

Substance abuse among male secondary school students in Abha City, Saudi Arabia: prevalence and associated factors.

Hassan M Al-Musa^{1*}, Saeed Doos S Al-Montashri²

¹Department of Medicine, College of Medicine, King Khalid University, Saudi Arabia

²Family Medicine Resident, Saudi Board Program, Saudi Arabia

Abstract

Aim: To examine the problem of substance abuse with its different forms among male secondary school students in Abha City, KSA.

Methods: A Cross sectional design. Conducted in Abha City, which is the capital of Aseer Region in Saudi Arabia. The study population was all secondary school students in Abha city for boys (n=13). The number of registered students for the academic year 1434-1435 was 3852 students. In a selected school, the questionnaires were distributed to all chosen 350 students in the selected school. A self-administered pencil-and-paper questionnaire was used to collect data on history of substance abuse. The researcher personally collected the data from boys.

Results: The age of about two thirds of participant students (68.8%) was 17-18 years. About half of students' fathers (49.8%) attained university education, compared with 52.8% of mothers. About one fourth of students' fathers (23%) were unemployed compared with 43.3% of their mothers. Alcohol was taken by 9.3% of male secondary school students. 8.8% of male secondary school students were substance abusers. The main illicit drug was cannabis (51.4%) followed by glue/solvents (48.6%) and amphetamine (45.7%). 4% of male secondary students chew khat. More than one third of students (37.5%) started chewing khat before the age of 16 years. prevalence of cigarette smoking was significantly higher among older students (p=0.001) and third year students (p=0.020) and those who had lower grades in the last year (p<0.001). Prevalence of alcohol intake was higher among older students. However, differences were not statistically significant.

Conclusion: The prevalence of substance abuse among male secondary school students in Abha City is quite high. Students start smoking at an early age. Prevalence of substance abuse increases with students' age. The students mainly obtain the substance by themselves but sometimes through the help of friends.

Keywords: Substance abuse, Secondary school, Prevalence, Associated factors.

Accepted on April 17, 2016

Introduction

Substance abuse and addiction form a major burden to the societies. In the USA, Economic costs alone are estimated to exceed half a trillion dollars annually, including health, crime-related costs, and losses in productivity [1]. Drug addicts are enforced to take their drug by their addiction; they simply do not have a choice. In accordance with that, they may do any number of morally reprehensible things to serve the seller e.g. lie to family members, steal money, and even engage in armed robbery or prostitution. Previous hobbies or passions fall by the wayside, as more and more time is spent in pursuit of the drug, and home and work life may suffer drastically as well [2]. Abused drugs fall into three categories: depressants (e.g. heroin, barbiturates), stimulants (e.g. cocaine, crack, amphetamines) and hallucinogens (e.g. marijuana, ecstasy)

they are ingested, inhaled, smoked, injected or snorted. Depressants are sedatives which act on the nervous system. [3].

There are two types of addiction: physical addiction and psychological addiction. Physical addiction entails an actual change in the addict's body, whereby it requires the drug to function. Another common sign of physical addiction is tolerance, whereby the body requires greater and greater amounts of the drug in order to achieve the same feelings. Ceasing the drug in the case of a physical addiction often results in withdrawal symptoms such as shaking, vomiting or seizures. Even if they don't create a physical addiction, most drugs create a psychological addiction in their users. A psychological addiction is a mental craving for the drug and the feelings associated with it. That desire is distinct from physical addiction in that there are rarely any withdrawal symptoms if the addict doesn't get his drug of choice [4].

There continues to be an enormous unmet need for drug use prevention, treatment, care and support, particularly in developing countries. Drug use affects not only individual users, but also their families, friends, co-workers and communities. Children whose parents take drugs are themselves at greater risk of drug use and other risky behaviours. Drugs generate crime, street violence and other social problems that harm communities [5]. In some regions; illicit drug use is contributing to the rapid spread of infectious diseases like HIV and hepatitis. Heroin consumption has been stabilized in Europe and cocaine consumption has declined in North America – the most lucrative markets for these drugs [6].

Drugs contain chemicals that tap into the brain's communication system and disrupt the way nerve cells normally send or receive information. As a person continues to abuse drugs, the brain adapts to the overwhelming surges in dopamine by producing less dopamine or by reducing the number of dopamine receptors in the reward circuit. The result is a lessening of dopamine's impact on the reward circuit, which reduces the abuser's ability to enjoy the drugs. This decrease compels the addicted person to keep abusing drugs in an attempt to bring the dopamine function back to normal, except now larger amounts of the drug are required to achieve the same dopamine high; an effect known as tolerance [7].

