

Prevalence, Pattern and Familial Effects of Substance Use Among the Male College Students –A North Indian Study

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ABSTRACT

Introduction: Substance use refers to the use of any psychoactive substance or drug, including licit and illicit drugs, other than when medically indicated. Psychoactive substance use poses a threat to the health, social and economic fabric of families, communities and nations. Chandigarh has more than 0.2 million students from across the country pursuing their courses in higher education institutions. There is a very little information about pattern of drug dependence among the college students of Chandigarh.

Objectives: To study the prevalence and pattern of substance use among college students of Chandigarh and to study the psycho-social behaviour of youth and perceived reasons for using substances.

Material and Methods: A Cross - sectional community based study. A stratified multi-stage random sample design was adopted in study. The study instrument was a questionnaire which was developed by reviewing relevant literature and previously used standardized instruments and protocols including the WHO questionnaire. On the basis of 60% prevalence anticipated on the basis of pilot study, 90% confidence coefficient and 10% permissible error – sample size came out to be 256.

Results: Prevalence of substance use was seen in 52.7% students belonging to age group 19 to 21 years. More prevalence

of substance use was found among law students (76.2%) followed by the students from Art stream (62.5%). Among the users alcohol was most commonly used (53.5%), followed by smokers (27.3%), tobacco chewers (8.2%), cannabis (6.8%). 49% of the users were using substances on daily basis, followed by 23% who using weekly. 29.3% of users had father using any substance. Relief from psychological stress (66.0%) followed by easy availability (46.9%) were the most common reasons of substance abuse. that substances use is common among college going male students irrespective of their social demographic characteristics like age [OR 0.76, 95%CI (.443-1.317)] religion [OR.859 95%CI (.461-1.598)], parental education, occupation and socio-economic status. Therefore, interventions in terms of health education/counselling for reducing substance use among them should be adopted, irrespective of their socio-demographic characteristics.

Suggestions: This study suggested some life style related interventions in order to reduce the problem of substance use. There is an utmost need to educate and counsel young students regarding harmful effects of substance use. Health education may be imparted in the school curriculum. Parents should also be educated on discouragement of substance use and on taking proper care of their children.

Key words: Substance abuse, College students, Drug dependence, Familial effects

INTRODUCTION

Substance use refers to the use of any psychoactive substances or drugs, which include licit and illicit drugs, other than which are medically indicated [1,2]. Psychoactive substance use poses a threat to the health and social and economic fabric of families, communities and nations [3]. Drug dependence is a growing problem, consequences of drug dependence cost the community heavily and they form a major health problem [4]. This habit not only affects health, education and occupational career, but it also incurs a huge financial and social burden on the society [5].

Epidemiological surveys which were carried out in the last three decades to assess the prevalence of alcohol and drug users in general population in India have revealed that 20-40% of subjects who were above 15 years were current users of alcohol and that 10% of them were regular or excessive users [6-8]. Varma et al., found that rates of current use of alcohol in Punjab were 45.9% in Jalandhar and 27.7% in Chandigarh, India [9]. Many surveys were conducted on school students and medical students in the past few years, to determine the prevalence of substance use and its pattern. However, a few studies exist on the substance use pattern among the college students who belong to different academic backgrounds and familial effects of the substance abuse [10]. Chandigarh is a city and a union territory in India that serves

as the capital of two states, Punjab and Haryana, India. It has a population of 1.1 million people. Chandigarh is the educational hub of north India, with more than 0.2 million students from across the country pursuing their courses in higher education institutions. Only very little information is available on pattern of drug dependence among the college students of Chandigarh, India. The main objectives of the study were to assess the prevalence, pattern and familial effects of substance use among the male college students of Chandigarh and to assess the psychosocial behaviour of youth and perceived reasons for using substances.

MATERIAL AND METHODS

Study design– A cross - sectional community based study was conducted among the male college students of Chandigarh, India.

Operational definition– We defined 'substance' as any psychoactive substance or drug and 'substance use' as the use of any psychoactive substance or drug other than which was medically indicated.

A respondent was considered to be a user if he/she had used the substance in the past one month.

Data Collection: The study instrument was a questionnaire which was specifically designed/ developed with slight modifications in

regional context, by reviewing relevant literature and previously used standardized instruments and protocols which included the WHO questionnaire [2].

