

## Substance abuse amongst the medical graduate students in a developing country

A. Arora<sup>1</sup>, S. Kannan<sup>1,\*</sup>, S. Gowri<sup>2,\*\*</sup>, S. Choudhary<sup>3</sup>, S. Sudarasanan<sup>3</sup> & P.P. Khosla<sup>1</sup>

*Departments of <sup>1</sup>Pharmacology, <sup>3</sup>Psychiatry, Subharti Medical College & Hospital & <sup>2</sup>Prosthodontics Subharti Dental College, Meerut, India*

Received November 18, 2014

**Background & objectives:** Substance abuse is found worldwide including among students. We carried out this study to estimate the prevalence of substance abuse among medical student studying in a medical college in north India.

**Methods:** Using a validated questionnaire a cross-sectional survey was conducted among 230 undergraduate and postgraduate medical students in a private medical college.

**Results:** The prevalence of substance abuse was 20.43 per cent (47/230) among medical students. An increase in substance abuse was observed in the latter years of medical education. A total of 43 of 47 (91.7%) students using these substances were aware of the ill effects. The most common reasons for substance use were relief from psychological stress (34/47, 72.4%) and occasional celebration (34/47, 72.4%). Of the 47 substance users, 28 (59.6%) made past attempts to quit the substance abuse.

**Interpretation & conclusions:** Nearly one-fifth of medical students abuse at least one substance despite knowing the ill effects with the main predisposing factor being the psychological stress.

**Key words** Psychological stress - students - substance abuse

Substance abuse and its associated problems are a global concern. A recent WHO estimate shows a burden of worldwide psychoactive substance use of around 2 billion alcohol users, 1.3 billion smokers and 185 million drug users<sup>1</sup>. Substances such as tobacco, alcohol, cannabis and various allopathic drugs have been widely abused by students for various reasons despite their known ill effects<sup>2</sup>. Studies conducted worldwide<sup>3,4</sup> including India<sup>5-9</sup> have estimated a

prevalence rate of substance abuse to be around 20-40 per cent among students from various streams including the medical field; however, these restrict themselves to tobacco or alcohol use and many of these are gender biased. Hence, the present study was undertaken to estimate the prevalence of substance abuse and associated factors among the medical students in a medical college situated in a semi-urban region of north India.

*Present addresses:* \*Health Sciences & \*\*Oral Health, College of Medicine, Nursing & Health Sciences, Fiji National University, Suva, Fiji

## Material & Methods

After obtaining approval from the Institutional ethics committee of the institute at Subharti Medical College, Meerut, India, the study was conducted between April and July 2014. Only those students pursuing undergraduate and postgraduate courses (MBBS or MD/MS) were included in the study after obtaining their written informed consent.

A structured questionnaire designed and validated in-house was administered to obtain the information. Briefly, the themes under which the questions were asked included demographic details, details of the substance abuse (name, duration, frequency, amount) and its source, attempt to quit in the past, ill-effects and legal consequences of substance abuse, factors associated and the impact on academia. The content validity of the questionnaire was checked by experts of qualitative research and the two-week test-retest reliability was checked in an initial group of 30 students. Cronbach's alpha was used to check the reliability of the questionnaire during the initial validation and a value of 0.82 was obtained for each question.

With 5 per cent precision and alpha error and an estimated prevalence of 20 per cent using Daniel's formula for sample size calculation<sup>10</sup>, 230 students were recruited. Descriptive analysis was used for analyzing various categorical variables. Chi-square test was used to analyse the association of various categories. Confidence interval (95%) for the overall prevalence of substance abuse was estimated.