The secondary school student abuses or is addicted to substances because of several reasons. He strives to be accepted by and to fit in and feel part of the peer group. It is important for the student to conform to the peer group. The abuse of drugs within the peer group readily leads to substance abuse by the student as a result of peer group pressure. Unhealthy family relationship and weak maternal and paternal figures can predispose the students to drug abuse. The absent maternal or paternal figure who does not fulfil his role of authority adequately or who provides the student with inadequate social support in handling stressful life events or social pressures often cause identification problems and a negative self-esteem in the student. This encourages the student to readily identify with undesirable elements and he easily becomes trapped into drug abuse thereby rebelling against authority. Secondary school students who abuse drugs may experience deterioration in academic performance. They achieve low grades and may display hostile, defiant and uncooperative behaviour toward others in school. They may also experience a drop in motivation, concentration, general achievement, interest in sport and extra-mural activities. Under these circumstances, school is of no interest to these students and truancy often results [8]. The student may be involved in constant conflict situations and may experience a breakdown in communication and a general deterioration in interpersonal relationships. The student may become withdrawn, depressed, sleepy, tired, manipulative and self-centred.

Drug abuse may make the student giddy, stagger, lose balance and will affect his motor coordination. Motor dysfunction may cause speaking, writing and reading difficulties. Substance abuse robs the body of essential vitamins and minerals and

interferes with the digestion of food. Students may suffer from malnutrition, which may prevent the student from developing to his maximum height and mass. The brain may not get enough essential nutrients required for development resulting in the student's brain not reaching adult size and mass as expected in the secondary phase. This will hamper the student's learning abilities at school [9]. Substance abuse interferes with a good nutrient supply to the brain and may result in brain damage, which is done in a cognitive and formal manner. Excessive alcohol use causes the brain to age prematurely and the student may lose up to 10 years of his life. Brain disorders commonly associated with alcoholism are Wernicke's syndrome, Korsakoff's psychosis and Marchiafava's disease [10]. Substance abuse can weaken a person's inhibitions, dull the common sense, bring out sexually aggressive behaviour and make the student more egocentric. Substance abuse leads to stress and anxiety, which in turn may cause the user to increase the substance dosage to cope with the situation. When this fails, the individual may suffer from uncontrolled depression and may commit suicide [11].

In Jeddah City, Saudi Arabia, Alibrahim et al. reported that drug abuse is reported to be on the increase among young person's using illicit substances but little is known about the frequency with which they occur, the symptoms on presentation to health institutions, and the different substances abused. They reported that 10 to 79.6% of users of amphetamines, cannabis, cocaine, and opiates met DSM-III-R dependence criteria for each specific substance. The prevalence of psychotic symptoms associated with each specific substance ranged from users with no diagnosis to users with severe dependence as follows: amphetamines (3-100%), cannabis (7-60.0%), cocaine (5-70.7%), and opiates (4-88%). The risk of psychotic symptoms increased for respondents who abused (OR=7.2) or had mild (OR=8.1), moderate (OR=20.0), or severe dependence (OR=14.0) on cocaine when compared to those who were users with no diagnosis. A similar pattern was evident in cannabis, opiate, and amphetamine users. They concluded that most adolescent drug users in Saudi Arabia who are dependent on illicit substances experience psychotic symptoms in the context of use of, or withdrawal from, these substances. Psychotic symptoms increased with the severity of the disorders associated with use of all four substances. The recommended the importance of developing services to target this population; a population at risk of developing psychotic symptoms [12]. Thus, there is increasing need to address substance use among young Saudis to forestall future problems with hard drugs.

Methodology

Study design

Cross sectional design.

Study setting and population

This study was conducted in Abha City, which is the capital of Aseer Region in Saudi Arabia. It is located more than 2,500

Substance abuse among male secondary school students in Abha City, Saudi Arabia: Prevalence and associated factors

meters above sea level in the fertile mountains of Southwestern Saudi Arabia near the Aseer National Park. According to the census figures it has an estimate population of 485201 in 2013 [13]. The study population was all secondary school students in Abha city for boys (n=13). The number of registered students for the academic year 2013-2014G (1434-1435H) was 3,852 students.

Sampling and sample size determination

The sample size was calculated by using the single proportion equation in Raosoft software package [14], the required sample size is 350 students at 95% confidence intervals (minimum expected frequency 4.5%) and margin of error accepted was 5% and response distribution of 50%. The sample will be increased to 400 to compensate for drop out. A multistage, random sample was generated by selecting schools and students from the educational directorate located in Abha. The total number of secondary schools for boys was 13 and the total enrolment of these schools was 3,852 students. The sample size was estimated 350 students. The system for selecting participants was as follows: five individual schools were randomly selected by drawing the names of schools from the sampling frame. Three individual classes of students were selected randomly from each school using a simple random sampling technique (grade 1, grade 2 and grade 3). A total of 15 classes were selected. All students in the selected classes invited to participate in the study until the sample size of 350 was achieved. In a selected school, the questionnaires were distributed to all chosen students in the selected school, to fulfil the required sample size of about 350 students.

