

Original Research Article

Sleep quality among students in Ibn Sina National College

Murad A. Yasawy^{1*}, Rehab A. Mohammed², Mahmood A. Yasawy¹, Nada Mohammed Hafiz¹,
Haneen A. Turkistani³

¹Ibn Sina National College, Faculty of Medicine, Jeddah, Saudi Arabia,

²Department of internal medicine, Al-AZhar University, Cairo, Egypt

³Ibn Sina National College, Faculty of pharmacy, Jeddah, Saudi Arabia

Received: 27 November 2020

Revised: 20 January 2021

Accepted: 21 January 2021

*Correspondence:

Dr. Murad A. Yasawy,

E-mail: muradyasawy@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Aim of the study was to assess the sleep quality among medical students and explore its relation to many variables as BMI, smoking and chronic diseases.

Methods: A descriptive cross-sectional study, conducted among medical students at Ibn Sina national college, Jeddah, KSA. This study was approved by Research Center. A total of 408 participants; Participants are who admitted to hospital for last two days, pregnant and who under 18 years were excluded. We consider p value=0.05 as significant statistically and our confidant interval (CI) is 95%. We used bivariate and univariant variables, for categorical variables we used Chi-square and Fisher exact test.

Results: The participants' mean age was 22.6±2.7 (87.9%) of them were females. Most of our participants were Single (89.8%). A total of 85.9% of the students had poor sleep quality. Those who had less than 6 Hours of sleeping per day had poor sleep quality by 92.2% and statistically affecting their sleep quality p value =0.000. There was no statistically significant relation between sleep quality and academic year or with Gender (p=0.139, p=0.263) respectively. There was no statistical correlation between Sleep quality and Nightmares or Snoring (p value =0.063, 0.055) respectively.

Conclusions: Poor sleep quality was prevalent in all class years of the undergraduate medical course and more common between females. This study revealed high prevalence of poor sleep quality. Sleep educational programs, stress management courses and lifestyles modifications are required.

Keywords: BMI, Medical students, Mental health, Quality of life, Sleep quality

INTRODUCTION

Sleep is a compulsory neurophysiological process essential to humans and their normal functioning. During sleep, the brain conducts memory consolidation and integration which is critical for successful academic performance.¹ Sleep is most ignorable part of medical student in their life. Normal range of sleep 6-8 hours per day. Both the quantity and quality of sleep play an important role in an individual's psychological and physical well-being.²

Sleep-related disturbances affect a huge part of the population, regardless of age, gender and ethnic group. It was found that the prevalence of sleep disorders among the general population ranged from 22-65%.³⁻⁶ Medical students are vulnerable to poor sleep because of their extended study years, high academic load and clinical duties.³ There is a wide range of environmental factors influence the sleep-wake cycle including internet and social media. Other causes of poor sleep are using of external central nervous system stimulants such as caffeine and caffeinated drinks. Also, medical problems

like obstructive sleep apnea, insomnia, and depression, play a role.⁷⁻⁹ On the other hand; many students are unaware how poor quality of sleep deteriorates their academic performance and cognitive function.⁹ They may not seek counseling or advice regarding this important problem. Medical student has to look out to their sleep quality due to their passive effect on life goodness, cognitive ability, and other related medical problem.¹⁰

Previous studies on medical students in KSA have shown a high prevalence of poor sleep quality attributed to using social media, anxiety and depression.⁷ Many studies showed increased level of stress have negative influence on several aspects of sleep.¹¹ Stress is very common among medical students across the globe. Worldwide studies reported an expansion of stress among medical student from 27% to 73%.¹² Stress can lead to anxiety, depression, even it can be one of reasons to suicide, self-disagreement sleep problems decrease academic and clinical performance they also may start using alcohol and substance abuse.¹³⁻¹⁹ A Sudanese study shown that there is strong relationship between good sleep quality and good academic performance.²⁰ There were studies were done among students to assessed the sleep quality but according to our best knowledge we did not found any research that assessed sleep quality among ISNC students or among private colleges in Saudi Arabia, all of them were on governmental universities. In this study we assessed the sleep quality among medical students and explore its relation to many variables as BMI, smoking and chronic diseases.