The questions were divided into following sections: (i) socio-demographic characteristics (like age, educational, status, religion, caste, occupation and education of parents, family background and social background) and (ii) substance use (duration of use, family history of substance abuse, perceived reasons of substance use, perceived reliefs and harmful effects of substance use). The questionnaire also included different names of drugs, sources of their introduction and reasons for taking them. The information on frequency and amount of substance use was also collected. The survey questionnaire was constructed and administered in English, Hindi and Punjabi and it was used, depending upon the understanding and choice of the respondent. The questionnaire was pretested and appropriate revisions were made before the actual data collection. A pilot study was also conducted before the actual data collection.

Sampling design – A stratified, multi-stage, random sample design was adopted in study. Two strata were formed on the basis of type of college—professional (medical, engineering) and non professional courses. Within each stratum, a sample of respondents of an optimum size with a proportional allocation, were interviewed.

Period of study: June–August 2010.

Optimum sample size and procedure – On the basis of a 60% prevalence which was anticipated on the basis of a pilot study which was done, 90% confidence coefficient and 10% permissible error—sample size came out to be 256. Accordingly, 256 male college going students from different colleges were interviewed by using an interview schedule (Sample size was further subdivided into different subcategories, based on the professional courses in the ratio of course specific number of students by the total number of the students in the college. These details could not be given in the methodology, to be precise).

Inclusion Criterion

Respondents were selected according to the following inclusion criteria: unmarried males who attended college/ universities, who were willing to participate in the study and were capable of giving answers themselves or through any close respondent.

Exclusion Criterion

Individuals were excluded depending upon following criteria a) Female individuals b) Married individuals c) Those who did not attend any college/university and d) Those who were suffering from any major physical/mental disorder. (Exact number of the students which was excluded was not available, as the students were excluded on the basis of either of the criterion and as they were not interrogated further. However, very few students came under exclusion criterion 'd'.)

Only those respondents who were willing to participate in the study were included. Confidentiality of the responses was ensured. All ethical guidelines of World Medical Organization, Declaration of Helsinki 48, were followed.

Data Analysis – Data were entered and analyzed by using SPSS 12. A simple descriptive analysis was done for the variables which were of interest. Prevalence ratios (PR) with 95% confidence intervals (95% CI) were also calculated. Odds ratios, along with 95% confidence intervals, were calculated. Differences in proportions were assessed by using the Chi-square test of significance. p values of <0.05 were considered as statistically significant, all p values being two-sided.

Ethical Consideration: Participation in the study was voluntary and written informed consents were obtained from all the participants. Confidentiality of the participants was maintained by using anonymous questionnaires.

RESULTS

The present study was conducted among 256, randomly selected (by using random number tables) college going male students in Chandigarh, with the broad objective of studying substance use pattern among them.

Prevalence of Substance Use

Prevalence of substance use was seen in 52.7% students who belonged to age group 19 to 21 years. Age was found to be significantly associated with substance abuse ($p=0.01$) [Table/Fig-1].

More prevalence of substance use was found among law students (76.2%), followed by the students from Art stream (62.5%). Surprisingly, medical students had a comparatively lower prevalence of substance abuse (50.0%) [Table/Fig-2].

It was observed that substance use was comparatively more among students whose fathers had low literacy rates [Table/Fig-3].

More prevalence of substance use was found among students whose mothers were educated up to primary level [Table/Fig-4].

Among 206 respondents who were from nuclear families, 119 (57.8%) were found to be substance users, whereas among 50 respondents who were from joint families, 28 (56.0%) were found to be substance users. However, the difference between prevalence rates of substance use among respondents who belonged to nuclear families was not found to be significantly higher as compared to that among respondents who belonged to joint families ($p>0.10$) [Table/Fig-5].

Pattern of substance use

Among the users, alcohol users were most common (53.5%), followed by smokers (27.3%), tobacco chewers (8.2%), cannabis users (6.8%), opiate users (3.4%) and solvent users (1.3%). None of the students reported use of cocaine, amphetamine, sedatives or heroin. 24.2% smoked cigarettes, whereas 2.7% smoked bidis. No student reported injections as a source of drug abuse [Table/Fig-6].

Behaviour Pattern of substance users 49% of the users used substances on a daily basis, followed by 23% who used them weekly. 29.3% users had fathers who used some substance or the other, while 63.2% reported no usage of any substance by any member in the family.

