Original Article

Prevalence of Substance Use in Medical and Dental Students of a Medical University of Nepal

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Abstract

Introduction: Medical and Dental students are vulnerable to higher levels of psychological distress than other age matched peers. Many studies reveal that there is high prevalence of psychoactive substance use and psychiatric co-morbidities among them.

Objective: To identify prevalence of substance use (alcohol, nicotine, cannabis) among medical and dental students.

Methods: A cross sectional study was done among medical and dental students (2nd year to interns) of BPKIHS. A total of 600 students were enrolled through systematic random sampling and only 588 (98%) responded. Semi-structured questionnaire was used which included socio-demographic variables, AUDIT (Alcohol Use Disorders Identification Test), Fagerstrom (for Nicotine dependence) and Cannabis Abuse Screening Test (CAST).

Result: The mean age of participants was 22±2years. Among them, 61.2% (360) were male; 69.7% (410) were MBBS; 90.5% (532) were Nepalese and 9.5% (56) were Indians. The prevalence of alcohol users was 47.75% (281) in which 32% (90) were harmful users. Among 19.55% (115) nicotine users; 56.5% (65), 37.4% (43), 6.1% (7) had low, low to moderate and moderate dependence respectively. The prevalence of cannabis users was 9% (53) with 45.3% (24), 18.9% (10) having low and high addiction respectively.

Conclusion: High percentage of medical and dental students showed substance use, harmful use and dependence. It is expected that they have knowledge about the harmful consequences of psychoactive substances.

Keywords: Alcohol, nicotine, cannabis, dependence, medical students

Introduction

Substance abuse refers to the harmful or hazardous use of psychoactive substances. Psychoactive substance use can lead to dependence syndrome- a cluster of behavioral, cognitive, and physiological phenomena and leads to continued use despite harmful effects.[1] Substance abuse is a widespread and significant problem in Nepal, with tobacco, alcohol and marijuana users being the three most common substances used. In Nepal, consumption of some intoxicants on a cultural basis is not unknown; but the amount and frequency of substance abuse has increased alarmingly, especially among the young population. According to a drug survey by Government of Nepal, there were altogether 91,534 current drug users in Nepal in 2012 with an annual growth rate of 11.36%. The percentage of male users was

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93.1% compared to 6.9% female population. Also seen was that the overwhelming majority (95.0%) of the drug users started before 25 years of age.[2] Niraula SR et al.[3] reported prevalence of alcohol consumption in 17% of 2340 cluster samples of women of age more than 15 years in Dharan.

The burning issue of substance abuse among young people is equally present in medical and dental students. Heavy drinking is highly prevalent among college and university students, including medical students.[4,5] The known interaction between binge drinking and other drug related behaviors such as cannabis and cigarette smoking is also prevalent among medical students.[6] Shyangwa PM et al. (2007) reported that 63.5% of medical students and junior doctors of BPKIHS had 'ever used' substance, 56.5% used last year and 42.5% used in last month. Alcohol was the most preferred substance (90.9%). Nearly one third of females also had 'ever used' substance.[7] Similar findings were seen in other comprehensive study among medical students of BPKIHS by Shakya DR et al.[8] Cannabis use was seen exclusively among male (15.0%) students and opioid use was not found.[7] In Nepal, prevalence of substance use among third year students was 49.6%, of which 38.2% were Nepalese nationals and 11.4% were foreign nationals and 39% were male and 10.6% female. Alcohol based product users were 52.3%, tobacco based product users were 55% and marijuana users were 65.7% and all started using them after joining the medical school.[9] According to Khanal et al.[10], prevalence of substance use was found to be 60.3% among the medical students. The causes of such a significant prevalence among medical and dental students are many and multifaceted, with

exposure to various academic, social and economic stressors, which may affect their learning ability and academic performance. Medical students might engage in potentially harmful methods of coping with this stress, such as excessive alcohol consumption.[11]

The objective of this study was to identify prevalence of substance use (alcohol, nicotine, cannabis) among medical and dental students.

