



Journal Homepage: [-www.journalijar.com](http://www.journalijar.com)

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/14034
DOI URL: <http://dx.doi.org/10.21474/IJAR01/14034>



RESEARCH ARTICLE

EVALUATION OF SLEEP QUALITY IN MEDICAL STUDENTS DURING THE COVID-19 PANDEMIC

Guray Ceylan¹, Oykum Kelle², Aslihan Akyildiz², Harun Bayram², Bengisu Guvenilir², Rabia Tuba Akgun², Dilara Atalar², Umut Emre Cebi², Abdulhakim Uysal², Aliye Aydin², Volkan Yarimkaya², Majid Andarouni² and Fatih Solmaz²

1. Department of Internal Medicine, ZBEU, Turkey.
2. 3rd Year Student, ZBEU School of Medicine, Turkey.

Manuscript Info

Manuscript History

Received: 05 November 2021
Final Accepted: 09 December 2021
Published: January 2022

Key words:

Medical Students, Pittsburgh Sleep Quality Index, Covid-19 Pandemic.

Abstract

Background: Poor sleep patterns are common in medical students due to the long duration and high intensity of study. In this study, we aimed to assess the sleep quality among medical students who are getting online and face to face practical education during the Covid-19 pandemic.

Material and Method: The study which planned as a cross sectional research, was made among medical students between 25th of February and 25th of March in 2021. Pittsburgh Sleep Quality Index (PSQI) was sent to the participants via internet and they were asked to complete the questionnaire. Medical students were classified as poor sleepers having global PSQI > 5. The data obtained from the questionnaire were statistically analyzed.

Results: Of the 154 students approached, %72.1 were males, %27.9 were females and overall mean age was 21.75±2.28 years. Sleep onset latency and average sleep time among the participants were 33.11±31.12 minutes and 7.46±4.81 hours (p = 0.772 and p = 0.034) respectively. Average PSQI global score was 7.18 ± 3.07, %77.9 of the participants were poor sleepers and there was no significant difference between genders (p=0.879).

Conclusion: Compared to the similar studies of the literature which were done before the Covid-19 pandemic duration, nearly 2 times higher rates of poor sleep quality was observed among medical students. We think that the Covid-19 pandemic process negatively contributes to sleep quality.

Copy Right, IJAR, 2022., All rights reserved.

Introduction:-

Sleep which takes a big place (nearly 1/3) in our lives is a very important and essential process of human health (1). The sleep which may lead to various physiological process is itself also affected by multiple factors like environmental conditions, drugs, social interactions via internet and television. It may also cause unfavourable results in one's daily, professional and social life, in cognitive functions, and life quality (2). Poor sleep quality may cause health problems and negative outcome at school and professional life of individuals (2, 3). Nowadays, poor sleep quality and decreased sleeping time are common in modern societies (4). Sleep quality of students was assigned mostly poor in a study among medical students in Lebanon (5). Studies which are investigating the sleep quality of

Corresponding Author:- Guray Ceylan

Address:- Department of Internal Medicine, ZBEU, Turkey.

medical students in the literature have found the rate of poor sleep quality to vary from %16 to %53 (6, 7) and this rate is %64 in a study in our country (8).

It is very possible that the medical school students may not be able to take the necessary amount of sleep they need because of the intense and exhausting course of medical education. Lack of attention and fatigue are seen at the students who can't get enough sleep. This situation affects both their health and the people's around them negatively (9).

In this study, we aimed to assess the sleep quality of students in Zonguldak School of Medicine who attended online and face to face education during the Covid-19 pandemic.

Material And Methods:-

This cross-sectional volunteer-based study was accomplished between the 25th of February and the 25th of March in 2021 among the 1st, 2nd, 3rd, 4th, 5th and 6th grade students of Zonguldak School of Medicine. Pittsburgh Sleep Quality Index (PSQI) was sent to participants via internet and they were asked to fulfill the questionnaire completely (10). The students were also asked to define their age, sex and the year of their class. 154 students attended this study. Participants were separated in to 2 groups those who are getting online education (year 1,2,3) and secondly face to face practical education (year 4,5,6). Medical students were classified as poor sleepers having global PSQI>5.

This study was approved by the local Non-Interventional Clinical Trails Ethic Committee of our center (Ref: 2021-06-24/02).

Statistical Analysis:

Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS, Version 18.0). Categorical variables were given with frequency and percent, continuous variables were given with mean, standard deviation, median, minimum and maximum values. Normality distribution of the continuous variables was checked by both visual and normality distribution tests. Independent samples test was used to compare the differences between the two groups of normally distributed variables and Mann Whitney U test was used to compare the differences between the two groups of abnormally distributed variables. Chi square test was used for categorical variables. For all statistical analysis with p value under 0.05 was assumed to have a statistical significance.