The occupations of the fathers did not have much effect on the pattern of substance use. However, among students whose

Age in years	Substance Abuse		Total	$\chi^2 = 9.1$ ($p=0.01$)
	Yes	No	No. (%)	
	No. (%)	No. (%)		
16 – 18	03 (20.0)	12 (80.0)	15 (5.9)	
19 – 21	81 (60.0)	54 (40.0)	135 (52.7)	
22 – 25	63 (59.4)	43 (40.6)	106 (41.4)	
Total	147 (57.4)	109 (42.6)	256 (100.0)	

[Table/Fig-1]: Substance Use by Age

Discipline	Substance Use		Total
	Yes	No	No. (%)
	No. (%)	No. (%)	
Medical	32 (50.0)	32 (50.0)	64 (25.0)
Arts	15 (62.5)	09 (37.5)	24 (9.4)
Commerce	03 (60.0)	02 (40.0)	05 (1.9)
Engineering	57 (62.0)	35 (38.0)	92 (35.9)
Science	19 (48.7)	20 (51.3)	39 (15.2)
Law	16 (76.2)	05 (23.8)	21 (8.2)
Others	05 (45.5)	06 (54.5)	11 (4.3)
Total	147 (57.4)	109 (42.6)	256 (100.0)

[Table/Fig-2]: Substance Use by Academic Course

Education	Substance Use		Total No. (%)
	Yes	No	
	No. (%)	No. (%)	
Illiterate	02 (40.0)	03 (60.0)	05 (1.9)
Primary	03 (75.0)	01 (25.0)	04 (1.6)
Junior high school	05 (100.0)	0	05 (1.9)
High school	09 (56.3)	07 (43.8)	16 (6.2)
Intermediate	05 (41.7)	07 (58.3)	12 (4.7)
Graduate	76 (63.9)	43 (36.1)	119 (46.5)
Postgraduate /others	47 (49.5)	48 (50.5)	95 (37.1)
Total	147 (57.4)	109 (42.6)	256 (100.0)

[Table/Fig-3]: Substance Use by Father's Education

Education	Substance Use		Total No. (%)
	Yes	No	
	No. (%)	No. (%)	
Illiterate	05 (50.0)	05 (50.0)	10 (3.8)
Primary	12 (85.7)	02 (14.3)	14 (5.5)
Junior high school	02 (66.7)	01 (33.3)	03 (1.2)
High school	18 (60.0)	12 (40.0)	30 (11.7)
Intermediate	08 (57.1)	06 (42.9)	14 (5.5)
Graduate	65 (62.5)	39 (37.5)	104 (40.6)+
Postgraduate /others	37 (45.7)	44 (54.3)	81 (31.6)
Total	147 (57.4)	109 (42.6)	256 (100.0)

[Table/Fig-4]: Substance Use by Mother's Education

Type of Family	Substance Use		Total No. (%)
	Yes	No	
	No. (%)	No. (%)	
Nuclear	119 (57.8)	87 (42.2)	206 (80.5)
Joint	28 (56.0)	22 (44.0)	50 (19.5)
Total	147 (57.4)	109 (42.6)	256 (100.0)
			(p>0.10)

[Table/Fig-5]: Substance Use by Type of Family

mothers were housewives, 53% used substances as compared to 63.6% students whose mothers were in some profession [Table/Fig-7]. Substance use was reported in 57.4% students where a familial history of substance use was present, as compared to 42.6% students who had no familial history. Among the family members, use of substances by the fathers of the students who used substances, was reported in 72% cases [Table/Fig-8].

Ninety four percent of the users used pocket money for buying substances. 8.8% reported that they had started using substances at ages of less than 10 years. 97.3% were aware about the ill effects of substance use. 48.3% said they had tried to stop using substances at some time or the other. 4.1% said they had undergone counseling for discontinuing substance use. 90.5% of the users shared substances with their friends, while 23% reported that they used them alone. 35.4% said they had discussions with their parents regarding substance use habit. 93.8% believed that substance use had no effect on their family life [Table/Fig-9].

Relief from psychological stress (66.0%), followed by an easy availability (46.9%) were the most common reasons for substance abuse. 45.6% used these substances under influence of peers [Table/Fig-10].

The most common perceived reason in favour of consuming alcohol was reduction in psychological stress (66.0%), while easy availability was the next common reason (46.9%). Affordability, peer influence and reduction in tiredness were also among the common reasons. In spite of rapidly changing lifestyles in Chandigarh, family permission did not come out to be the common reason which was in favour of increasing use of alcohol (6.8%) [Table/Fig-11].