## Results & Discussion

Of the 230 students, 110 (47.8%) were males and 120 (52.2%) were females; majority being hostellers (212, 92.1%). The use of various substances was seen in 47 [20.43%, 95% CI (15.7, 26.1)] students; the prevalence being significantly ( $P < 0.001$ ) higher in males (33/110, 30%) as compared to females (14/120, 11.67%) even though there were more females in the study sample (Table). A trend towards increased proportion of substance abuse was observed in the latter years of medical education. Various substances used by the study participants included alcohol (44, 19.13%), cigarettes (23, 10%), cannabis (smoking) (10, 4.34%), *bhang* (8, 3.48%), tobacco (chewing) (5, 2.17%) and other substances (gel and drugs) (5, 2.17%). Most of the abusers used more than one substance. A total of 43 of 47 (91.7%) users were using these substances despite knowing the ill effects of the substances and their legal consequences. This was similar to a recent

**Table.** Demographic details of the participants with substance abuse (n=47)

	Number (%)	P value
<b>Gender</b>		
Male (n=110)	33 (30)	0.001
Female (n=120)	14 (11.67)	
<b>Religion</b>		
Hindu (n=208)	44 (21.2)	0.2
Muslim (n=12)	1 (8.34)	
Jain (n=5)	1 (20)	
Sikh (n=1)	1 (100)	
Not revealed (n=4)	0	
<b>Year of MBBS</b>		
1 <sup>st</sup> (n=94)	7 (7.45)	<.001
2 <sup>nd</sup> (n=79)	14 (17.7)	
3 <sup>rd</sup> (n=13)	4 (30.8)	
4 <sup>th</sup> (n=11)	7 (63.7)	
Internship (n=8)	5 (62.5)	
Postgraduate (n=10)	5 (50)	
Not revealed (n=15)	3 (20)	
<b>Place of stay</b>		
Hostel (n=212)	46 (21.7)	0.2
Residence (n=18)	1 (5.6)	
<b>Father's education</b>		
Uneducated (n=16)	2 (12.5)	0.07
Up to XII (n=9)	2 (22.2)	
Doctor/paramedics (n=94)	27 (28.7)	
Graduates (n=111)	16 (14.4)	
Mother's education*		
Uneducated (n=26)	5 (19.2)	
Up to XII (n=43)	5 (11.6)	
Doctor/paramedics (n=61)	16 (26.3)	
Graduates (n=9)	1 (11)	

\*Information available only for 139 mothers

study that assessed the psychosocial attribute of those with substance abuse and those without and reported that more than 75 per cent of the users used substances for 'feel good factor' and were using despite knowing their harmful effects<sup>11</sup>. The most common reason reported in the present study for using such substances was relief from psychological stress (34/47, 72.4%) and occasion celebration (34/47, 72.4%) followed by to reduce tiredness (22/47, 46.8%), peer pressure (20/47, 42.6%), easy availability (20/47, 42.6%), experimental use (17/47, 36.2%) and community acceptance (16/47,

34.1%). Of these, 28 (59.6%) made attempts to quit the use of concerned substance but had been unable to maintain abstinence. Also, 19 of 47 (40.4%) students said that they had experienced ill effects of substance use of which eight had physical complaints; five had problems with the family relationships and four had impaired academic performance.

Studies done in India<sup>12-15</sup> and in other countries<sup>16-19</sup> have revealed similar prevalence and pattern of substance abuse among medical students and other college students<sup>20</sup>. A study from India noted nearly 50 per cent of the undergraduate medical students reporting experiencing stress of variable severity, predisposing to substance abuse<sup>13</sup>. A higher proportion of children were found to be using any of the substances when one or both of their parents were doctors or para-medical professionals.

The study was limited by the facts that only students in the medical stream were included without any other control group; factors of parents-student, student-teacher and peer relationships were not assessed; reasons that led to the restart of substance use were not assessed; regression analysis could not be carried out due to limited number of substance users; harmful effects and dependence potential were not evaluated and majority of the students were first and second year MBBS students. To conclude, the present study found that nearly one-fifth of medical students, more males than the females, used at least one substance of abuse. Most of them did so despite knowing the ill effects and legal consequences of such use. Nearly one half of the study participants had made attempts to quit in the past but failed to maintain due to lack of will power. Psychological stress was the main factor leading to substance abuse.

### Acknowledgment

The first author (AA) thanks Indian Council of Medical Research for rendering support for this project under the Short Term Studentship 2014 programme.