Results:-

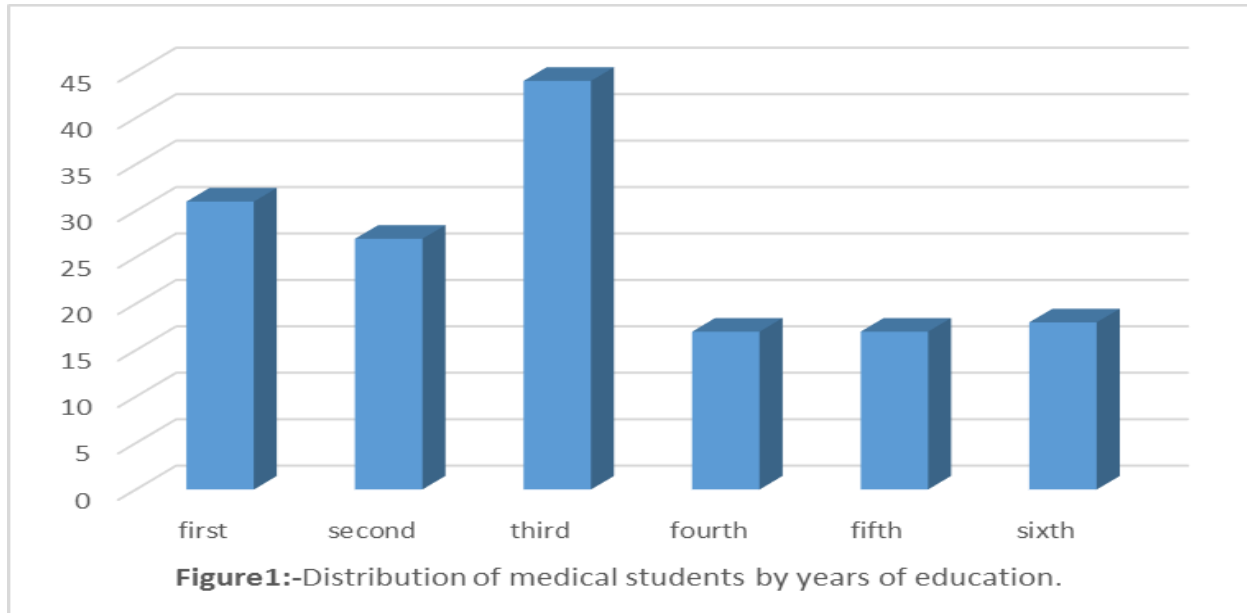
The total number of participants was 154 of which %72.1 was male and %27.9 female. The mean age was 21.75 ± 2.28 . Sleep latency and mean sleep duration among the participants were 33.11 ± 31.12 minutes and 7.46 ± 4.81 hours ($p = 0.772$ and $p = 0.034$) respectively. Mean total PUQI score was 7.18 ± 3.07 . %77.9 of the volunteers had poor sleep quality and there was no significant difference between the genders ($p = 0.516$). The main characteristics of the volunteers are shown in Table 1.

Table 1:- Demographics and clinical features of the volunteers.

Characteristics	Male	Female	p
	n=111	n=43	
Age (y), mean \pm sd	22.76 ± 2.73	21.36 ± 1.97	0.002
Sleep onset latency (min.)	34.65 ± 34.27	29.11 ± 20.77	0.772
Average sleep time (Hrs)	7.70 ± 5.59	6.84 ± 1.33	0.034
PSQI	7.13 ± 2.84	7.30 ± 3.64	0.879

Min: Minute, Hrs: Hours, PSQI: Pittsburgh Sleep Quality Index

Proportional distribution according to their undergraduate class year of the medical students who participated in our study was shown in Figure 1. There was a significant correlation between total PSQI score and class year ($p=0,041$; $r=0,614$). Nevertheless, there was no significant difference in sleep quality and total PSQI score between the students who attended online and face to face education ($p > 0.05$). There was a significant correlation between sleep duration and sleep quality among all students ($p=0.003$; $r=0.975$).



Discussion:-

It is known that the duration and the quality of the sleep have an important effect on human's daily life, physical and mental behavior (1, 3). There are many studies in literature investigating the effects of enough and proper sleep on mood and academic performance of undergraduate students (11-13). Because of the heavy academic course and responsibilities of the medical students, it is important to assess their sleep quality (14, 15).

According to the results of the study we have made with PSQI questionnaire during the Covid-19 pandemic, it is seen that %77.9 of the medical students who have been included in our study has poor sleep quality. There is also no significant difference in sleep quality, sleep latency and mean sleep duration between the genders. Besides, there is a considerably significant correlation between total PSQI score and year of education, there is no significant difference in sleep quality and total PSQI score between the students who are getting online education and face to face practice.

In a study performed by Surani et al before the Covid-19 pandemic, sleep quality was assessed by PSQI and Epworth Sleepiness Scale among a total number of 504 students including 1st to 6th graders of medical school (7). They found a %39.5 frequency of poor sleepers in this group. Again, in this study they reported the frequency of poor sleepers as 44% and 32.8% between females and males respectively. They interpreted the association between poor sleep quality and female gender by cultural and social norms of their society and reportedly increased frequency of various sleep disorders and disturbances among females in general.