Data collection tool

A self-administered pencil-and-paper questionnaire was used to collect data on history of substance abuse. The questionnaires were based on the following standardized international questionnaires available for use without specific permission on the internet [15,16]. They were mainly used to develop the health risk behaviours part of the study questionnaire. The questionnaire was translated into Arabic and validated in study conducted in Taif, Saudi Arabia [17]. There were selected questions related to tobacco smoking, illicit drug abuse and alcohol intake. Questions regarding the habit of khat chewing were added based on a study conducted by Alsanosy et al. [18].

Data collection technique

The researcher personally collected the data from boys. Three Saudi teachers (one for each class) helped in data collection from the students at each selected school. To avoid data collector bias, the researcher trained them on proper data collection and explained the questionnaire to them. Within each class, the teacher distributed the study questionnaire sheets to all students and supervised them and replied to any of their inquiries. After receiving the fulfilled questionnaires, the collector of such questionnaires makes sure that no missing entry in the questionnaires.

Pilot study

A pilot study (n=50) was conducted to test the data collection procedures and the questionnaire reading clarity level and comprehensiveness.

Administrative considerations

All the necessary official permissions were fully secured before data collection. A covering letter was issued by the Director of the Joint Program of Family Medicine in Aseer addressed to the Director of Abha Educational Affairs introducing the researcher, describing the study and requesting his official approval to conduct the study. Also a letter of approval was obtained from the Director of Abha Educational Affairs to the headmasters of each of the five selected study schools.

The researcher personally contacted the regional director of each school and obtained official access to students. A brief description of the study purpose was given to all teachers who helped in data collection and also for students before the questionnaire was distributed, and the participant's consent was obtained. Participants were informed that their responses will be kept confidential and that all results will be presented as an aggregate.

Ethical considerations

The personal consents of the students were asked prior to distribution of the data collection tools. They were clearly informed that their participation in this study was completely optional. Anonymity was assured to students and no one was asked to write his name. They were also assured that their responses will be used only for research purposes and will not affect their academic evaluation. The wish of any student not to participate was fully respected. After completing data collection, the researcher addressed a presentation on substance abuse to all students and teachers that included definition, modes and adverse outcome.

Statistical analysis

Collected data were verified and coded prior to computerized data entry. The researcher utilized the Statistical Package for Social Sciences (SPSS) version 22.0 for data entry and analysis. Percentages, means and standard deviations were used as descriptive statistics. Bivariate analyses of mean scores with regard to independent variables were done by Student's t-test for comparison of two groups and ANOVA test for comparison of more than two groups. Least significance difference test (LSD) test was used for post hoc comparisons of ANOVA. A p-value of less than 0.05 was considered as statistically significant.

Results

Table 1 shows that the age of about two thirds of participant students (68.8%) was 17-18 years. Almost one third of students (33.8%) were at the first scholastic year, another one third of

students were at the second year (33%), while one third of students were at the third scholastic year (33.3%). The highest students' grades for the last year were A (30.3%), B (28%) or C (24.5%).

Table 1: Personal and family characteristics of study sample

Characteristics	No.	%
Age groups		
<17 years	39	9.8
17-18 years	275	68.8
>18 years	86	21.5
Scholastic year		
First	135	33.8
Second	132	33.0
Third	133	33.3
Grades of the last year		
F	31	7.8
D	38	9.5
C	98	24.5
B	112	28.0
A	121	30.3
Father's educational level		
Illiterate	0	0.0
Primary	13	3.3
Intermediate	39	9.8
Secondary	107	26.8
University	199	49.8
Postgraduate	42	10.5
Mother's educational level		
Illiterate	26	6.5
Primary	21	5.3
Intermediate	46	11.5
Secondary	88	22.0
University	211	52.8
Postgraduate	8	2.0
Father's employment		
Unemployed/Retired	92	23.0
Employed	308	77.0
Mother's employment		
Housewife/Retired	173	43.3
Employed	227	56.8

Family's monthly Income		
<5000 SR	72	18.0
5000-10000 SR	185	46.3
>10000 SR	143	35.8

About half of students' fathers (49.8%) attained university education, compared with 52.8% of mothers. About one fourth of students' fathers (23%) were unemployed compared with 43.3% of their mothers. The monthly family income of almost half of students (46.3%) was 5000-10000 SR (Table 1). Thirty-eight percent (38%) of male secondary school students were cigarette smokers, 41.2% of them started smoking before the age of 16 years. Cigarettes were obtained mainly by the students themselves (61.4%), while 38.6% of them obtained their cigarettes by friends (Table 2). Table 2 shows that alcohol was taken by 9.3% of male secondary school students. Alcohol intake during the last month by almost half of students (48.6%) was for 1-3 days. More than half of students (56.8%) took alcohol once during the last month. About half of students (51.4%) obtained their alcohol by the help of their friends. Almost half of them (48.6%) became drunk once or twice during the last month. Moreover, more than half of students (56.8%) became exposed to troubles during the last month due to alcohol intake.