METHODS

A descriptive cross-sectional study was conducted among medical students at Ibn Sina national college, Jeddah,

KSA. This study was approved by Research Center in Ibn Sina National College (RC-ISNC) this study done in June to August 2019.

The total calculated sample was size 400. A total of 408 participants who are medical students at Ibn Sina national college and completed the questionnaire within the specified period were included in the study. The students who declined the invitation to participate in the study, who did not complete the questionnaire or those in other programs were excluded. The data was collected by an online questionnaire. The questionnaire consists of two sections: the first section was to obtain the demographic data (Gender, Age, academic year). The second section was to assess the quality of sleep by using Pittsburgh sleep quality index (PSQI) which is validated to assess the sleep of quality (21). PSQI are seven components with using score system by 9; above 5 suggest poor quality of sleep, and we assess the effect of diabetes, hypertension, migraine and asthma on sleep quality. We also assessed the relation between sleep quality and some chronic diseases as HTN, DM, Asthma, and Migraine. Data entry and data analysis was performed by using SPSS (statically package of social science) V21. While we used Microsoft office excel 2016 to display graphs. We consider p value=0.05 as significant statistically and our confidant interval (CI) is 95%. We used bivariate and univariant variables, for categorical variables we used Chi-square and Fisher exact test.

RESULTS

The aim of this study was to assess sleep quality among students in ISNC Jeddah, Saudi Arabia. Our study was cross sectional and included a total of 408 participants. The participants’ mean age was 22.6±2.7 (mean±SD).

Table 1: Sociodemographic data.

Sociodemographic data		Sex						Total
		Male	Female	Single	Married	Divorced	Widowed	
Academic year	First	7	51	57	1	0	0	58
	Second	11	71	81	0	0	1	82
	Third	6	57	55	8	0	0	63
	Fourth	6	36	40	2	0	0	42
	Fifth	21	55	75	0	1	0	76
	Sixth	30	33	37	21	5	0	63
Total		81	303	345	32	6	1	384

Table 3: Sleep quality and academic year.

		Academic year						Total	
		First	Second	Third	Forth	Fifth	Sixth		
Score groups	Good	Count	5	10	6	10	10	13	54
		%	1.30	2.60	1.60	2.60	2.60	3.40	14.10
	Poor	Count	53	72	57	32	66	50	330
		%	13.80	18.80	14.80	8.30	17.20	13.00	85.90
Total		Count	58	82	63	42	76	63	384
		%	15.10	21.40	16.40	10.90	19.80	16.40	100.00

We recruited both males and females, but there were more females (87.9%) than males, and from second year were most of the participants. Most of our sample was Single (89.8%) (Table 1 and 2).

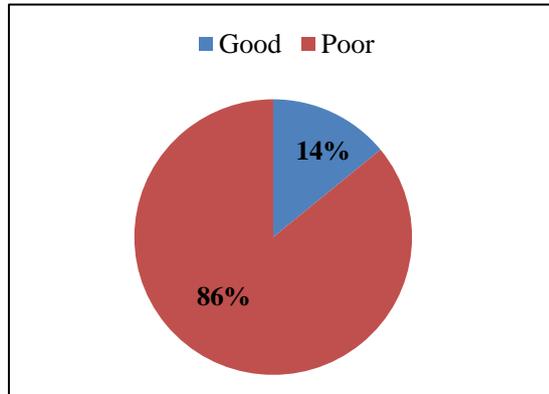


Figure 1: Sleep quality.

Total of 85.9% (330) of the entire sample had poor sleep quality (Figure 1) (Table 3). There was no significant relation statistically between sleep quality and academic year or with gender (p=0.139, p=0.263) respectively (Figure 2). Those who had less than 6 hours of sleeping per day had Poor sleep quality by 92.2% and statistically affecting their sleep quality p value=0.000 (Figure 3). And we did not find any relation statistically between

Sleep quality and Nightmares or Load snoring (p value =0.063, 0.055) respectively (Table 4).