Types of Substance	No.	% (N=256)
Smoking	70	27.3
a) Cigarette	62	24.2
b) Bidi	07	2.7
Alcohol	137	53.5
Cannabis	10	3.9
Opiates	05	1.9
Alprazolam	03	1.1
Solvents	02	0.7
Anabolic Steroid	01	0.4
Chewing Tobacco	21	8.6
a) Tobacco	08	3.1
b) Panmasala/Guthka/Betel	09	3.5
c) Surti / Kheni	05	2.0
Total	147	57.4

[Table/Fig-6]: Prevalence Rate of Different Substances Used

Occupation		Do you use any substance		
		YES(%)	NO(%)	Total
Father	Service	91(57.6)	67(42.4)	158(100)
	Others	56(57.1)	42(42.9)	98(100)
Mother	Housewife	79(53.0)	70(47)	149(100)
	Others	68(63.6)	39(36.4)	107(100)

[Table/Fig-7]: Substance Use by Parent's Occupation

Family	Do you use any substance		
	YES(%)	NO(%)	Total
Father	43(71.7)	17(28.3)	60(100)
Mother	0(0)	2(100)	2(100)
Both	1(50)	1(50)	2(100)
None	94(52.5)	85(47.5)	179(100)
Others in family	9(69.2)	4(30.8)	13(100)
Total	147(57.4)	109(42.6)	256(100)

[Table/Fig-8]: Substance Use by Familial Addiction

Factors Associated with substance Use

A risk analysis of factors which affected substance use, based on logistic regression, was done. This analysis showed that substance use was common among college going male students, irrespective of their social demographic characteristics like age [OR 0.76, 95%CI (.443-1.317)], religion [OR.859 95%CI (.461-1.598)], parental education, occupation and socio-economic status [Table/Fig-12]. Therefore, interventions in terms of health education/counseling for reducing substance use among them, should be adopted, irrespective of their socio-demographic characteristics. It can be done through inclusion of this topic in school education curriculum and strengthening adolescent health initiatives.

DISCUSSION

Substance use and dependence continue to be a major threat to public health in India. Present study was an attempt which was made to assess the problem of substance use among college going male students, along with its related factors. The problem of substance use is becoming serious day by day, due to varied reasons. Present study reported 57.4% substance users in the studied group. Alcohol and tobacco were the most common substances which were used. 90.5% users used substances in company of their friends and 97.3% were aware about the ill effects of substance use.

Prevalence of drinking was found to be 53.5% and as compared to data on current users from a survey which was done in Indian general population among males, it was found to be higher (21.4%) [11].

Pattern	No.	% (N=147)
Frequency		
a) Daily	72	49.0
b) Twice / thrice in a week	23	15.6
c) Weekly	35	23.8
d) Once in a month	17	11.6
Familial Addiction		
a) Father	43	29.3
b) Mother	02	1.4
c) Others	09	6.1
d) None	93	63.2
Source to manage		
a) Pocket money	138	93.8
b) Other sources	09	6.2
Ever tried to stop		
a) Yes	71	48.3
b) No	76	51.7
Approached for counseling		
a) Yes	06	4.1
b) No	141	95.9
Age at initiation		
a) Below 10 years	13	8.8
b) Above 10 years	134	91.2
Person sharing		
a) Alone	34	23.1
b) Friends	133	90.5
c) Relatives	14	9.5
d) Family members	12	8.2
e) Others	57	38.8
Awareness about ill effects		
a) Yes	143	97.3
b) No	04	2.7
Awareness of legal consequences		
a) Yes	51	34.7
b) No	96	65.3
Discussion with parents		
a) Yes	52	35.4
b) No	95	64.6
Awareness of HIV risk		
a) Yes	134	91.2
b) No	13	8.8
Family life affected		
a) Yes	10	6.8
b) No	137	93.2

[Table/Fig-9]: Behavioural Pattern of Substance Users

The prevalence of smoking was found to be 27.3%. The rates of nicotine use have been decreasing progressively among students, as has been shown by various studies which were done in the west, which is likely to be a result of the powerful preventative nature of public health programmes which were conducted against smoking in general [12].

Prevalence of cannabis usage in current study was 3.9%, which was little higher than 3% which was reported among current male users in an Indian general population survey [11].

Maximum usage of substance (60%) was observed in the age group of 19-21 years.

A large number of studies have been done on medical students and they have shown high prevalence rates of substance use among them [12-15]. In this study, we took representative samples from both professional and non professional courses. We observed that

Perceived reasons	No.	% (N=147)
Reduce psychological stress	97	66.0
Easy availability	69	46.9
Peer Influence	66	44.8
Reduce tiredness	62	42.1
Affordability	57	38.7
Increase sexual power	38	25.8
Gives extra energy	37	25.1
Reduce physical illness	24	16.3
Increase interest in study	23	15.6
Family permission	10	6.8

[Table/Fig-10]: Perceived Reasons of Using Alcohol

Perceived Reason of Substance use	No.	% (N=147)
Relief from psychological stress	97	66.0
Easy availability	69	46.9
Peer influence use	67	45.6
Helpful in reducing tiredness	62	42.2
Recreational use	58	39.5
Affordable	57	38.8
Experimental use	57	39.3
Social acceptability	55	37.4
Increase in sexual activity	38	25.9
Extra energy	37	25.2
Relief from physical illness	24	16.3
Interest in study	23	15.6
Compulsive use	22	15.0
No physical harm	21	14.3
Family permission	10	6.8