Table 2: Characters of smoking and alcohol among male secondary students

Characters	No.	%
Cigarette		
Cigarette smoking		
No	247	61.8
Yes	153	38.3
Age at start of smoking		
<16 years	63	41.2
≥16 years	90	58.8
Sources for obtaining cigarettes		
Obtained by Friends	59	38.6
Obtained by himself	94	61.4
Alcohol		
Alcohol intake		
No	363	90.8
Yes	37	9.3
Frequency of drinking alcohol during the last month		
None	6	16.2
1-3 days	18	48.6
4-7 days	11	29.7
8-21 days	2	5.4

Substance abuse among male secondary school students in Abha City, Saudi Arabia: Prevalence and associated factors

Frequency of daily drinking alcohol		
Once	21	56.8
Twice	15	40.5
Three times	1	2.7
Sources for obtaining alcohol		
Obtained by himself	7	18.9
Obtained by someone	11	29.7
Obtained by a friend	19	51.4
Frequency of being drunk		
Never	7	18.9
Once or twice	18	48.6
More than twice	12	32.4
Frequency of exposure to troubles due to alcohol intake		
Never	13	35.1
Once or twice	3	8.1
More than twice	21	56.8

Table 3 shows that 8.8% of male secondary school students were substance abusers. The main illicit drug was cannabis (51.4%) followed by glue/solvents (48.6%) and amphetamine (45.7%). Routes of intake were mainly through smoking (51.4%) or swallowing (48.6%). Most of these illicit drugs were taken more than three times (57.1%). 4% of male secondary students chew khat. More than one third of students (37.5%) started chewing khat before the age of 16 years. Most of students who chew khat obtain it by friends (43.8%) or by themselves (25%). Khat is being chewed mainly with friends (68.8%) and at night (87.5%).

Table 3: Characters of illicit drug intake and khat chewing among male secondary students

Characters	No.	%
Illicit Drugs		
Intake of illicit drugs		
No	365	91.3
Yes	35	8.8
Type of illicit drugs taken		
Cannabis	18	51.4
Glue/solvents	17	48.6
Amphetamine	16	45.7

Table 4: Prevalence of different substance abuse among male secondary students according to their personal characteristics

Cigarette Smoking	Alcohol Intake	Illicit Substance Abuse	Khat Chewing
-------------------	----------------	-------------------------	--------------

Route of illicit drugs intake		
Swallowing	17	48.6
Sniffing	15	42.9
Smoking	18	51.4
Frequency of taking illicit drugs		
Once	4	11.4
Two or three times	10	28.6
More than three times	20	57.1
Khat		
Chewing khat		
No	384	96.0
Yes	16	4.0
Age at start of khat intake		
<16 years	6	37.5
≥16 years	10	62.5
Sources for obtaining khat		
Obtained by friends	7	43.8
Obtained by himself	4	25.0
Others	5	31.3
Place for taking khat		
At home	5	31.3
With friends	11	68.8
Usual time for chewing khat		
Afternoon	2	12.5
Night	14	87.5

Table 4 shows that prevalence of cigarette smoking was significantly higher among older students ($p=0.001$) and third year students ($p=0.020$) and those who had lower grades in the last year ($p<0.001$). Prevalence of alcohol intake was higher among older students. However, differences were not statistically significant. Prevalence of alcohol intake was significantly higher among third year students ($p=0.036$) and those who had lower grades in the last year ($p<0.001$). Also prevalence of illicit drugs abuse was higher among older students ($p=0.001$), third year students ($p=0.117$) and those who had lower grades in the last year ($p=0.006$). The prevalence of khat chewing was higher among older students ($p=0.276$), third year students ($p=0.292$) and those who had lower grades in the last year ($p=0.003$).