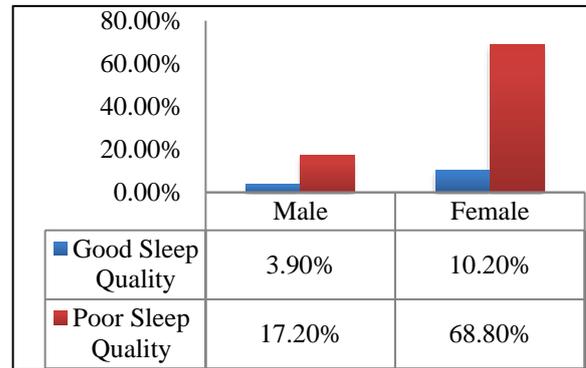


Figure 2: Gender and SQ.

A higher proportion of those who did not exercise regularly had poor sleep quality (71.1%), and no statistically significant relation was found (p=0.718). Most of the smokers in our sample had poor sleep quality (88.2%), and we did not find a statistically significant relation (p=0.811) between smoking and sleep quality. We examined possible relations between sleep quality and some of chronic diseases such as HTN, DM, asthma, migraine; we did not find any statistically significant relations between sleep quality and chronic diseases (Table 4).

Table 4: Nightmares and sleep quality.

		Sleep quality		Total	
		Good	Poor		
Nightmares	No	Number	25	107	132
		%	18.9	81.1	100.0
	Yes	Number	29	223	252
		%	11.5	88.5	100.0
P-value		0.063			
Snoring and sleep quality					
Snoring	Yes	Number	44	226	270
		%	16.3	83.7	100.0
	No	Number	10	104	114
		%	8.8	91.2	100.0
P-value		0.055			
Fisher's Exact Test					

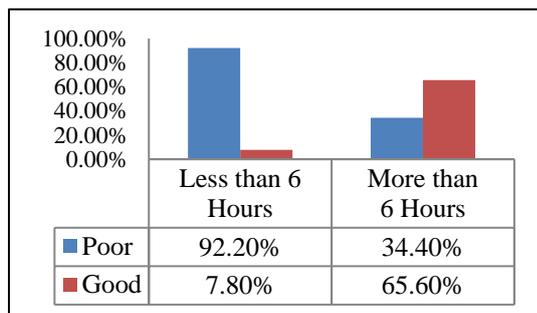


Figure 3: Sleep quality and sleep hours.

Table 5: Sleep quality and chronic diseases

Chronic diseases		DM	HTN	Asthma	Migraine
Sleep quality (N)	Poor	3	4	34	53
	Good	2	1	2	3
P value		0.147	0.533	0.203	0.058

This table describes sleep quality and its relation to chronic diseases. Fisher's exact test. DM= diabetes mellitus, HTN= hypertension. P= p value, N= number.

DISCUSSION

Our results showed a high prevalence of poor sleep quality (85.9%) among medical students. This may be referred to as many activities and stresses facing medical students, which may require too much work and study during the night. This rate coincides with others from Saudi Arabia and Spain. A Chinese study reported 19.15% of medical students has poor sleep quality.^{4,22,23} Such high rates among medical students of poor sleep quality from different countries need big apprehension for dealing with all stresses facing them.

In this study, females were much more poor sleepers than males, which are agreed with a lot of prior studies.^{4,24,25} The exact reason for gender difference still unclear. However, this may be referred to a big difference of psychological issues like depression and anxiety among females, and the relation between sleep disturbance and these issues.²⁶ On contrary, the Indian study showed that the males had poor sleep compared to females. This may be due to the increasing prevalence of addiction among males in their study.²⁷

