

Self-medication of sleeping pills among MBBS students in a medical college of West Bengal, India

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ABSTRACT

Background: Psychological stress, anxiety, depression and sleep disturbance are highly prevalent in medical students and therefore they are at higher risk of using sleeping pills defined as any pharmaceutical preparation inducing sleep. There is currently paucity in data describing the prevalence of sleeping pill use among medical students in India.

Objective: To evaluate the prevalence of sleeping pill use among medical students in Burdwan Medical College (BMC).

Methods: A cross sectional study was done by anonymous questionnaires from MBBS students enrolled at BMC. Questionnaire consisted of social and demographic variable and use of sleeping pills, tobacco and alcohol since enrollment. Collected data were analyzed by Athen's insomnia scale and DASS-21.

Results: With response rate 72.2% (397 out of 550) and of 397 respondents (1st yr-97+2nd yr-90+3rd yr part I-114+3rd yr part II-96), 6.3% reported use of sleeping pill at some time since enrollment. Athen's insomnia scales showed 27% poor sleepers. According to DASS-21, 44% respondents were depressive, 61.96% anxious, and 31.73% stressed. Insomnia were found to significantly (p value <0.0001) associated with sleeping pill use. Majority (96%) of sleeping pill uses were self-medicated.

Conclusions: Tendency to use sleeping pill is very less (majority self-medicated), though a substantial proportion of medical undergraduate students were found to be depressed, anxious, stressed revealing a neglected area of students' psychology requiring urgent attention.

Keywords: Anxiety, Depression, Insomnia, Stress, Sedatives

INTRODUCTION

As larva transforms into a beautiful butterfly, likewise a secondary high school student gets transformed into a doctor in a medical college, generally, in their adolescent period. However medical science is one of the most stressful fields of education because of its highly demanding professional and academic requirements. Extensive medical curricula, frequent examination, high family expectation, sheer competition, fear of failure are sources of constant stress and anxiety for medical students.¹ According to a systematic review published in 2006, US and Canadian medical students suffer from a higher incidence of psychological stress, anxiety,

depression and suicidal ideation than the general population.² Psychological stress is a triggering factor for insomnia and has a bidirectional association with poor sleep quality.³ Thus it reports a vicious cycle that is associated with adverse mental health consequences in medical students. Poor sleep quality is also associated with adverse mental health consequences in medical students. Poor sleep quality is also associated with irregularity of human metabolism, high failure rates and poor academic performance.^{4,5} Psychological manifestation of stress also include anxiety, depression, and burn-out.⁶⁻⁸ In an attempt to decrease the symptoms of stress or to deal with resulting mental health issues including sleep, students may adapt a number of mechanisms including cognitive responses, stress

management techniques, improved assertiveness skills, time-management strategies and counseling sections.⁹ However inappropriate responses may also occur in the form of substance abuse in this adolescent period when the first initiation of substance use takes place. The encouragement by peer groups, the persuading popularity and easy availability of many such substances like alcohol, tobacco and sleeping pill drove them in the addiction world. Sedative drug use among medical students can interfere with their ability to concentrate, as well as causing excessive sleepiness, sluggishness, giddiness and poor physical coordination. They often develop dependence.¹⁰

A Turkish study found that 22% of junior students, 20% of senior students and 9% of residents used sedative drugs.¹¹ A study in the Republic of Macedonia found that over 50% of students had used alcohol, specially to relieve stress and 12% had used hypnotics.¹² Other studies conducted in Brazil, Nigeria, Vietnam, Norway, Canada, the United states and other countries reported similar results.¹³⁻¹⁸ It would appear therefore that the use of sedative drugs is comparatively widespread across the world in the medical student populations. So, drug use by medical students is a sensitive and important issue for both the medical profession and society as a whole. On this backdrop, this paper aimed to determine the prevalence of sleeping pills use among medical students in Burdwan Medical College.

METHODS

The cross-sectional study was conducted on November 2016 among 550 MBBS students (1st prof-150 students, 2nd prof-150 students, 3rd prof part-I- 150 students, 3rd prof part-II-100 students) of Burdwan Medical College and Hospital who were asked to participate. Consent was obtained from all willing participants. Willing MBBS students were asked to fill up and return back the questionnaire to researchers after finishing their classes. The questionnaire (Annexure-I) consists of three parts; first part contains socio-demographic characteristics (age, sex, address, present stay, per capita family income). The second part asked about the factors that may influence the use of sleeping pills (caffeine consumption, smoking, alcohol intake, exercise). The third part consists of clinical characteristics that may influence the use of sleeping pill use such as insomnia, depression, anxiety, stress. The questionnaire used in this study was designed based on literature review, Athens' insomnia scale related question (to assess insomnia), and DASS-21 related questions (to assess depression, anxiety and stress). Data was analyzed using SPSS version-13. Chi square test was applied to examine the relationship between sleeping pill use and related factors.

