alcohol.

This study has shown low prevalence of substance abuse and determined some of its risk factors among students. More studies about adolescent population are necessary to approve the observed results of this study and thus allow for a certain generalization of the observations.

Keywords: Student; Prevalence; Substance abuse; Iran

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1. Introduction

Adolescent substance abuse potentially holds a number of negative implications for the health and well-being of the individual, including increased risk for injury and death from interpersonal violence, motor vehicle accidents, and drowning (Miller, Lesting, & Smith, 2001), increased probability of engaging in high risk sexual behaviors (Flisher, Ziervogel, & Charlton, 1996); and increased risk for suicidal ideation and behaviors (Stoelb, 1998). An association has also been found between adolescent substance abuse and co-morbid psychiatric disorders, such as conduct and mood disorders (Gilrame, 2000). Adolescent substance abuse has been associated with academic performance, declining grades, absenteeism, truancy, and school drop-out (Chen, Sheth, Elliott, & Yeager, 2004). Furthermore, some other studies indicate that there is a link between substance abuse and getting involved in a crime, and a high prevalence of substance abuse among juvenile offenders (Zhang & Wieczorek, 1997).

There is a limited amount of information available on adolescent's substance abuse in Iran. The results of one study (Ayatollhi, Mohammadpoorasl, & Rajaeefard, 2005) which was conducted on 10th grade students showed that 16.9% of students were experimenter and 2.5% of students were regular smokers. Furthermore the results of recent study showed that 32% of students had experienced alcohol consumption and 2.1% of them had lifetime drug abuse.

Some researches have discussed that adolescent's substance abuse has a relation with the age of student (Best et al., 2000), self-injury (Braithwaite, Robillard, Woodring, Stephens, & Arriola, 2001), and peer substance abuse (Chen et al., 2004). But in Iran the relation of these variables with substance abuse is not clear. The aim of this paper is to estimate prevalence of substance abuse such as alcohol and illicit drugs among the sample of 10th grade male students in Tabriz City, and to evaluate the associated factors.

2. Methods and materials

Out of about 13,000, 10th grade students in Tabriz City 1785 students were selected by random proportional cluster sampling. During February 2005, a self-administrated questionnaire was distributed to students during an hour session of their class. The questions aimed to obtain information on smoking, drug abuse, ever use of alcohol, self-injury, general risk taking behavior, friends' smoking, as well as demographic information.

Three measures were used to assess student's substance abuse. The first measure assessed whether the respondents had ever consumed alcoholic beverages (ever consumed alcohol coded as 1; never consumed alcohol coded as 0). The second measure combined respondent's lifetime use of illicit drugs .Any use of these substances was sufficient for that individual to be classified as having used drugs (coded as 1). No reported use was classified as never having used drugs (coded as 0). Third, respondents were asked about their smoking status. In this study respondents were classified into three stages of the smoking continuum according to Kaplan, Springer, Stewart, and Stable (2001):

1. Never smoker: adolescent who have never tried cigarettes, not even a few puffs.
2. Experimenter: adolescent who indicated having tried or experimented with cigarette smoking, even a few puffs, but have smoked less than 100 cigarettes.
3. Regular smoker: adolescent who indicated smoking 100 cigarettes or more in lifetime irrespective of current smoking status.

In order to measure general risk taking behavior, respondents were asked to respond by marking one of the choices of agreed, disagreed, or had no opinion for the statement of "I enjoy of doing things that are a little dangerous or risky." Respondents who agreed with the statement were classified as having a risky attitude (coded as 1); all others were considered as having a low-risk attitudes (coded as 0).

Principal component analysis was applied to calculate socioeconomic status by using mother's education, father's education, and father's occupation. This measure graded the students into high, middle, and low socioeconomic status level.

Table 1
Demographic characteristics of the adolescents by "ever alcohol use" and "drug abuse"

Characteristics	Ever use of alcohol			Ever use of illicit drugs		
	No	Yes	*P*-value	No	Yes	*P*-value
	n (%)	*n* (%)		n (%)	*n* (%)	
Age						
15 years	270 (91.8)	24 (8.2)	<0.001	284 (97.6)	7 (2.4)	0.545
16 years	777 (89.6)	90 (10.4)		846 (98.4)	14 (1.6)	
17 years	383 (84.0)	73 (16.0)		439 (97.1)	13 (2.9)	
18 years	97 (73.5)	35 (26.5)		129 (98.5)	2 (1.5)	
19 years	17 (85.0)	3 (15.0)		20 (100)	0 (0)	
Total	1544 (87.3)	225 (12.7)		1718 (98.0)	36 (2.0)	
Living with parents						
Yes	1448 (87.7)	204 (12.3)	0.156	1603 (97.9)	34 (2.1)	0.586
No	76 (82.6)	16 (17.4)		91 (97.8)	2 (2.2)	
Smoking status						
Non-smoker	1289 (93.6)	88 (6.4)	<0.001	1357 (99.6)	5 (0.4)	<0.001
Experimenter	232 (71.8)	91 (28.2)		306 (94.7)	17 (5.3)	
Regular smoker	32 (40.5)	47 (59.5)		65 (82.3)	14 (17.7)	
Self-injury						
Yes	39 (52.0)	36 (48.0)	<0.001	68 (90.7)	7 (9.3)	0.001
No	1503 (88.8)	190 (11.2)		1648 (98.3)	29 (1.7)	
General risk taking behavior						
Yes	440 (79.4)	114 (20.6)	<0.001	532 (96.2)	21 (3.8)	<0.001
No	1113 (90.9)	112 (9.1)		1196 (98.8)	15 (1.2)	
Number of smoker friend						
0	908 (93.8)	60 (6.2)	<0.001	952 (99.1)	9 (0.9)	<0.001
≥1	403 (73.7)	144 (26.3)		518 (95.6)	24 (4.4)	
Socioeconomic status						
High	295 (84.3)	55 (15.7)	0.007	335 (96.8)	11 (3.2)	0.003
Middle	697 (86.5)	109 (13.5)		778 (97.4)	21 (2.6)	
Low	369 (91.6)	34 (8.4)		399 (100)	0 (0)	
Ever use of illicit drugs						
Yes	11 (30.6)	25 (69.4)	<0.001	–	–	–
No	1526 (88.6)	197 (11.4)		–	–	
Ever use of alcohol						
Yes	–	–	–	197 (88.7)	25 (11.3)	<0.001
No	–	–		1526 (99.3)	11 (0.7)	