Characteristics	Cigarette Smoking				Alcohol Intake				Illicit Substance Abuse				Khat Chewing							
	Yes		No		Yes		No		Yes		No		Yes		No					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
Age Groups																				
<17 years	10	25.6	29	74.4	1	2.6	38	97.4	10	25.6	29	74.4	1	2.6	38	97.4				
17-18 years	96	34.9	179	65.1	24	8.7	251	91.3	96	34.9	179	65.1	9	3.3	266	96.7				
>18 years	47	54.7	39	45.3	0.001	12	14.0	74	86.0	0.109	47	54.7	39	45.3	0.001	6	7.0	80	93	0.276
Scholastic year																				
First	42	31.1	93	68.9		11	8.1	124	91.9		8	5.9	127	94.1		5	3.7	130	96.3	
Second	48	26.4	84	63.6		7	5.3	125	94.7		10	7.6	122	92.4		3	2.3	129	97.7	
Third	63	47.4	70	52.6	0.020	19	14.3	114	85.7	0.036	17	12.8	116	87.2	0.117	8	6.0	125	94	0.292
Grades of the last year																				
F	17	54.8	14	45.2		6	19.4	25	80.6		5	16.1	26	83.9		4	12.9	27	87.1	
D	21	55.3	17	44.7		9	23.7	29	76.3		7	18.4	31	81.6		4	10.5	34	89.5	
C	51	53.0	47	48.0		15	15.3	83	84.7		10	10.2	88	89.8		4	4.1	94	95.9	
B	42	37.5	70	62.5		7	6.3	105	93.8		11	9.8	101	90.2		4	3.6	108	96.4	
A	22	18.2	99	81.8	<0.001	0	0.0	121	100.0	<0.001	2	1.7	119	98.3	0.006	0	0.0	121	100.0	0.003

Table 5 shows that prevalence of cigarette smoking was least among students whose father had intermediate education (p=0.047), whose mother had primary level of education (p=0.292), unemployed father (p=0.205), unemployed mother (p=0.011) and students with family monthly income less than 5000 SR (p=0.049). The prevalence of cigarette smoking was least among students whose father had primary education (p=0.806), whose mother had primary level of education (p=0.014), unemployed father (p=0.303), unemployed mother (p=0.002) and students with family monthly income less than 5000 SR (p=0.123). The prevalence of illicit drugs abuse was

least among students whose father had primary education (p=0.048), whose mother had intermediate level of education (p=0.029), unemployed father (p=0.034), unemployed mother (p=0.011) and students with family monthly income less than 5000 SR (p=0.160). Prevalence of cigarette smoking was least among students whose father had primary education (p=0.511), whose mother with low levels of education (p<0.001), unemployed father (p=0.680), unemployed mother (p<0.011) and students with family monthly income less than 5000 SR (p=0.018).

Table 5: Prevalence of different substance abuse among male secondary students according to their personal characteristics

Characteristics	Cigarette Smoking				Alcohol Intake				Illicit Substance Abuse				Khat Chewing							
	Yes		No		Yes		No		Yes		No		Yes		No					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
Father's Educational Level																				
Primary	6	46.2	07	53.8	0	0.0	13	100.0	0	0.0	13	100.0	0	0.0	13	100.0				
Intermediate	10	25.6	29	74.4	4	10.3	35	89.7	2	5.1	37	94.9	1	2.6	38	97.4				
Secondary	32	29.9	75	70.1	9	8.3	98	91.6	5	4.7	102	95.3	2	1.9	105	98.1				
University	89	44.7	110	55.3	20	10.1	179	89.9	26	13.1	173	86.9	11	5.5	188	94.5				
Postgraduate	16	38.1	26	61.9	0.047	4	9.5	38	90.5	0.806	2	4.8	40	95.2	0.048	2	4.8	40	95.2	0.511

Substance abuse among male secondary school students in Abha City, Saudi Arabia: Prevalence and associated factors

Mother's Educational Level																				
Illiterate	11	42.3	15	57.7		2	7.7	24	92.3		3	11.5	23	88.5		0	0.0	26	100.0	
Primary	5	23.8	16	76.2		0	0.0	21	100.0		2	9.5	19	90.5		0	0.0	21	100.0	
Intermediate	18	39.1	28	60.9		3	6.5	43	93.5		1	2.2	45	97.8		0	0.0	46	100.0	
Secondary	28	31.8	60	68.2		4	4.5	84	95.5		5	5.7	83	94.3		1	1.1	87	98.9	
University	86	40.8	125	59.2		25	11.8	186	88.2		21	10.0	190	90.0		12	5.7	199	94.3	
Postgraduate	5	62.5	3	37.5	0.292	3	37.5	5	62.5	0.014	3	37.5	5	62.5	0.029	3	37.5	5	62.5	<0.001
Father Employment																				
Unemployed/Retired	30	32.6	62	67.4		6	6.5	86	93.5		3	3.3	89	96.7		3	3.3	89	96.7	
Employed	123	39.9	185	60.1	0.205	31	10.1	277	89.9	0.303	32	10.4	276	89.6	0.034	13	4.2	295	95.8	0.680
Mother Employment																				
Housewife/Retired	54	31.2	119	68.8		7	4.0	166	96.0		8	4.6	165	95.4		0	0.0	173	100.0	
Employed	99	43.6	128	56.4	0.011	30	13.2	197	86.8	0.002	27	11.9	200	88.1	0.011	16	7.0	211	93.0	<0.001
Family's Monthly Income																				
<5000 SR	23	31.9	49	68.1		3	4.2	69	95.8		3	4.2	95.8	95.8		1	1.4	71	98.6	
5000-10000 SR	64	34.6	121	65.4		16	8.6	169	91.4		21	11.4	88.6	88.6		4	2.2	181	97.8	
>10000SR	66	46.2	77	53.8	0.049	18	12.6	125	87.4	0.123	11	7.7	92.3	92.3	0.160	11	7.7	132	92.3	0.018