Materials and Methods

This cross sectional study was conducted among medical and dental students of 2nd year to intern at B. P. Koirala Institute of Health Sciences, Dharan which is a medical University in Nepal. The study was conducted from January to April 2017 after receiving approval from the Institutional Review Committee and Dean Academics and Research Committee. A total of 600 standard questionnaires were distributed among which 588 (98%) responded. Students from MBBS and BDS enrolled were 410 and 178 respectively. Total population proportionate method was used to allocate the number of sample for each year, gender and students from faculty of medicine and dentistry individually. Systematic random sampling was used to allocate the sample unit. Informed consent was taken from the students. The participants were given questionnaires which included socio-demographic variables, year of study, Alcohol Use Disorder Identification Test (AUDIT) scale which is simple but effective screening tool for unhealthy alcohol use scores, age and place where alcohol use first started, family history and problematic use of alcohol in the family; Fagerstrom test which is a standard instrument for assessing the intensity of physical addiction to nicotine score, age and place where first use

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started, family history and problematic cigarette smoking in the family; Cannabis screening was done by Cannabis screening test (CAST), age and place where first use started, family history and problematic use of cannabis in the family. Master chart and coding list was prepared before entering the data and then the collected data was entered into computer through Microsoft Excel software and converted into SPSS for statistical analysis.

Results

The mean age of participants was 22±2years; 61.2% (360) were male, 69.7% (410) were from MBBS faculty and 30.3% (178) were from BDS. Among them 90.5% (532) were Nepalese and 9.5% (56) were Indians.

Table 1: Characteristics of participants

Characteristics		Number of participants	Percentage (%)
Gender	Male	360	61.2
	Female	228	38.8
Education	MBBS	410	69.7
	BDS	178	30.3
Nation	Nepal	532	90.5
	India	56	9.5
Year of study (including MBBS and BDS)	1	141	24
	2	134	22.8
	3	88	15
	4	110	18.7
	5	115	19.6
Total		**588**	**100**

Substance Use Prevalence:

The table No. 2 shows alcohol, nicotine and cannabis users category.

Among 47.75% (281) alcohol users, 32% (90) were harmful users. Among 19.55% (115) nicotine users; 56.5% (65), 37.4% (43), 6.1% (7) had low, low to moderate and moderate dependence respectively. Among 9% (53) of the cannabis users; 45.3% (24), 18.9% (10) had low and high addiction respectively.

Table 2: Classification of substance users

Substance users	Category	Number of participants	Percentage (%)
Alcohol users	Non harmful users	191	68
	Harmful users	90	32
Total		**281**	**100**
Nicotine users	Low dependence	65	56.5
	Low to moderate dependence	43	37.4
	Moderate dependence	7	6.1
	Severe dependence	0	0
Total		**115**	**100**

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Cannabis users	No addiction	19	35.8
	Low addiction	24	45.3
	High addiction	10	18.9
Total		**53**	**100.0**

Association of alcohol with Socio-demographic profile:

The table No. 3 shows the multivariate analysis of alcohol use disorder with social and demographical characteristics of the participants. Most of the harmful users have started drinking alcohol from 22- 23 years of age. More MBBS students consumed alcohol than BDS students (P< 0.05). Similarly, the prevalence of alcohol use increased with increase in the years of study (P< 0.05).

Table No. 3: Multivariate analysis of alcohol use disorder

Characteristics	Categories	Alcohol users		P - value	
		Non harmful users	Harmful users		
Gender	Male	138 (65.1)	74 (34.9)	0.070	Not significant
	Female	53 (76.8)	16 (23.2)		
Mean age in years ± SD		22.25 ± 1.92	23.19 ± 2.04	0.00	Significant
Nation	Nepal	177 (68.3)	82 (31.7)	0.65	Not significant
	India	14 (63.6)	8 (36.4)		
Education	MBBS	141 (64.1)	79 (35.9)	0.008	Significant
	BDS	50 (82.0)	11 (18.0)		
Year of study	1	35 (68.6)	16 (31.4)	0.013	Significant
	2	53 (79.1)	14 (20.9)		
	3	28 (68.3)	13 (31.7)		
	4	34 (75.6)	11 (24.4)		
	5	41 (53.2)	36 (46.8)		
Mean age of starting of alcohol use in years ± SD		19.52 ± 2.259	19.24 ± 3.195	0.466	Not significant
Place of alcohol use	Home	15 (62.5)	9 (37.5)	0.36	Not significant
	School	7 (58.3)	5 (41.7)		
	College	48 (62.3)	29 (37.7)		
	After joining medical college	121 (72.0)	47 (28.0)		
Family history of alcohol use	No	98 (67.6)	47 (32.4)	0.89	Not significant
	Yes	93 (68.4)	43 (31.6)		
Problematic family history of alcohol use	No	182 (70.0)	78 (30.0)	0.01	Not significant
	Yes	9 (42.9)	12 (57.1)		

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Association of nicotine with Socio demographic profile:

The below table No. 4 shows the multivariate analysis of nicotine use disorder with social and demographical characteristics of the participants. According to this table, the prevalence of nicotine use increased with increase in the years of study (P< 0.05).

