Original article

Awareness of substance use and its associated factors in young Saudi students

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Abstract

Adolescence is the stage that carries the greatest risk for initiating substance use as it is a transitional stage of physical and mental human development. Studies in younger populations have demonstrated a positive association between awareness about substance abuse and their attitudes toward substances. Saudi Arabia is an Islamic country with strict laws regarding availability and use of addictive substances. Addictive behaviors tend to be concealed by the users in the Saudi community. However, some studies have revealed that drug abuse is more common in the Saudi community than was previously thought, thus it is necessary to have estimates of existing awareness regarding substance abuse, and its predictors among adolescents for future redressal of this emerging public health issue. The objective of this study was to assess the awareness of secondary school students regarding substance abuse and find its associated social factors. This was a cross sectional study conducted on 1022 secondary school students using a self administered questionnaire assessing their social characteristics and awareness on substance abuse. Most of students (82.4%) had sufficient awareness (> 60%) regarding substance abuse. Age, scholastic year, subject (science) and being non–Saudi had positive association with good awareness. Parental education, family income and parental status of living together had significant association with the awareness level of students.

Key words: Awareness, Saudi Arabia, School students, Substance use

Substance abuse is a socio medical problem that is fast attaining epidemic proportions globally. The global burden of disease attributable to alcohol and illicit drug use is significant by any measure; it amounts to 5.4% of the total burden of disease, according to the latest WHO estimates. Another 3.7% of the global burden of disease is attributable to tobacco use. And disorders due to psychoactive substance use including alcohol, drug and tobacco dependence; are the main underlying conditions ultimately responsible for the largest proportion of the global burden of disease attributable to substance use [1]. It is significant with respect to its effects which are not limited to the individual but extend to his or her family and society. It is fast turning into a critical issue in most societies and is associated with social and economic consequences[2].

Adolescence is the stage that carries the greatest risk for initiating substance use as it is a transitional stage of physical and mental human development. There is cognitive immaturity and vulnerability to social influences at this age thus experimentation with addictive substances and other risky behavior's is most common in this age. Studies in adolescent population have demonstrated a positive association between awareness about substance abuse and their attitudes toward substances[3,4].

Alcohol and drug abuse are categorically forbidden by Islam. Saudi Arabia is an Islamic country with strict laws regarding availability and use of addictive substances. Addictive behaviors also stigmatize the user and thus tend to be concealed. All these factors consequently affect the reported incidence rates of substance abuse in Islamic countries. Currently, there is little evidence from recent studies to alert Arab/Moslem communities to the realities and the magnitude of the drug problem. There is scanty evidence, that drug abuse is more common in the Saudi community than was previously thought, as reported in two studies[5,6]. The exigency of the problem is highlighted by the widespread health education campaigns through mass media and the establishment of specialized drug abuse centers (Al-Amal Hospitals) all over the Saudi Arabia[2].

It is necessary to have estimates of existing awareness regarding substance abuse, and its associated factors among adolescents for future redressal of this emerging public health issue. This will ensure the success of any preventive or behavioral modification programs. This area of drug abuse research though of high importance, is grossly lacking in the Saudi Kingdom. This study aims to address this issue among adolescent students in southern Saudi Arabia.

Materials and methods

The data from this study was analyzed to generate information on students' knowledge levels on substance abuse, the factors associated with their knowledge, their perception on the health, economic and social consequences of substance abuse and their sources of information. Results of students' awareness regarding substance abuse as a public health problem, its ill effects and their sources of information have been described elsewhere in another article by same authors[7]. This paper emphasizes upon the knowledge levels regarding substance abuse (insufficient knowledge or sufficient knowledge) and its associated factors among the study group. The methodology de-scribed below was followed in full for the entire study.

A cross-sectional study of male secondary school students in Jizan, Saudi Arabia was conducted between June 2013 and June 2014 after taking all the necessary official permissions. A multistage, random sampling technique was used to generate a sample size of 1100 students from ten schools that were randomly selected. In the second stage, three individual classes of students were selected from each school. All students in the selected classes were invited to participate in the study until the sample size of 1100 was reached. In each selected school, the questionnaires were distributed to all chosen students.

Study tool

A self-administered questionnaire was used to collect data. This questionnaire was originally developed in 2002 by National Agency for the Treatment and Rehabilitation of Substance Abusers in Bangladesh to survey young people (aged 12-24 years) regarding substance use[8]. The Arabic version was developed for use in a Jordanian study[9] .The instrument was translated into Arabic using a comprehensive method to ensure equivalence and validity. It consisted of the following sections: (a) background information of the respondents, b) awareness about substance abuse, and its associated health, economic, and socio-cultural consequences c) sources of information. Scoring: Awareness score was computed in the way that correct answer was given a score of 1 while incorrect and unknown answer was given a score of zero. The percentage of correct answers was computed. Mean percentage of awareness score >60% was considered sufficient awareness while ≤60% was considered insufficient awareness.