Discussion

The global reports of the World Health Organization on substance use show a consistent increasing trend in the use of both illicit and licit substances and the Arabic countries are not exception, despite the social, cultural and religious unacceptability in these countries [19]. Results of the present study showed that more than one third of male secondary school students in Abha City (38.3%) smoke cigarettes, 9.3% drink alcohol, 8.8% abuse illicit drugs, (most of which are cannabis followed by glue/solvents and amphetamine), and 4% of the students chew khat. The high prevalence of smoking among male secondary school students in Abha City is not surprising. Fida and Abdelmoneim noted that despite its decline in developed countries, the rate of smoking in developing countries is still high [20].

Several studies consistently reported the high prevalence of smoking among male students in Saudi Arabia. Bassiony reported that prevalence of current smoking among school students ranged from 12% to 29.8% [21]. Almutairi noted that prevalence of smoking is in higher rates among Saudi students [22]. The age of smoking was started among adolescents ranged from 10 to 15 years old. The main reason for smoking among adolescents was influence by friends. This study revealed that 41.2% of male secondary school students started

smoking before reaching 16 years of age. In addition, the prevalence of cigarette smoking was significantly higher among older students. This finding is in accordance with that of Mandil et al. who reported that cigarette smoking is increasing among young people, especially in Gulf nations such as Saudi Arabia [23].

The start of smoking at an early age adds to the problem. The Centers for Disease Control and Prevention (2006) stated that when a person begins to smoke before the age of 18 years, he is likely to continue into adulthood and quitting becomes more difficult [24]. These findings reflect the fact that substance abuse constitutes a sweeping pandemic among adolescents. Gillum et al. noted that it is interesting to observe how a conservative society such as the Saudi society, where smoking was socially, traditionally, and above all religiously banned, has been affected by the tobacco smoking pandemic to reach such high prevalence levels [25]. This study indicated that alcohol was taken during the last month by almost half of students, about half of students obtained their alcohol by the help of their friends and almost half of them became drunk once or twice during the last month.

In USA, Bachman et al. reported that 80% of secondary school students have tried alcohol at least once, and 62% reported having been drunk at least once. One-half of high school seniors reported drinking alcohol in the previous thirty days

[26]. Jeram emphasized the role of friends in substance abuse among secondary school students [9]. He stated that since "birds of a feather flock together", students who abuse drugs will most probably have friends with similar habits in their peer group. The greater the student's involvement with friends, that smoke, consume alcohol, or abuse drugs, the greater his chances of becoming addicted. In Arab countries, the most commonly misused substances are alcohol, heroin and cannabis [27]. Other studies have also reported the misuse of barbiturates, amphetamines, cocaine, Khat and solvents told that cannabis and khat are seen as substances traditionally used in the Middle East and known to the region since ancient times. Khat use in Yemen has been recorded in history since the 13th Century [28,29].

About two thirds of male secondary school students in the present study could obtain their cigarettes by themselves, while the friends of one third of students provided cigarettes to them. Fida and Abdelmoneim stated that, nowadays, about half of the population in Saudi Arabia is thought to be smokers and the country ranks fourth in cigarette import worldwide, with an annual increase of around 3% of tobacco consumption [30]. Meanwhile, there are no regulations to prevent Saudi youth from purchasing or using tobacco, which is being freely sold at a relatively low cost. Mandil et al. added that the most important independent predictors of smoking were: friends' smoking [31]. Moreover, Almutairi noted that the main reason for smoking among adolescents was influence by friends [32].

Results of the present study showed male secondary school students who smoke cigarette, drink alcohol, abuse illicit drug or chew khat had significantly lower grades than their colleagues who do not. Donald et al. explained this finding by that secondary school students who abuse drugs usually experience deterioration in academic performance [33]. They achieve low grades and may display hostile, defiant and uncooperative behavior toward others in school. Our study indicated that prevalence rates for all studied forms of substance abuse were highest among students whose parents had higher education, among students with employed mothers and those with high monthly family income.