Table 4: Multivariate analysis of nicotine use disorder with social and demographical characteristics of the participants

Characteristics	Categories	Nicotine users		P - value	Remark
		Low dependence	Low, moderate dependence		
Gender	Male	58 (58.6)	41 (41.4)	0.267	Not significant
	Female	7 (43.8)	9 (56.3)		
Mean age in years ± SD		22.88 ± 2.233	22.28 ± 1.666	0.103	Not significant
Nation	Nepal	62 (59)	43 (41)	0.07	Not significant
	India	3 (30)	7 (70)		
Education	MBBS	56 (57.1)	42 (42.9)	0.747	Not Significant
	BDS	9 (52.9)	8 (47.1)		
Year of study	1	11 (73.3)	4 (26.7)	0.01	Significant
	2	13 (31)	29 (69)		
	3	6 (54.5)	5 (45.5)%		
	4	11 (68.8)	5 (31.3)		
	5	24 (77.4)	7 (22.6)		
Place of nicotine use	Home	0	1 (100)	0.118	Not significant
	School	8 (80)	2 (20)		
	College	21 (65.6)	11 (34.4)		
	After joining medical college	36 (50)	36 (50)		
Mean age of starting of nicotine use in years ± SD		19.65 ± 2.260	19.82 ± 2.238	0.628	Not significant
Family history of nicotine use	No	47 (56)	37 (44)	0.839	Not significant
	Yes	18 (58.1)	13 (41.9)		
Problematic family history of nicotine use	No	60 (57.1)	45 (42.9)	0.66	Not significant
	Yes	5 (50)	5 (50)		

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Association of cannabis with Socio demographic profile:

The below table No. 5 shows the multivariate analysis of cannabis use disorder with social and demographical characteristics of the participants. According to this table, there was no significant association of cannabis use with any of the socio demographic profile.

Table 5: Multivariate analysis of Cannabis use disorder with social and demographical characteristics of the participants.

Characteristics	Categories	Cannabis users		P - value	Remark
		No addiction	Low to high addiction		
Gender	Male	15 (31.3)	33 (68.8)	0.050	Not significant
	Female	4 (80)	1 (20)		
Mean age in years ± SD		21.79 ± 1.39	22.53 ± 1.862	0.138	Not Significant
Nation	Nepal	16 (34)	31 (66)	0.655	Not significant
	India	3 (50)	3 (50)		
Education	MBBS	16 (33.3)	32 (66.7)	0.336	Not significant
	BDS	3 (60)	2 (40)		
Year of study	1	3 (60)	2 (40)	0.138	Not significant
	2	11 (45.8)	13 (54.2)		
	3	0	7 (100)		
	4	3 (37.5)	5 (62.5)		
	5	2 (22.2)	7 (77.8)		
Mean age of starting of cannabis use in years ± SD		20.37 ± 1.34	20.68 ± 1.70	0.5	Not significant
Place of first cannabis use	Home	0	1 (100)	0.75	Not significant
	School	0	0		
	College	4 (36.4)	7 (63.6)		
	After joining medical college	15 (36.6)	26 (63.4)		
Family history of cannabis use	No	19 (38)	31 (62)	0.545	Not significant
	Yes	0	3 (100)		
Problematic family history of cannabis use	No	19 (36.5)	33 (63.5)	1.00	Not significant
	Yes	0	1 (100)		

Discussion

Medical students are supposed to have better understanding about Psychoactive substance use and its implications in health status. Many of them were naive before joining medical school and have started consuming substances after

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entering to this field despite knowing its harmful consequences. As stated in the introduction, with comparable findings in the contemporary published research; Nicotine and Alcohol have been the commonest abused substances by these white coat holders and not to forget about the use of Cannabis as well. Psychoactive substance consumption at the cost of health status by future therapists is of concern. The mean age of participants in this study was 22±2years; 61.2% were male. The mean age of starting of alcohol use in years was 19.52±2.259 SD and harmful users was 19.24±3.195 SD. According to a drug survey by Government of Nepal, there were altogether 91,534 current drug users in Nepal in 2012 and majority (95.0%) of the drug users started before 25 years of age with male preponderance.[2] This is of great concern as this is the age for shaping career of the individuals for building productive life. In this study, Alcohol was most frequently used by medical students which was 47.75% and among the alcohol users; 32% were harmful users. Although Nicotine (Tobacco) users (19.55%) were less than alcohol users but the percentage of hazardous users were more in this group. Among the nicotine users; 56.5% had low, 37.4% had low to moderate and 6.1% had moderate dependence. The higher prevalence of alcohol use was noted by other researchers as well. Shyangwa PM et al. reported that 63.5% of medical students and junior doctors of BPKIHS had ever used substance, 56.5% used last year and 42.5% in last month.[7] Alcohol was the most preferred substance (90.9%). Nearly one third of females also had ever used substance. Similar findings were seen in a comprehensive study among medical students of BPKIHS by Shakya DR et al.[8] and other study conducted by M. Gignon et al.[12]