[Table/Fig-11]: Perceived Reasons of Substance Use

Risk factor	B	Odds Ratio	p-value
Religion except Hindu	-.152	.859(.461-1.598)	.631
Age above 21 years	-.269	.764(.443-1.317)	.333
Professional courses	-.485	.616(.323-1.172)	.140
Father's education below 8 th	-.239	.788(.163-3.815)	.767
Mother's education below 8 th	-.636	.529(.165-1.695)	.284
Father's occupation except service	-.418	.658(.385-1.126)	.127
Mothers other than housewife	-.163	.849(.479-1.508)	.577
High SES	.154	1.166(.681-1.996)	.575
Constant	.424	1.529	.275

[Table/Fig-12]: Logistic Regression Analysis of Risk Factors of Substance Use

law students had maximum prevalence of substance use (76%), and in medical stream, only 50% showed prevalence of substance use in Chandigarh, India.

It was also observed that substance usage was prevalent among all sub-groups, irrespective of religion, literacy and occupation of parents and other social characteristics. Socio-economic status was also not found to be significantly associated with substance use. This fact may be understood in view of perceived reasons of substance use.

In an individual user, personalized reasons for preferring a particular substance for use is likely to be a more compelling source of information. A perceived relief from psychological stress (66%), easy availability (47%) and peer pressure (45.6%) came out to be the most common reasons for the use of these substances. This showed that increasing tensions in life and adopting changing life styles under peer pressure compelled young students to search for solutions for reducing psychological stress. Also, easy availability and social acceptability of drinking to some extent, gave them an option whether right or wrong. Use of substances like cannabis,

alprazolam, anabolic steroids, and diazepam was also reported in the studied group. Chewing habits are not found to be so common among college students in Chandigarh. Use of desi liquor was not so common among male college students and whisky, rum, beer were some common brands which were used. The prevalence of drug addiction was found to be quite high in the present study (15.6%). Among smokers, bidi was not commonly used.

Connection between substance users and their fathers showed the changing life styles of civilized community in Chandigarh, India. Various other researchers have shown a strong relationship between substance use and family drug usage, family composition, family interaction pattern and discrepancies in family perceptions [16-19]. However, no such data was found by the authors in the Indian context, even after doing extensive research. A majority of students were motivated to use substances by their friends. A majority of abusers had used these substances were than 10 years from their childhood.

Reasons of drinking to be more popular among substances abused were investigated further in detail in the present study. Reducing psychological stress, easy availability, affordability and a perceived enhancement in sexual activity were among the common perceived reasons which were in favour of alcohol use.

Male college students, being young adults, are inherently at a risk of recreational substance use and the stress which is associated with present day education is likely to be a predisposing and a perpetuating factor for addictive behaviour. This study investigated the extent of the problem, the type and nature of the substances which were used and the perceived reasons for the substance use. However, the medical complications, treatment, seeking behaviour and effect of treatment interventions could not be studied. This aspect needs to be taken care of in the future studies. Underreporting and selective participation have been recognized as problems in drug surveys and they may have occurred due to socio cultural and other factors [20]. We tried to minimize these limitations by keeping the questionnaire anonymous.

Suggestions: This study suggested some life style related interventions in order to reduce the problem of substance use. There is an utmost need to educate and counsel young students regarding harmful effects of substance use. Health education may be imparted in the school curriculum. Parents should also be educated on discouragement of substance use and on taking proper care of their children.

The problem should be tackled as an utmost priority and as a public health problem. Some psychological strategies should also be attempted, for reducing the risk and potential loss of productive lives of young students and the society in general. Further large scale studies are desirable, to find out factors which are responsible for increasing substance abuse among college going male students. Female students should also be investigated, as substance abuse may be prevalent among them also, due to the rapidly changing life styles and adoption of western culture.

Limitations

This study had a drawback, that needs to be taken into consideration, when the findings are reviewed. The participants were all male college going students; therefore, it is not representative of all substance users.

Implications of Study

This study may be helpful in understanding a rapidly increasing public health problem which is of national importance and for suggesting probable solutions for reducing this problem. Understanding psycho- social and behavioural aspects of substance users will be helpful in reducing the risk which is caused due to substance use in the potential loss of lives of youths and their careers and also to their families and society in general. This information will also benefit the professionals, for undertaking primary preventive measures.

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