**Conflicts of Interest:** None.

### References

1. The global burden of substance abuse. Available from: [http://www.who.int/substance\\_abuse/facts/global\\_burden/en/](http://www.who.int/substance_abuse/facts/global_burden/en/), accessed on January 11, 2014.
2. Chen C-Y, Lin K-M. Health consequences of illegal drug use. *Curr Opin Psychiatry* 2009; 22 : 287-92.
3. Meressa K, Mossie A, Gelaw Y. Effect of substance abuse on academic achievement of health officer and medical students of Jimma University, Southwest Ethiopia. *Ethiop J Health Sci* 2009; 19 : 155-63.
4. Epidemiologic trends in drug abuse. Proceedings of the Community Epidemiology working Group. National Institute on Drug Abuse. Available from: [http://www.drugabuse.gov/sites/default/files/cewgjune09vol1\\_web508.pdf](http://www.drugabuse.gov/sites/default/files/cewgjune09vol1_web508.pdf), accessed on January 11, 2014.
5. Jagnany VK, Murarka S, Haider S, Kashyap V, Jagnany AK, Singh SB, *et al*. Pattern of substance abuse among the undergraduate medical students in a medical college hostel. *Health Popul Perspect Issues* 2008; 31 : 212-9.
6. Kumari R, Nath B. Study on the use of tobacco among male medical students in Lucknow, India. *Indian J Community Med* 2008; 33 : 100-3.
7. Ramakrishna GS, Sankara Sharma P, Thankappan KR. Tobacco use among medical students in Orissa. *Natl Med J India* 2005; 18 : 285-9.
8. Chatterjee T, Haldar D, Mallik S, Sarkar GN, Das S, Lahiri SK. A study on habits of tobacco use among medical and non-medical students of Kolkata. *Lung India* 2011; 28 : 5-10.
9. Gupta S, Sarpal SS, Kumar D, Kaur T, Arora S. Prevalence, pattern and familial effects of substance use among the male college students - a North Indian Study. *J Clin Diagn Res* 2013; 17 : 1632-6.
10. National institute on alcohol abuse and alcoholism. Alcohol facts and statistics. Available from: <http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/alcohol-facts-and-statistics>, accessed on March 10, 2014.
11. Gopiram P, Kishore MT. Psychosocial attributes of substance abuse among adolescents and young adults: A comparative study of users and non-users. *Indian J Psychol Med* 2014; 36 : 58-61.
12. Ponnudurai R, Somasundaran O, Indira TP, Gunasekar P. Alcohol and drug abuse among internees. *Indian J Psychiatry* 1996; 26 : 128-32.
13. Mannapur B, Dorle AS, Hiremath LD, Ghattargi CH, Ramadurg U, Kulkarni KR. A study of psychological stress in undergraduate medical students at S. N. Medical College, Bagalkot, Karnataka. *J Clin Diagn Res* 2010; 4 : 2869-74.
14. Singh VV, Singh Z, Banerjee A, Basannar DR. Determinants of smoking habit among medical students. *Med J Armed Forces India* 2003; 59 : 209-11.
15. Zulfikar AR, Vankar GK. Psychoactive substance use among medical students. *Indian J Psychiatry* 1994; 36 : 138-40.
16. Webb E, Ashton CH, Kelly P, Kamali F. Alcohol and drug use in UK University Students. *Lancet* 1996; 348 : 922-5.
17. Melani AS, Verponziani W, Boccoli E, Trianni GL, Federici A, Amerini R, *et al*. Tobacco smoking habits, attitudes and beliefs among nurse and medical students in Tuscany. *Eur J Epidemiol* 2000; 16 : 607-11.
18. Deressa W, Azazh A. Substance use and its predictors among undergraduate medical students of Addis Ababa University in Ethiopia. *BMC Public Health* 2011; 11 : 660.
19. Ashton CH, Kamali F. Personality lifestyles, alcohol and drug consumption in a sample of british medical students. *Med Educ* 1995; 29 : 187-92.
20. Arria AM, Caldeira KM, O'Grady KE, Vincent KB, Fitzelle DB, Johnson EP, *et al*. Drug exposure opportunities and use patterns among college students: Results of a longitudinal prospective cohort study. *Subst Abuse* 2008; 29 : 19-38.