Students enrolled in the basic educational years in this study were a poorer sleeper compared to those students in clinical years. This difference may be due to the high load of lectures in pre-clinical years which need more time during the night for study. Those students may still not adapt to that high load of lectures and studying after school. This finding agrees with the results of the study done at California University, USA.⁷ It also coincides with the results of recent studies, 2017, done in Saudi Arabia and Egypt.^{4,25} On the other hand, a study done in India showed a positive relationship between increasing in age and poor sleep quality.²⁶ This conflicting in results may be due to differences in the group sample of the study, while Indian study conducted among students, interns and postgraduate physicians also. The last two groups had more stress and night on-calls which may disturb sleep quality.^{27,30}

Our results revealed smokers had high poor sleep compared to non-smokers, but without statistically significant difference. On the other hand, the Indian study showed the presence of such relation.²⁷ This may have clarified by the low smokers among our sample. On contrary to Schlarb et al. our study showed no significant differences in sleep patterns in whom had nightmares or snoring compared to others.²⁸ We observed non-significant association between the sleep quality and physical activity. A study conducted by Podhorecka et al. showed that people who performed intense or moderate PA woke up less frequently during the night, fell asleep faster, and reported better quality of sleep.^{29,31}

In the current study, our results revealed an absence of a statistical association between sleep quality and chronic diseases.

Our limitations and difficulty that no enough studies were done before in ISNC students to compare if there any change and difference regarding sleep quality and how it effects their education. So, we highly recommend to repeat the study and to compare the difference and how to manage the poor level of quality of sleep between the students and not only in ISNC on all universities and colleges.

CONCLUSION

This study revealed high prevalence of poor sleep quality and those medical students are our future physicians so their quality of life and sleep is essential.

Recommendations

Sleep educational programs, stress management courses and lifestyles modifications are required.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Surani AA, Zahid S, Surani A, Ali S, Mubeen M, Khan RH. Sleep quality among medical students of Karachi, Pakistan. *J Pak Med Assoc*. 2015;65(4):380-2.
2. Sahraian A, Javadpour A. Sleep disruption and its correlation to psychological distress among medical students. *Shiraz E Med J*. 2002;11(1):12-7.
3. James BO, Omoaregba JO, Igberase OO. Prevalence and correlates of poor sleep quality among medical students at a Nigerian university. *Annals of Nigerian Medicine*. 2011;5(1):1.
4. Ibrahim NK, Badawi FA, Mansouri YM, Ainousa AM, Jambi SK, Fatani AN. Sleep quality among medical students at King Abdulaziz University: a cross-sectional study. *J Community Med Health Educ*. 2017;7(5):1000561.
5. Abdulghani HM, Alrowais NA, Bin-Saad NS, Al-Subaie NM, Haji AM, Alhaqwi AI. Sleep disorder among medical students: relationship to their academic performance. *Medical Teacher*. 2012;34(1):37-41.
6. Léger D, Partinen M, Hirshkowitz M, Chokroverty S, Hedner J. Characteristics of insomnia in a primary care setting: EQUINOX survey of 5293 insomniacs from 10 countries. *Sleep Medicine*. 2010;11(10):987-98.
7. Siddiqui AF, Al-Musa H, Al-Amri H, Al-Qahtani A, Al-Shahrani M, Al-Qahtani M. Sleep patterns and predictors of poor sleep quality among medical students in King Khalid University, Saudi Arabia. *The Malaysian J Med Sci*. 2016;23(6):94.
8. Pilcher JJ, Walters AS. How sleep deprivation affects psychological variables related to college