Statistical analysis

Collected data were verified and coded prior to computerized data entry using Statistical Package for Social Sciences (SPSS version 18.0) for analysis. Frequencies, percentages, mean and standard deviation (SD) were used as descriptive statistics. For testing significance of difference, we used independent sample t-test for comparison of the means of two groups and one-way analysis of variance (ANOVA) test for comparison of three 3 or more groups. A p-value of less than 0.05 was adopted for statistical significance. Insufficient awareness regarding substance abuse was treated as dependent variable in multivariate logistic regression analysis. Significant variables in univariate analysis (Age, nationality, scholastic

year, number of brothers, number of sisters, total number of siblings, birth order, father's education, father's occupation, mother's education, mother's occupation, family income, residence, parental marital status and number of sources of information) were treated as independent categorical variables in multivariate analysis. Multiple associations were evaluated in multiple logistic regression model based on the backward stepwise selection, where significant variables from the univariate analysis were included. This procedure allowed the estimation of the strength of the association between each independent variable while taking into account the potential confounding effects of the other independent variables. The covariates were removed from the model if the likelihood ratio statistic based on the maximum likelihood estimates had a probability of > 0.10. Each category of the predictor variables was contrasted with the initial category (reference category) in multivariate analyses. The adjusted measures of association between risk factors and insufficient substance abuse awareness were expressed as the odds ratio (OR) with 95% confidence interval (95% CI). Adjusted ORs with 95% CI that did not include 1.0 were considered significant.

Results

Out of 1100, a total of 1022 students returned the filled in questionnaire. Table 1 presents the personal characteristics of the students. Their age ranged between 15 and 19 years with a mean of 17.33±0.98 years. Majority of them (95.7%) were of Saudi origin. Almost one-third of them (31.9%) were in the third scientific scholastic year while 21.1% were in the first secondary scholastic year.

Table 1: Personal characteristics of respondents

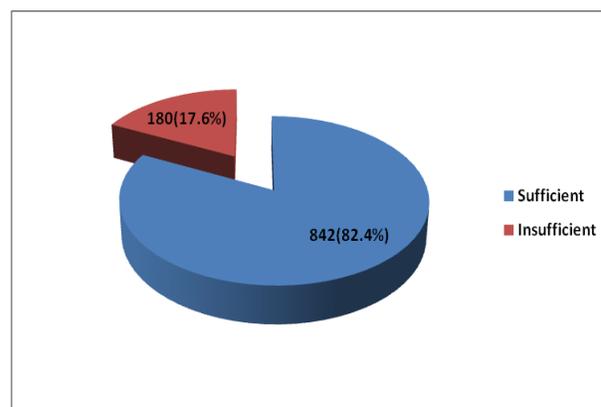| Characteristics		n (%)
Age (years)	15	49 (4.8%)
	16	124 (12.1%)
	17	398 (38.9%)
	18	347 (34.0%)
	19	104 (10.2%)
Nationality	Saudi	978 (95.7%)
	Non-Saudi	44 (4.3%)
Scholastic year	First	216 (21.1%)
	Second, Scientific	176 (17.2%)
	Second, Literature	172 (16.8%)
	Third, Scientific	326 (31.9%)
	Third, Literature	132 (13.0%)

Fig 1. Overall level of awareness of respondents regarding substance abuse

Table 2: Association of awareness score of respondents with their personal characteristics

Characteristics		Mean±SD	p value
Age (years)	15	62.24±13.62	<0.001
	16	62.40±23.24	
	17	70.90±17.99	
	18	77.50±13.38	
	19	80.29±3.40	
Nationality	Saudi	72.44±17.41	<0.003
	Non-Saudi	77.18±9.32	
Scholastic year	First	59.50±19.37	<0.001
	Second, Scientific	70.79±17.03	
	Second, Literature	75.58±16.63	
	Third, Scientific	78.51±12.23	
	Third, Literature	78.31±11.86	

Table 3: Association of socio-economic factors with awareness score of respondents