RESULTS

Total participant was 397 (72.2%) out of 550 students. Table 1 is depicting the sedative use and different

variables. The gender distribution of the respondents was 251 (63.22%) men and 146 (36.78%) women. Most of the participants resided in the student residents facilities i.e. hostel 322 (81.1%) and the remaining in their home. The distribution according to year of study was 1st professional MBBS 97 (24.6%); 2nd professional MBBS 90 (22.7%); 3rd professional MBBS part-I 114 (28.7%) and 3rd professional MBBS part-II 96 (24%). The prevalence of using sleeping pills among students was 25 (6.3%). Among them 13 students were male and 12 were female. Respondents who reported using sleeping pill used first generation antihistaminic, benzodiazepine and even SSRIs. Regarding the relationship between using sleeping pills and life style and habits, the majority of the student (n=331, 83.4%) do not exercise. However, there is no significant relationship between using sleeping pill and performing physical exercise (p=0.4558). The majority of the participants (n=331, 83.4%) consumed caffeine drinks. However, there is significant relationship between smoking and using sleeping pills (p=0.0498).

The majority of students were non-drinking alcohol (n=353, 88.9%), however there is significant relationship between drinking alcohol and using sleeping pills among students (p=0.0019).

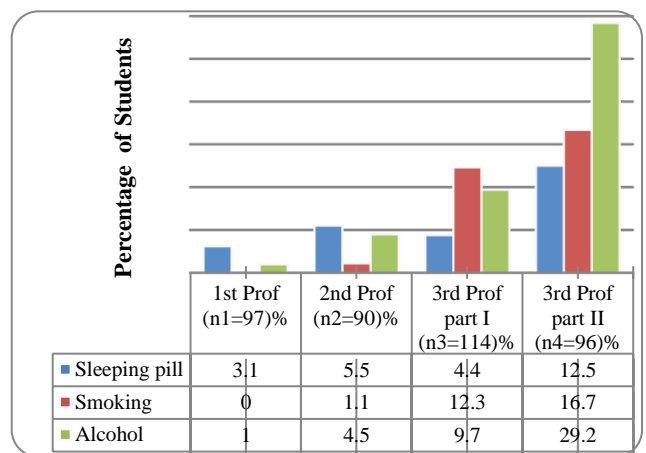


Figure 1: Prevalence of depression, anxiety, stress and insomnia among different years of MBBS students.

Regarding the relationship between using sleeping pills and clinical characteristic (Figure 1 and 2), the majority of students (n=276, 69.5%) did not experience insomnia, however there is significant relationship between using sleeping pills and insomnia among medical students (p <0.0001). The majority of the students (n=215, 54.15%) did not experience depression, however there is no significant relationship between using sleeping pills and depression (p=0.8484). The majority of participants (n=272, 68.5%) had anxiety, however there is no significant relationship between using sleeping pills and anxiety (p=0.2423). The majority of students (n=266, 67%) did not experience stress, however there is significant relationship between using sleeping pills and stress (p=0.0210).

Table 1: Distribution of MBBS students according to sedative use and different variables.

Variables	Sedative use		Total= n (%)	Chi-square value	p-value
	Yes	No			
Sex	Male	13	238	251(63.2%)	
	Female	12	134	146(36.8%)	
Present stay	Hostel	20	302	322(81.1%)	
	Home	5	70	75(18.9%)	
Caffeine consumption	Yes	21	310	331(83.4%)	0.008
	No	4	62	66(16.6%)	
Smoking	Yes	5	26	31(7.8%)	3.849
	No	20	346	366(92.2%)	
Alcohol consumption	Yes	8	36	44(11.1%)	9.688
	No	17	336	353(88.9%)	
Exercise	Yes	6	60	66(16.6%)	0.556
	No	19	312	331(83.4%)	
Insomnia	Present	20	101	121(30.5%)	30.878
	Absent	5	271	276(69.5%)	
Depression	Present	11	171	182(55.9%)	0.037
	Absent	14	201	215(54.1%)	
Anxiety	Present	14	258	272(68.5%)	1.367
	Absent	11	114	125(31.5%)	
Stress	Present	14	117	131(33%)	5.323
	Absent	11	255	266(67%)	