- students' cognitive performance. *J Am College Health*. 1997;46(3):121-6.
9. Pagel JF. Excessive daytime sleepiness. *Am Family Physician*. 2009;79(5):391-6.
 10. Brick CA, Seely DL, Palermo TM. Association between sleep hygiene and sleep quality in medical students. *Behavioral Sleep Med*. 2010;8(2):113-21.
 11. El-Masry R, Ghreiz SM, Helal RM, Audeh AM, Shams T. Perceived stress and burnout among medical students during the clinical period of their education. *Ibnosina J Med Biomed Sci*. 2013;5(4):179-87.
 12. Brahmhatt KR, Nadeera VP, Prasanna KS, Jayram S. Perceived stress and sources of stress among medical undergraduates in a private medical college in Mangalore, India. *Int J Biomed Adv Res*. 2013;4(2):133-5.
 13. Shariati M, Yunesian M, Vash JH. Mental health of medical students: a cross-sectional study in Tehran. *Psychological Reports*. 2007;100(2):346-54.
 14. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clinic Proceedings*. 2005;80(12):1613-22.
 15. Alem A, Araya M, Melaku Z, Wendimagegn D, Abdulahi A. Mental distress in medical students of Addis Ababa University. *Ethiopian Med J*. 2005;43(3):159-66.
 16. Baldwin DC, Daugherty SR, Eckenfels EJ. Student perceptions of mistreatment and harassment during medical school. a survey of ten United States schools. *Western J Med*. 1991;155(2):140.
 17. Niemi PM, Vainiomäki PT. Medical students' distress—quality, continuity and gender differences during a six-year medical programme. *Med Teacher*. 2006;28(2):136-41.
 18. Cozens J. Emotional distress in junior house officers. *Br Med J*. 1987;295(6597):533-6.
 19. Ball S, Bax A. Self-care in medical education: effectiveness of health-habits interventions for first-year medical students. *Academic Med*. 2002;77(9):911-7.
 20. Mirghani HO, Mohammed OS, Almurtadha YM, Ahmed MS. Good sleep quality is associated with better academic performance among Sudanese medical students. *BMC Res*. 2015;8(1):1-5.
 21. Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The pittsburgh sleep quality index: a new instrument for psychiatric practice and research. *Psychiatry Res*. 1989;28(2):193-213.
 22. Machado ME, Echeverri CJE, Machado JE. Excessive daytime sleepiness, poor quality sleep, and low academic performance in medical students. *Revista Colombiana de Psiquiatría*. 2015;44(3):137-42.
 23. Feng GS, Chen JW, Yang XZ. Study on the status and quality of sleep-related influencing factors in medical college students. *Zhonghua Liu*. 2005;26(5):328.
 24. Mesquita G, Reimão R. Quality of sleep among university students: effects of nighttime computer and television use. *Arquivos Neuropsiquiatria*. 2010;68(5):720-5.
 25. Fawzy M, Hamed SA. Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry Res*. 2017;255:186-94.
 26. Kalak N, Brand S, Beck J, Holsboer E, Wollmer MA. Association between subjective actual sleep duration, subjective sleep need, age, body mass index, and gender in a large sample of young adults. *Neuropsychiatric Disease Treatment*. 2015;11:107.
 27. Giri PA, Baviskar MP, Phalke DB. Study of sleep habits and sleep problems among medical students of Pravara Institute of Medical Sciences Loni, Western Maharashtra, India. *Annals Med Health Sci Res*. 2013;3(1):51-4.
 28. Schlarb A, Bihlmaier I, Hautzinger M, Gulewitsch MD, Schwerdtle B. Nightmares and associations with sleep quality and self-efficacy among university students. *J Sleep Disorders Management*. 2015;1:76-84.
 29. Podhorecka M, Cytarska M, Gębka D, Perkowski R, Androsiuk PJ, Jaroch A, et al. Can physical activity influence the quality of sleep among the elderly? *J Education Health Sport*. 2017;7(12):288-305.
 30. Brick CA, Seely DL, Palermo TM. Association between sleep hygiene and sleep quality in medical students. *Behavioral Sleep Medicine*. 2010;8(2):113-21.
 31. Wali SO, Qutah K, Abushanab L, Basamh RA, Abushanab J, Krayem A. Effect of on-call-related sleep deprivation on physicians' mood and alertness. *Annals Thoracic Med*. 2013;8(1):22.

Cite this article as: Yasawy MA, Mohammed RA, Yasawy MA, Hafiz NM, Turkistani HA. Sleep quality among students in Ibn Sina National College. *Int J Community Med Public Health* 2021;8:1110-4.