RESEARCH PAPER

Perceived Stress and Sleep Quality: A Self-Reported Study among Medical Students in Chennai

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ABSTRACT

Background: Health is the most important factor that determines both the quality and quantity of an individual's life. Healthcare education is a tough and responsible education consisting of lectures, practicals, clinical postings and field visits. Academic load, performance pressure and exam stress can affect psycho-social well-being of an individual. Hence, the current study aimed to assess stress and sleep quality among medical students in Chennai.

Methods: A cross-sectional study was conducted among 323 medical students (aged 18-24 years) in Chennai, comprising 132 males and 191 females. Stress was assessed using 10-item Perceived Stress Scale (PSS) and sleep quality was assessed using Epworth Sleepiness Scale (ESS). Data expressed in frequency and percentage

Results: A majority of study participants were found to be moderately stressed (83%) and females (71%) were found to be more stressed than males. A very high percentage of study participants (87%) were found to have poor sleep quality and females (60%) were found to have increased poor sleep quality than males.

Conclusion: The current study revealed that there is a very high prevalence of stress and poor sleep quality among adolescents which can affect their academic performance and overall well-being. Hence, Institutions, parents and students should take adequate measures to manage stress, and improve sleep quality among medical students.

Keywords: Stress, Sleep, Medical students, Cross-Sectional Studies.

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INTRODUCTION

'Health is wealth', is a well-known and widely accepted concept among mankind. WHO has stated that health comprises of physical, mental and social well-being and not just mere absence of a disease. Recent lifestyle modifications in India have brought enormous changes in lifestyle among individuals of all ages and profession [(1)]. Academics is seen as the foundation of an individual's life and in recent years especially, the professional courses have become very competitive and stressful among children and adolescents, affecting their psycho-social health. Healthcare education is a structured, systemic education system which comprises of academic load, lectures, practical classes, clinical postings, field visits and night duties. Medical education greatly involves theory learning, patient-doctor interaction and exam stress. These factors depending upon the individual can increase performance pressure, stress, anxiety among medical students affecting their psycho-social health [(2).]

Stress is a non-specific, subjective response of an individual to a stimulus. Stress is classified in to eustress and distress. Eustress is the positive stress required for day-to-day activities and growth, and too much of stress can lead to distress - the negative stress, which affects the physiological and psychological balance of the individual leading to negative health and diseases. A study conducted among 4677 students in Vietnam using Student Stress

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Questionnaire has shown that 63.37% of them are experiencing stress [3]. Similar study conducted among 817 medical students in China using DASS questionnaire showed that there is a significant association between academics and stress. Participants have also reported of academic burnout and reduced social support [4]. A cross-sectional study conducted among 422 medical students using medical student stressor questionnaire in Saudi Arabia has shown a very high percentage of participants having moderate-severe stress and they have attributed it to their academic stressors [5]. Another study conducted among Phase II and III medical students in Andhra pradesh showed that 69% have stress, and it was found to negatively affect their academic performance [6]. These studies indicate that prevalence of stress is increasing among medical students.

Sleep is a physiological process which is required for psycho-somatic rejuvenation. WHO guidelines have recommended 8-9 hours of sleep for wellbeing. Academic load, night duties, exam stress can affect sleep quality of an individual. A good sleep is required for mental wellbeing and alteration of which can affect the psycho-somaticl health [7]. A study conducted among 290 undergraduate medical students using Pittsburgh Sleep Quality Index (PSQI) in Rwanda has shown that poor sleep quality is very high among medical students especially among the first- and final-year students. They were found to have daytime dysfunction, poor academic achievement and behavioural changes [8]. Similar study conducted in Nepal among 212 medical students using PSQI has shown that 38.2% have poor sleep hygiene and they were also found to be depressed and poor achievers in academics [9]. Another study conducted among 400 students using Epworth Sleepiness Scale in Manipal has shown that around 50% of the participants have excessive daytime sleepiness, indicating poor sleep quality [10]. A cross-sectional study conducted among 401 medical students in Telangana using PSQI has shown that 70% of participants have poor sleep quality and they have reported of frequent headache and irritability [11]. As, studies have shown that prevalence of stress and poor sleep quality is high among medical students the current study aimed to assess stress and sleep quality among medical students in Chennai.