(n=397)

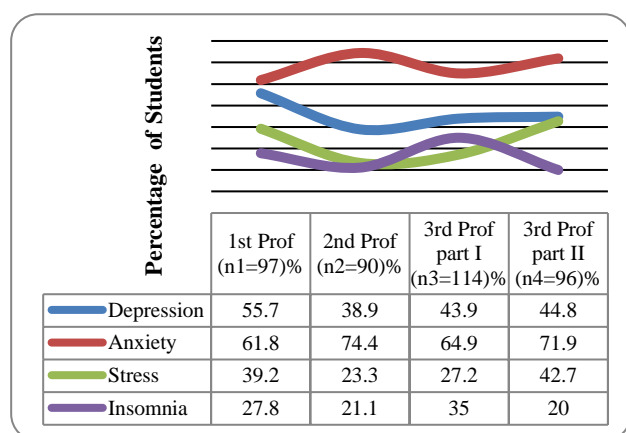


Figure 2: Prevalence of sleeping pill consumption, smoking and alcohol intake among different years of MBBS students.

DISCUSSION

The use of various sleep inducing substances among medical students varies between countries depending on differences in culture and availability. To the best of our knowledge this was the first study reporting the frequency of sedative drug use among medical students in India. The self reported rate of sleeping pill use was 6.3%, majority of them (24 out of 25, 96%) were self-medicated. This pointed out to the fact that Indian pharmacies sell these drugs without a prescription.

In this study there was no significant relationship between caffeine consumption and using sleeping pills. In the literature, there was little evidence for association between caffeine consuming and sleep.¹⁹ A survey of 760 nurses showed that family factors and age were more important determinants of sleep than caffeine consuming.²⁰ Another study reported that there was no association between caffeine consuming and sleep.²¹ A study of sleep among elderly women found no differences in levels of caffeine consuming between good and poor sleepers.²² Possible explanation for these differences was that habitual consumers of caffeine were less likely to report sleep disturbances than infrequent consumers of caffeine.

Regarding, the relationship between exercise and sleep, the American Sleep Disorders Association considers physical exercise to be a modality of non-pharmacological treatment for sleep disorders.²³ Previous studies showed that exercise was perceived to be sleep promoting and associated with less daytime sleepiness.^{24,25} In this study, there was no significant relationship between the using sleeping pills and exercise. This may be due to in the questionnaire there was only one general questions asking if the participants exercised or not without determination the duration, frequency and type of exercise.

In this study, there was significant relationship between drinking alcohol and using sleeping pill. Previous studies had showed that the alcohol tends to shorten sleep

latency, reduce rapid eye movement sleep, and increase non-rapid eye movement sleep, which made alcohol immediately rewarding as a hypnotic.^{26,27}

Sleeping pill use was found to be more common among students who were poor-sleeper. Students who did not get many hours of sleep may not have been as good at organizing their time and thus sleep-wake cycles and may therefore had been more likely to use sleeping pill drugs to induce sleep.

This study showed that 45.84% students experienced depression, 68.5% anxiety and 33% stress which was less than earlier study conducted in India but was high compared with an overall prevalence of depression, anxiety, stress among primary care patients in India.²⁸ This study also depicted that the use of sleeping pills, smoking and alcohol consumption was highest among 3rd yr part-II MBBS students (Figure 2). Medical students enrolled in their 1st yr and 3rd yr part-II MBBS programme experienced higher level of stress (Figure 1). There is significant relationship between sleeping pills and stress. The first and second year courses are pre-clinical and may consist of a schedule similar to courses in high school. Starting from 3rd year students have a clinical component in their courses, which increases their level of stress and may have caused a higher prevalence of sleeping pill use. This was consistent with a study of Nigerian Medical students, which was found that the prevalence of drug use increased as students advanced through their training.²⁹

The relative high prevalence of self-medication of sleep inducing medication (96%) may have been noted with the fact that Indian pharmacies sell these drugs without a prescription. The ultimate aim of medical education should be to produce competitive but compassionate, reflective, self-reliant, and empathic doctors. But the stressful environment of medical schools leads to "hardening of (the) heart during medical school" i.e. a decline in the capacity of medical students to empathize.³⁰ Due to academic stress together with high academic and professional expectations, medical students also report suicidal ideation during their school years.³¹