Logistic regression model, Chi-square test/or Fisher exact test and one-way analysis of variance were used in statistical analysis by using CIA, Epi Info and SPSS statistical package programs.

3. Results

The mean age of the subjects was 16.3±0.87 (min. 15, max. 19). Among 1785 students 226 (12.7%, 95% CI: 11.2–14.3) had ever used alcohol and 36 (2.0%, 95% CI: 1.5–2.8) had used drugs. 77.4%, 18.2%, and 4.4% were never smoker, experimenter and regular smoker, respectively. The results showed that among all students who ever used illicit drugs 15 (41.7%), 8 (22.2%), 6 (16.7%), and 7 (19.4%) students had used ecstasy, cannabis, opium, and other drugs respectively. Table 1 presents the demographic and key characteristics of the total sample, as well as the conditional distribution of ever alcohol use and drug abuse at each level of the variables.

A logistic model was used to evaluate the relationship of age of students, general risk taking behavior, smoking stages, self-injury, socioeconomic status, and ever use of illicit drugs on ever use of alcohol. The results of this analysis indicate that older age (OR=1.55), having general risk taking behavior (OR=1.70), higher smoking stage (OR=3.70), having self-injury (OR=1.22), higher socioeconomic class (OR=1.62), and ever use of illicit drugs (OR=5.72) were factors associated with student's ever use of alcohol (Table 2). After adjusting for other factors, students who were in higher smoking stages were over three times more likely than students who were in lower smoking stages to report illicit drug abuse. Higher socioeconomic class students were over one and a half times more likely than lower socioeconomic class students to report illicit drug abuse (Table 2).

4. Discussion

Regarding the frequencies of substance abuse, their rate of lifetime drug abuse in the present study was 2.0%, which was consistent with a previous survey of 10th grade students conducted in Iran (Ayatollhi et al., 2005). For lifetime alcohol use, 12.7% of the participants had drunk alcohol in the present study. This result was different from that of a previous survey showing higher rate (32%) of drinking alcohol (Ayatollhi et al., 2005).

Table 2
Logistic regression analysis of the relationship between "ever alcohol use" and "drug abuse" and "risk variables"

Variables	Ever alcohol use			Drug abuse		
	OR	95% CI	*P*	OR	95% CI	*P*
Older age	1.55	1.26–1.91	<0.001	–	–	–
Having general risk taking behavior	1.70	1.21–2.39	0.002	1.25	0.74–2.12	0.39
Higher smoking stage	3.70	2.87–4.78	<0.001	3.26	2.0–5.3	<0.001
Having self-injury	1.22	1.03–1.45	0.023	1.35	0.46–3.96	0.59
Lower socioeconomic class	0.62	0.48–0.81	<0.001	0.52	0.33–0.81	0.004
Drug abuse	5.72	2.18–12.28	<0.001	–	–	–
Ever alcohol use	–	–	–	7.81	2.99–20.4	<0.001

In comparison to the prevalence of adolescent substance abuse in the other countries, the prevalence of substance abuse was considerably small in our study (Chen et al., 2004; Chou, Ho, Chen, & Chen, 2005). Lower substance abuse rates among adolescents in Iran are mostly related to the following: (1) religious and legal prohibition of alcohol use and legal prohibition of other drugs; (2) substance abuse as being regarded against cultural values of Iranian families, especially among adolescents; and (3) harsh disapproval of the adolescents' substance abuse by parents.

In some studies it has been shown that there is a strong association between the adolescent age and substance abuse (Donovan, 2004). Logistic regression analysis indicated that the age of students had relationship with lifetime alcohol use, but results showed that there is no significant association between age and lifetime drug abuse. The lack of age variability in this study may explain this finding.

The findings of this study like in other studies (Schuckit, 1998) showed that lifetime alcohol use and lifetime drug abuse relates to the smoking status of friends. In spite of these findings, we cannot determine whether smoker close friends are a risk factor for substance abuse or students who used substance choose smoker more as their friends. On the other hand, the adolescents who become friends may have common characteristics that may have association with substance abuse.

Kandel and Yamaguchi (1993) have argued that the use of alcohol and tobacco tends to precede and to increase the risk of initiating illicit drug use. Similarly, Torabi, Bailey, and Majd-Jabbari (1993) found that regular smokers are more likely to drink and are more likely to use illicit drugs 10–30 times than non-smokers. Results of the present study indicated that students ever use of alcohol and drugs relates to the smoking status.

It is, however, important to know the limitations of the study too. First, the sample was limited to 10th grade students. Second, the study relied on self-report data. Although we went to great lengths to ensure confidentiality and anonymity, we had no way of assessing underreporting of substance use. The prevalence reported above may thus represent low estimates of the actual prevalence. Finally, the study was cross-sectional, which limits the extent to which conclusions can be drawn about the causal nature of the associations between the correlates and substance abuse.

In conclusion, this study has shown low prevalence of substance abuse and determined some of its risk factors among students. More studies about adolescent population are necessary to approve the observed results of this study and thus allow for a certain generalization of the observations.

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