The studies done in other settings by Thakore S et al.[13] and Petroianu A et al.[14] on medical students have reported that about 80% to 90% of these students drink alcohol.

In a study conducted by Voigt et al., it has been noted that medical students consume more alcohol than non-students of the same age.[15] This might be gateway psychoactive substance to get involved in recreational activities, being acquainted with new friend circle or simply just to relieve stress as medical science is regarded as one of the toughest course to pursue career. The first two years at BPKIHS are preclinical where students build up the foundation for clinical exposure. It has been found that the students were more indulged in alcohol use in these two years comparing the clinical exposure years, however, the prevalence of harmful alcohol use increased with increase in the years of study (P< 0.05). More MBBS students consumed alcohol than BDS students (P< 0.05).

This finding is consistent with the other studies reported by Mc Cambridge et al.[16] where preclinical medical students more frequently reported alcohol consumption (47%) than clinical medical students (16%; p< 0.05). Consumption tended to decrease as students progressed through medical school. This reflection might be due to knowledge about harmful effect of substances.

In this study, 19.55% (115) were Nicotine (Tobacco) users and among them, 56.5% (65) had low, 37.4% (43) had low to moderate and 6.1% (7) had moderate dependence. Nicotine use doesn't appear to be lower than general population in this region. A study conducted at the department of Psychiatry by Limbu et al. reveals that the prevalence of tobacco use was 55.6% in OPD,[17] 62.2% in admitted[18] cases and

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41.4% in community[19]. Tobacco use was more common among males in all three settings (p value < 0.05). This prevalence points towards the extent of the problem in this part of the world.[17,18] A study conducted by Josseran et al.[20] in a Paris medical school showed that more than one third of students were smokers (35%); 21% were daily smokers and 14% were occasional smokers which is comparable to this study. Budhathoki N et al.[9] have studied substance use among third year Medical students of Nepal and found that about 56.20% of the students used tobacco after joining medical school in comparison to 43.80% consumed tobacco before joining medical school and majority of them were in hostels (53%) and rented house (62.50%). The high prevalence of tobacco use including other psychoactive substances, that too by medical students who are thought to be role model in the society and are expected to deal with various addictive issues is quite worrisome.

This study revealed 9% (53) of them were Cannabis users and among them 45.3% (24) had low and 18.9% (10) had high addiction respectively. Shyangwa PM et al.[7] also reported Cannabis use was seen exclusively among male (15.0%) students while in our study 13% of male and 2% of female were the users. A study conducted by Budhathoki et al.[9] also reveled higher percentage of Marijuana users after joining medical school (71%) in comparison to users before joining medical school (29%). There has been variation in the prevalence of cannabis use in different studies which ranges from 15% to 42% (Kjøbli, J., Tyssen, R. et al.[11], Di Pietro, Doering-Silveira et al[21]). The difference in its use and prevalence can be cultural aspect, like in Nepal, during some festivals like Holi, Shivaratri consuming Bhang (Bhang is an edible preparation of cannabis originating from the Indian subcontinent) is culturally accepted and in some regions of the country, Cannabis Sativa, a flowering plant which is the source of cannabis is cultivated even though it is illegal.

Conclusion

High percentage of medical and dental students showed substance use problem although they have knowledge about its harmful effects. The high prevalence of substance use among medical students and the progressively increasing use problem with the years of study is a significant finding. It reiterates the likely causes of substance abuse mentioned above and also opens discussion for academic and social changes within medical and dental schools to counter the problem.

Regarding cannabis, although no association with any morbidity was seen, but high prevalence of cannabis use was found. This is a socio-legal issue as cannabis is illegal in Nepal as a recreational drug. Essential legal and administrative steps are needed to restrict access to cannabis to decrease use. As to its relationship with psychological comorbidities, further studies are required to completely confirm or refute its role.

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