Improved understanding of local patterns of sedative drug use can help in the development of improved education and counselling about hazards of these drugs. As medical students may experience significant stress, which may result in the use of sleeping pills, counselling and preventive mental health should be an integral part of medical school.^{8,32,33}

Limitations

It was a cross-sectional study; so, causal relationships could not be determined, even for items between which an association was indicated. The accuracy of respondents on the self-reporting questionnaires may have been adversely affected by the respondents' inability

or unwillingness to provide the requested information. If the respondents perceived their sedative drug use to be embarrassing or damaging their reputation, their answers may not have been truthful, even though confidentiality was answered. There is also possibility of cognitive distortion or denial on the part of the respondents.

CONCLUSION

A Tendency to use sleeping pill is very less (majority self-medicated), though a substantial proportion of medical undergraduate students were found to be insomniac, depressed, anxious, stressed revealing a neglected area of students' psychology requiring urgent attention. Further study is required to increase our understanding of sleeping pill use patterns in this relatively high-risk group, as such understanding will help in development of early intervention programme.

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Annexure-1

QUESTIONNAIRE

Sl. no (office use)-

Age- Sex-

Academic year- 1st yr/ 2nd yr/ 3rd yr part-I/ 3rd yr part-II

Address-

Present stay- Hostel/ Home

Socioeconomic status (per capita monthly income)- >999/999-500/499-300/299-150/<150 Rs.

Do you drink alcohol? – yes / no

Do you drink coffee or tea? - yes / no

Do you smoke? - yes / no

Have you done exercised regularly? - yes / no

(Regular exercise means 45 mins exercise doing minimum 5 days in a week)

This scale is intended to record your own assessment of any sleep difficulty you might have experienced. Please, check (by circling the appropriate number) the items below to indicate your estimate of any difficulty, provided that it occurred at least three times per week during the last month.

Sleep factors	Athens insomnia scale			
Sleep induction	0: No problem	1: Slightly delayed	2: Markedly delayed	3: Very delayed or did not sleep at all
Awakenings during the night	0: No problem	1: Minor problem	2: Considerable problem	3: Serious problem or did not sleep at all
Final awakening	0: Not earlier	1: A little earlier	2: Markedly earlier	3: Much earlier or did not sleep at all
Total sleep duration	0: Sufficient	1: Slightly insufficient	2: Markedly insufficient	3: Very insufficient or did not sleep at all
Sleep quality	0: Satisfactory	1: Slightly unsatisfactory	2: Markedly unsatisfactory	3: Very unsatisfactory or did not sleep at all
Well-being during the day	0: Normal	1: Slightly decreased	2: Markedly decreased	3: Very decreased
Functioning capacity during the day	0: Normal	1: Slightly decreased	2: Markedly decreased	3: Very decreased
Sleepiness during the day	0: None	1: Mild	2: Considerable	3: Intense

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all - NEVER
- 1 Applied to me to some degree, or some of the time - SOMETIMES
- 2 Applied to me to a considerable degree, or a good part of time - OFTEN
- 3 Applied to me very much, or most of the time - ALMOST ALWAYS

					FOR OFFICE USE						
					N	S	O	AA	D	A	S
1	I found it hard to wind down	0	1	2	3						
2	I was aware of dryness of my mouth	0	1	2	3						
3	I couldn't seem to experience any positive feeling at all	0	1	2	3						
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3						
5	I found it difficult to work up the initiative to do things	0	1	2	3						
6	I tended to over-react to situations	0	1	2	3						
7	I experienced trembling (eg, in the hands)	0	1	2	3						
8	I felt that I was using a lot of nervous energy	0	1	2	3						
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3						
10	I felt that I had nothing to look forward to	0	1	2	3						
11	I found myself getting agitated	0	1	2	3						
12	I found it difficult to relax	0	1	2	3						
13	I felt down-hearted and blue	0	1	2	3						
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3						
15	I felt I was close to panic	0	1	2	3						
16	I was unable to become enthusiastic about anything	0	1	2	3						
17	I felt I wasn't worth much as a person	0	1	2	3						
18	I felt that I was rather touchy	0	1	2	3						
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3						
20	I felt scared without any good reason	0	1	2	3						
21	I felt that life was meaningless	0	1	2	3						
TOTALS											