Kingendo stated that the social-economic set-up of a child influences his/her future habits. The high prevalence of substance abuse among students of employed mothers has been explained by Kingendo, who stated that the prevalence of substance abuse is affected by the social norms, including level of parental supervision, lack of punishment for alcohol and drug offences, and portrayals of alcohol and other drug use by friends and the media as a glamorous and healthy activity, prices (economic availability), and personal values (subjective availability) [34]. Kind M, Haisken-DeNew JP in their study shows that the parent's specific reason for entry into unemployment plays a crucial role in assessing the negative (or positive) impact of parental unemployment on sons or daughters [35]. Higher substance abuse among students of employed mothers and those within high monthly income families can be explained by that employed mothers become inevitably busy with their jobs and neglect their children.

Moreover, students within high monthly income families usually get higher daily stipends that would allow them to buy cigarettes or illicit drugs, privilege that is lacking in students whose families have low income.

All the indications are that prevalence rates of substance misuse in Arab countries are changing rapidly. It has been suggested that alcohol and substance misuse may be increasing within the Arab region as a result of the unprecedented rapid economic development. The geographical proximity to opiate-producing countries such as Afghanistan, the young age of the population, the social changes and stresses associated with it, have all been attributed to increase in substance misuse in Arab countries. There is an urgent need for research to look at how these risk factors contribute to the picture independently or through their interaction in different countries [36,37].

Conclusions

Based on the findings of this study, it is concluded that prevalence of substance abuse among male secondary school students in Abha City is quite high. Students start smoking at an early age. Prevalence of substance abuse increases with students' age. The students mainly obtain the substance by themselves but sometimes the help of friends may be needed. Students with substance abuse show significantly lower academic achievements. Employment of mothers significantly increases substance abuse among their children. Students in families with high monthly income have significantly higher susceptibility to substance abuse.

Recommendations

Based on the findings of this study, the following is recommended:

- School health programs should screen for substance abuse among all students.
- Parents should not become engaged with their own work to the extent that would make them neglect their children.
- Parents should observe their children and keep an eye on what they buy.
- Teachers should explore the reason(s) for any decline in the student's academic achievement.
- Appropriate substance abuse control programs on adolescent should be initiated.