Parental variables		Mean±SD	p value
Father's education	Illiterate	64.36±22.67	<0.001
	Primary	70.39±19.38	
	Intermediate	68.71±18.54	
	Secondary	71.46±17.60	
	University	77.10±12.41	
	Postgraduate	78.01±11.59	
Mother's education	Illiterate	56.42±21.24	<0.001
	Primary	72.61±11.05	
	Intermediate	68.31±17.26	
	Secondary	73.21±14.95	
	University	77.12±15.18	
	Postgraduate	80.36±1.93	
Father's occupation	Not working	57.21±22.30	<0.001
	Teacher	85.55±4.15	
	Military	76.02±14.95	
	Employee	72.01±10.22	
	Business / Trading	63.70±23.86	
	Retired	72.89±18.86	
	Farmer	74.56±10.28	
	Others	74.26±21.99	
Mother's occupation	Not working	73.35±15.69	0.012
	Working	67.36±25.13	
Family income per month (SAR)	<5000	71.41±18.60	0.004
	5000-10000	72.43±17.79	
	>10000	76.03±12.58	
Residence	Rented	71.76±17.66	<0.001
	Own	81.27±6.57	
Parental marital status	Living together	74.17±17.45	<0.001
	Separated / Divorced	60.61±14.81	
	One / Both died	72.93±9.12	

Level of awareness of students regarding substance abuse is depicted in figure 1. Most of students (82.4%) had sufficient awareness i.e. answered correctly more than 60% of questions regarding substance abuse.

Table 2 shows the association of personal factors with substance abuse awareness. Percentage of right answers increased steadily with student`s age, being 80.29±3.4% for older students (19 years) compared to 62.24±13.62% for those aged 15 years. The difference was statistically significant, p<0.001. Awareness of substance abuse was significantly higher among non-Saudi students than Saudis (77.18±9.32% versus 72.44±17.41, p=0.003). Regarding scholastic year, the highest percentage of right answers was reported by students of third scientific scholastic year (78.51±12.23%) while the lowest percentage of right answers was observed among those of first secondary scholastic year (59.50±19.37). The difference was statistically significant, p<0.001.

Table 4: Multivariate logistic regression analysis of factors associated with awareness of students regarding substance abuse

Variables		Substance abuse awareness		Adjusted OR	95% confidence interval
		Sufficient N=842, n (%)	Insufficient N=180, n (%)		
Age (years)	15[a]	24(49)	25(51)	1.0	-
	16	81(65.3)	43(34.7)	0.50	0.25-0.97*
	17	312(78.4)	86(21.6)	0.27	0.11-0.47*
	18	321(92.5)	26(7.5)	0.15	0.08-0.27*
	19	104(100)	0(0)	0.01	0.001-0.07*
Scholastic year	First[a]	122(56.5)	94(43.5)	1.0	-
	Second, Scientific	130(73.9)	46(26.1)	0.46	0.029-0.71*
	Second, Literature	153(89.0)	19(11.0)	0.16	0.09-0.28*
	Third, Scientific	310(95.1)	16(4.9)	0.06	0.04-0.12*
	Third, Literature	127(96.2)	5(3.8)	0.05	0.02-0.13*
Number of brothers	≤3[a]	269(75.8)	86(24.2)	1.0	-
	4-6	461(87.1)	68(12.9)	0.44	0.31-0.70*
	>6	112(81.2)	26(18.8)	0.73	0.41-1.21
Father's education	Illiterate [a]	179(70.8)	74(29.2)	1.0	-
	Primary	126(72.8)	47(27.2)	0.90	0.60-1.41
	Intermediate	122(85.3)	21(14.7)	0.43	0.26-0.74*
	Secondary	191(88.0)	26(12.0)	0.35	0.21-0.54*
	University	187(94.4)	11(5.6)	0.15	0.09-0.29*
	Postgraduate	37(97.4)	1(2.6)	0.07	0.01-0.53*
Mother's education	Illiterate [a]	313(75.8)	100(24.2)	1.0	-
	Primary	205(83.3)	41(16.7)	0.64	0.43-0.95*
	Intermediate	163(89.1)	20(10.9)	0.39	0.24-0.63*
	Secondary	86(87.8)	12(12.2)	0.46	0.25-0.83*
	University	55(90.2)	6(9.8)	0.33	0.15-0.84*
	Postgraduate	20(95.2)	1(4.8)	0.16	0.03-0.99*
Parental marital status	Living together [a]	774(82.9)	160(17.1)	1.0	-
	Separated / Divorced	22(66.7)	11(33.3)	2.43	1.19-5.09*
	One / Both died	46(83.6)	9(16.4)	0.99	0.46-2.01

[a]Reference category, *p<0.05, Terms of nationality, number of sisters, total number of siblings, birth order, Income, father's occupation, mother's occupation, residence and source of information were removed from final mode

Table 3 shows the association of socio-economic factors with substance abuse awareness among male secondary school students in Jizan. Percentage of right answers increased significantly with increasing father`s and mother`s educational levels.