MATERIALS AND METHODS

The current study is a descriptive cross-sectional study conducted after obtaining permission from IEC. Study participants were MBBS students (Phase I, II & III) between the age group 18-24 years. The study population consisted of 132 males and 191 females *(n-323)*. After explaining the purpose and benefits of the study informed consent was obtained. After obtaining demographic and basic health details their stress and sleep was assessed.

Stress was assessed using Perceived Stress Scale (PSS) 10 item questionnaire. PSS consists of questions enquiring the feelings and thoughts of the participant in the past one month. Each question has options like never, almost never, sometimes, fairly often and never often. The participant should select one answer for each question. Based on the answers given the total score is calculated. If the total score is between 0-13 it indicates mild stress, 14-26 indicates moderate stress and 27-40 indicates severe stress respectively.

Sleep quality of the participants was assessed using Epworth Sleepiness Scale (ESS). ESS measures Excessive Daytime Sleepiness (EDS), which is seen as a reliable indicator of sleep quality. The questionnaire has eight different situations and the participant should rate his/her chances of dozing in those situations from a scale of 0-3 (Total score 24). 0 indicates no dozing, 1 indicates mild chances of dozing, 2 indicates moderate chances of dozing and 3 indicates severe chances of dozing. Total score $\geq$ 10 indicates EDS, indicating poor sleep quality.

RESULTS

The current cross-sectional study was conducted among 132 males and 191 females (n-323) pursuing MBBS in Chennai.

Table 1: Baseline characteristics of the study population

Parameters		N	%
Gender	Males	132	40.8
	Females	191	59.1
Age	18-19 yrs	117	36.2
	19-21 yrs	109	33.8
	22-24 yrs	97	30.0
Residential type	Day scholars	107	33.2
	Hostelers	216	66.8
Year of study	Phase I	96	28.2
	Phase II	121	37.4
	Phase III	112	34.4

Data expressed in frequency and percentage (n=323)

Table 1 presents the demographic information of the study population. The results showed that the number of females (59.11%) was higher than that of males (40.80%), and the majority of study participants were between 18-19 yrs of age (36.22%). A higher percentage of students were found to be hostelites (66.80%) and majority of the participants were from Phase II of MBBS course (37.40%).

Table 2: Stress distribution among study population

Parameters		Score range	N	%
Stress Prevalence (n=323)		0-13	45	14.0
		14-26	269	83.0
		27-40	9	3.0
Gender (n=323)	Males (132)	0-13	34	26.0
		14-26	86	65.0
		27-40	12	9.0
	Females (191)	0-13	22	11.0
		14-26	135	71.0
		27-40	34	18.0

Data expressed in frequency and percentage (n=323)

Table 2 presents the stress pattern among study population. Majority of the study participants were found to be moderately stressed (83%) followed by mild (14%) and sever stress (3%). Gender wise, majority of the males were found to be moderately stressed (65%) followed by mild (26%) and severe (9%). In females, majority were found to be moderately stressed (71%) followed by severe (18%) and mild stress (11%).

Table 3: Sleep quality among study population

Parameters		Score range	N	%
Excessive Daytime Sleepiness (EDS) (n=323)		Yes (Score ≥ 10)	277	87.0
		No (Score < 10)	46	13.0
Excessive Daytime Sleepiness (EDS) (n-277)	Males	Yes (Score ≥ 10)	111	40.0
	Females	Yes (Score ≥ 10)	166	60.0

Data expressed in frequency and percentage

Table 3 presents the sleep quality among study population. Majority of the study participants were found to have EDS indicating poor sleep hygiene (87%). Gender wise, females were found to have more EDS (60%), than males (40%).