Acknowledgement

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

References

1. Cicero TJ, Shores CN, Paradis AG, Ellis MS. Source of Drugs for Prescription Opioid Analgesic Abusers: A Role for the Internet? *Pain Medicine* 2008; 9: 718–23.
2. Colliver, JD, Kroutil LA, Dai L, Gfroerer JC. Misuse of Prescription Drugs: Data From the 2002, 2003, and 2004 National Surveys on Drug Use and Health. Rockville, Maryland: Office of Applied Studies, 2006.
3. Baldisseri MR. Impaired Healthcare Professional. *Critical Care Medicine* 2007; 35: S106-16.
4. Surratt HL, Inciardi JA, Kurtz SP. Prescription Opioid Abuse Among Drug-Involved Street-Based Sex Workers. *J Opioid Management* 2006; 2: 283-98.
5. Isa MM, El-Sabbagh OI. Alert Addiction among Young Students in Taif City in Western Area of Saudi Arabia. *International Journal of Scientific and Research Publications* 2014; 4: 1-8.
6. World Health Organization/World Health Organization Regional Office for the Eastern Mediterranean Questionnaire for Regional Situation Analysis on Drug Abuse. Cairo, WHO, Regional Office for the Eastern Mediterranean. 2003
7. Stalker K, McArthur K. Child Abuse, Child Protection and Disabled Children: A review of recent research. *Child Abuse Review* 2012; 21: 24-40.
8. Donald D, Lowana P, Lazarus S. Educational psychology in social context. Pretoria: Oxford 2002.
9. Jeram RH. Substance Abuse amongst Secondary School Learners. Master Thesis in Education. Department of Educational Psychology, Faculty of Education, University of Zululand, South Africa, 2009.
10. Bezuidenhout TJ. A reader on selected social issues: Pretoria: Van Schaik Publishers, 2004.
11. Schatz MB. The Effects of Emotional Regulation Strategies on Substance Abuse Disorders in an Outpatient Population. PhD Thesis, Psychology Department, Walden University Minnesota, USA, 2013.
12. Alibrahim O, Elawad N, Misau YA, Shaikh TM, Allam N. Psychotic symptoms: a retrospective study of adolescents who abuse drugs at Al-Amal Hospital in Jeddah, Saudi Arabia. *Journal of Public health in Africa* 2012; 3: e5
13. Saudi Arabia: largest cities and towns and statistics of their population". *World Gazetteer*. Retrieved 27 August 2012.
14. Aleissa EI. The frequency of health-related behaviors among Saudi adolescents visiting primary health care centers in Riyadh city. *J Family Community Med* 2001; 8: 19-26.
15. State and Local Youth Risk Behavior Survey (YRBS), 2007 Apr; Available from: www.cdc.gov
16. Global School- Based Student Health Survey (GSHS). 2005; Available from www.who.org.
17. Al-Turkistani W. Household media and its association with healthy risk habits and behaviours among adolescents in Taif, Saudi Arabia. A thesis submitted for Saudi Board in Family and Community Medicine, 2007
18. Alsanosy RM, Mahfouz MS, Gaffar AM . Khat Chewing Habit among School Students of Jazan Region, Saudi Arabia. *PLoS ONE* 2013; 8: e65504.
19. World Health Organization/World Health Organization Regional Office for the Eastern Mediterranean Questionnaire for Regional Situation Analysis on Drug Abuse. Cairo, WHO, Regional Office for the Eastern Mediterranean 2003
20. Fida HR, Abdelmoneim I. Prevalence of smoking among male secondary school students in Jeddah, Saudi Arabia. *J Family Community Med* 2013; 20: 168–172.
21. Bassiony MM. Smoking in Saudi Arabia. *Saudi Med J*. 2009;30: 876-81.
22. Almutairi KM. Smoking among Saudi students: a review of risk factors and early intentions of smoking. *J Community Health*. 2014; 39: 901-7.
23. Mandil A, BinSaeed A, Dabbagh R, Shaikh SA, AlSaadi M, Khan M. Smoking among Saudi university students: consumption patterns and risk factors. *East Mediterr Health J* 2011; 17: 309-16.
24. Centers for Disease Control and Prevention (CDC) Use of cigarettes and other tobacco products among students aged 13-15 years worldwide, 1999-2005. *MMWR Morb Mortal Wkly Rep* 2006; 55: 553–6.
25. Gillum F, Obisesan TO, Jarrett NC. Smokeless tobacco use and religiousness. *Int J Environ Res Public Health* 2009; 6: 225–31.
26. Bachman, G, Johnston L, Patrick M, O'Malley, Jerald G. Monitoring the Future National Results on Adolescent Drug Use: Overview of Key Findings 2000.
27. Al-Haqwi AI. Perception among medical students in Riyadh, Saudi Arabia, regarding alcohol and substance abuse in the community: a cross-sectional survey. *Subst Abuse Treat Prev Policy* 2010; 5: 2
28. Al-Kandari FH, Yacoub K, Omu FE. Effect of drug addiction on the biopsychosocial aspects of persons with addiction in Kuwait: Nursing implication. *Journal of Addiction Nursing* 2007; 18: 31-40.
29. Al-Marri T, Oei TP. Alcohol and substance use in the Arabian Gulf Region: A Review. *International Journal of Psychology*. 2009; 44(3):222-33.
30. Fida HR, Abdelmoneim I. Prevalence of smoking among male secondary school students in Jeddah, Saudi Arabia. *J Family Community Med*. 2013; 20(3): 168–172.
31. Mandil A, BinSaeed A, Dabbagh R, Shaikh SA, AlSaadi M, Khan M. Smoking among Saudi university students: consumption patterns and risk factors. *East Mediterr Health J*. 2011;17(4):309-16.
32. Almutairi KM. Smoking among Saudi students: a review of risk factors and early intentions of smoking. *J Community Health*. 2014; 39: 901-7.
33. Donald D, Lowana P, Lazarus S. Educational psychology in social context. Pretoria: Oxford, 2002.
34. Kingendo M. Incidence and Extent of Substance Abuse among Secondary School Students in Nairobi Province, Kenya: Implications for Specialised Intervention. A Thesis

- Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the School of Education, Kenyatta University, 2010.
35. Kind M, Haisken-DeNew JP. Unexpected Victims: How Parents' Unemployment Affects Their Children's Life Satisfaction. Melbourne Institute Working Paper No. 2/12, February 2012.
 36. Al-Harhi A, Al Adawai A. Enemy within? The silent epidemic of substance dependency in GCC countries. Sultan Qaboos University Journal for Scientific Research: Medical Science 2002; 4: 1-7.
 37. Al-Houqani M, Raghil A, Hajat C. Tobacco Smoking Using Midwarkh is an Emerging Health Problem: Evidence

form a large Cross-sectional Survey in the United Arab Emirates. PLoS ONE 2012; 7: e39189.

***Correspondence to**

Hassan M. Al-Musa
Family and Community Medicine
Department College of Medicine,
King Khalid University
Saudi Arabia