The highest percentages of right answers were reported among students whose fathers and/or mothers had post-graduate educational level (78.01±11.59 and 80.36±1.93, respectively) while the lowest percentage of right answers were reported by students whose fathers and/or mothers

were illiterate (64.36±22.67 and 56.42±21.24, respectively). These differences were statistically significant. Regarding father`s occupation, students whose fathers working as teachers showed the highest percentage of right answers regarding awareness of substance abuse while those fathers with no work showed the lowest percentage of right answers (85.55±4.15% compared to 57.21±22.30%). The difference in the level of student`s awareness regarding substance abuse according to their father's occupation was statistically significant, p<0.001. Students whose mothers are not working showed significantly higher percentage of right answers of substance abuse questions compared to those whose mothers are working (73.35±15.69% versus 67.36±25.13, p=0.012). Regarding family income, the highest percentage of right answers was reported by students whose family income exceeded SAR 10000/month (76.03±12.58%) while the lowest percentage of right answers was observed among those whose family income was below SAR 5000/month (71.41±18.60). The difference was statistically significant, p=0.004. Concerning residence, students who were living in private houses showed significantly higher score of substance abuse awareness compared to those who were living in rented houses (81.27±6.57% versus 71.76±17.66%). Regarding parental marital status, students whose parents living together showed significantly higher percentages of right answers compared to those whose parents were separated or divorced (74.17±17.45 versus 60.61±14.81). The difference was statistically significant, p<0.001.

Table 4 shows results of multivariate logistic regression analysis. Considering students aged 15 years as a reference category, older students were at lower risk for having insufficient awareness regarding substance abuse. Similarly, taking students of the first scholastic year as a reference category, students of higher levels were at lower risk for having insufficient awareness regarding substance abuse.

Students who had 4-6 brothers showed lower risk for insufficient substance abuse awareness compared to those who had 3 brothers or less (OR=0.44, 95%CI:0.31-0.70). Students whose fathers were more educated (intermediate school-postgraduate level) were at lower risk for having insufficient awareness regarding substance abuse opposed to those whose fathers were illiterate. Similarly, students whose mothers were more educated (primary school-postgraduate level) were at lower risk for having insufficient awareness regarding substance abuse opposed to those whose

mothers were illiterate. All these results were significant at 95% CI. Considering students whose parents were living together as a reference category, students whose parents were separated or divorced were at almost double risk for having insufficient awareness about substance abuse (OR=2.43, 95%CI:1.19-5.09).

Discussion

The current study provided an insight into the awareness of substance abuse among male school students in Jizan, Saudi Arabia. The results have shown that the older students had better awareness than their younger counterparts. Similar pattern of results was observed by others[8,9].

This might be due to the fact that the older adolescents are more socially active and more conversant with peer groups and other members of the family. It was also found that students living in large sized families, particularly brothers had better awareness regarding substance abuse than the adolescents of smaller families. This finding could be attributed to getting information and life experience from older brothers.

In accordance with results of another study[10], level of student`s awareness about substance abuse was significantly increased with increase in the paternal educational level in the current study too. To enforce this finding, students whose fathers are working as teachers showed the highest level of substance abuse awareness. Educated working mother irrespective of race, religion, culture, region and heritage is under the influence of heavy responsibilities all around the world. It is the responsibility of mother to educate her children according to the requirement of contemporary economic and social needs[11].

Mother's employment status is also related with child results, it is through the family those effects take place. Outcomes of children are related with mothers' sense of well-being and-parenting style. Usually working mothers so not have enough time to spend with their children and talk to them. In accordance with that, in the current study, students whose mothers were not working showed better level of substance abuse awareness[12]. From this study, we can conclude that maternal educational level, irrespective of employment status, is the factor that effects their children's awareness. In addition, in the current study, students with stable and comfortable living status (higher family income and parents living together) showed higher level of substance abuse awareness. Typically, most people in KSA have little awareness of these problems because of the long-standing history of social stigma, shame, and isola-

tion associated with these substances. Substance abuse is so onerous in the community that citizens will notify law enforcement agencies to arrest drug abusers in their families[8].Another important finding of this study is a significant association of awareness with parental living status. Earlier studies have shown a significant association of substance use with not being raised by both parents[13]. In another study done on childhood and adolescent predictors of alcohol abuse and dependence in young adulthood it was reported that close parental monitoring of children and clearly defined family rules for behavior and strong belief in the moral order predicted a lower risk for alcohol abuse and dependence at adulthood. These important, early identified predictors, provide potential intervention targets for the prevention of alcohol abuse and dependence in early adulthood[14]. Coupled with strong cultural abhorrence for alcohol and substance abuse in Islamic society may provide strong basis for prevention programmes targeted at young children and adolescents.

Conclusion

Male school students in Jizan region of Saudi Arabia have good awareness levels regarding different aspects of substance abuse. Important factors associated with this awareness level include not only personal but also social factors like parental education, income and parental living status.

Strength and limitations: This study was first of its kind in Jizan province of Saudi Arabia. As the study is only for male secondary school students of one region, more research needed to be done to cover whole Saudi Arabia and all groups of students.

Acknowledgements: Nil

Conflict of interest: Nil

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