DISCUSSION

The current descriptive study was conducted to assess stress and sleep quality among medical students in Chennai. MBBS is a professional and responsible course which deals with human lives. Hence, academic load, field visits, clinical postings, increased focus and attention, and exam stress becomes part and parcel of the academic journey. These factors can affect the psycho-social health which can affect the well-being of the students [(2).] Hence, the study has assessed stress and sleep quality among medical students in Chennai.

Majority of the study participants were found to be females indicating the fact that in Indian context, more females prefer healthcare education than males. Higher percentage of participants were between the age group 18-19 years indicating the high participation from phase I & II students. Higher percentage of students were found to be residing in hostel, as many medical colleges are seen in urban peripheral areas, to ensure that healthcare delivery reaches equally to all urban, sub-urban and rural population.

Stress is a non-specific response of the body to a given stimulus. Hans Selye, an Endocrinologist was the first person to coin the term 'stress'. The prevalence of stress was assessed using PSS and the results have shown that there is an increased prevalence of stress among medical students in Chennai. Also, as per the PSS scoring most of the students were found to be moderately stressed, which is quite alarming. A study conducted among Vietnam medical students showed the stress prevalence to be 63.37% which is in concurrent with our current study results [(3)]. Another study conducted in Andhra pradesh among medical students showed stress prevalence to be 69% which indicates that stress prevalence among medical students is increasing worldwide [(6).]

Gender wise, females were found to be more stressed than males. As per PSS, higher percentage of males and females were found to be moderately stressed. But, following moderate stress, severe stress pattern was seen more among females than males, showing females are more stressed than males. A study conducted in a private medical college in Chennai also has shown that stress prevalence to be more among females [(12)]. Physiologically, female sex hormones such as oestrogen and progesterone are associated with stress and depression [(13).] Also, Indian cultural factors where females are expected to be more conservative and responsible, and adapt 'tend-and-

befriend' coping mechanism than fight-flight response could be the reasons for increased stress among females than males in our study [14].

Sleep is an essential physiological mechanism required for rejuvenation of the body functions. Human tends to sleep for one-third of their life-time. A night sleep of 8-9 hours is recommended by WHO, for wellbeing of adolescents and young adults. Especially among students a good night sleep is required, as REM sleep is concerned with learning and memory consolidation [15]. Sleep quality assessed using ESS shows that, a very high percentage of study participants have EDS, indicating a very poor sleep quality among medical students. A study conducted in Rwanda among 290 medical students using (PSQI) has reported similar results among medical students especially among the first- and final-year students. Even in our study majority of the participants were from Phase I & II, showing concurrence with Rwanda study results [8]. Another study conducted in Manipal among 400 students using the same tool used in our study (ESS), showed that around 50% of the participants have excessive daytime sleepiness, indicating poor sleep quality [10].

Gender wise, females were found to have poor sleep quality than males. A study conducted among 401 medical students in Telangana using PSQI, has shown that females have poor sleep quality than males [11]. Another study conducted in Chennai, among 173 medical students shows that males have poor sleep quality than females [16]. In current study, females were found to have poor sleep quality than males. Generally, the female sex hormones demand more sleep and monthly fluctuations in sex hormones causes sleep fragmentation and deprivation [17]. Also, females are more prone for depression and anxiety which again can lead to poor sleep hygiene [14]. Thus, these factors could have been the reason for poor sleep quality among female participants in our study.

CONCLUSION

The current study shows that there is an increased prevalence of stress and poor sleep quality among medical students. The results have shown a very high prevalence of stress and poor sleep quality, which not only will affect psycho-social well-being but over a period of time can also affect overall health of the medical students. Hence, its high time to take preventive measures by the institutions and students to manage stress and sleep issues among medical students for a better and healthier future.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest

ETHICAL STATEMENT

This study was conducted in accordance with ethical principles of research involving human participants. The study protocol was approved by the Institutional Ethics Committee before the commencement of the study. Informed consent was obtained from all participants before participating in the study.

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