Similarly, Corrêa et al evaluated the sleep quality in medical school students by PSQI questionnaire (16). Of the total amount of 540 students who were invited to participate in the study, 372 of them completed the PSQI. In this study, students were separated in 3 study groups according to their year of class as 1-2 A, 3-4 B and 5-6 C. They noticed that 39.5% of the participants classified their sleep quality as either very or fairly bad. The results also showed no significant difference regarding subjective sleep quality, sleep latency, or sleep duration among the three groups. The analysis of subjective sleep quality showed that, the students in group A were statistically likely to have a significantly very bad subjective sleep quality. Of the total sample, 8.6% of the participants reported using sleeping medication at least once a week, and 87.4% reported having difficulty in staying awake during the day at least once a week and nearly half of them reported having trouble in engaging in daily activities at least once a week. Nevertheless, there was no significant difference for total PSQI score between three groups. Greater deleterious effects were experienced by the students in group A on subjective sleep quality and daytime dysfunction than the ones who did those in other groups. This was explained by the difficulty in adaptation of the newcomers to the medical school which required a high level of dedication and selflessness and signifying harmful lifestyle changes(16).

PSQI questionnaire was given to 318 medical school students in a study made in Turkey by Erdogan et al between 2015 and 2016. It was found that %64.2 of the participants had bad sleep quality. A negative weak relationship was noticed between total PSQI score and exam results of the students. It was also seen that the sleep quality of the students who consumed drinks with caffeine was worse than the ones who didn't (8).

The limitation of our study is not be able to reach all medical students. The reason for this was continuing national restriction in educational area in the content of protective measures of the Covid-19 pandemic.

Conclusion:

Higher rates of bad sleep quality numbers were seen in our study compared to similar studies in the literature made before the Covid-19 pandemic. We have reached to the conclusion that it could have a positive impact to educate medical students about bad sleep quality and its consequences and support them in coping with the negative results of the Covid-19 Pandemic.

Acknowledgments:-

The authors would like to thank the patients who willingly participated in the study.

References:-

1. Pollak C, Thorpy MJ, Yager J. The encyclopedia of sleep and sleep disorders: InfoBase publishing; 2010.
2. Fabbri M, Beracci A, Martoni M, Meneo D, Tonetti L, Natale V. Measuring subjective sleep quality: a review. *International Journal of Environmental Research and Public Health*. 2021;18(3):1082.
3. Medic G, Wille M, Hemels ME. Short-and long-term health consequences of sleep disruption. *Nature and science of sleep*. 2017;9:151.
4. Chattu VK, Manzar M, Kumary S, Burman D, Spence DW, Pandi-Perumal SR, editors. The global problem of insufficient sleep and its serious public health implications. *Healthcare*; 2019: Multidisciplinary Digital Publishing Institute.
5. Kabrita CS, Hajjar-Muça TA, Duffy JF. Predictors of poor sleep quality among Lebanese university students: association between evening typology, lifestyle behaviors, and sleep habits. *Nature and science of sleep*. 2014;6:11.
6. Veldi M, Aluoja A, Vasar V. Sleep quality and more common sleep-related problems in medical students. *Sleep medicine*. 2005;6(3):269-75.
7. 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.
8. Erdoğan N, Karabel MP, Şeyda T, Güzel D, Ekerbiçer HÇ. Sakarya Üniversitesi Tıp Fakültesi Öğrencilerinde Uyku Kalitesi ve Etkileyen Faktörlerin Belirlenmesi. *Sakarya Tıp Dergisi*. 2018;8(2):395-403.
9. Azad MC, Fraser K, Rumana N, Abdullah AF, Shahana N, Hanly PJ, et al. Sleep disturbances among medical students: a global perspective. *Journal of clinical sleep medicine*. 2015;11(1):69-74.
10. Buysse DJ, Reynolds III CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research*. 1989;28(2):193-213.
11. Gómez-Chiappe N, Lara-Monsalve PA, Gómez AM, Gómez DC, González JC, González L, et al. Poor sleep quality and associated factors in university students in Bogotá DC, Colombia. *Sleep Science*. 2020;13(2):125.
12. Khan F, Haroon H, Murtaza H, Anwar E. Determinants of sleep quality among undergraduate students of Universities of Karachi. *Annals of Psychophysiology Volume*. 2016.
13. Li Y, Bai W, Zhu B, Duan R, Yu X, Xu W, et al. Prevalence and correlates of poor sleep quality among college students: a cross-sectional survey. *Health and quality of life outcomes*. 2020;18(1):1-11.
14. James BO, Omoaregba JO, Igberase OO. Prevalence and correlates of poor sleep quality among medical students at a Nigerian university. *Ann Nigerian Med*. 2011;5(1):1-5.
15. Khaksarian M, Behzadifar M, Behzadifar M, Jahanpanah F, Guglielmi O, Garbarino S, et al. Sleep disturbances rate among medical and allied health professions students in Iran: implications from a systematic review and meta-analysis of the literature. *International journal of environmental research and public health*. 2020;17(3):1011.
16. Corrêa CdC, Oliveira FKd, Pizzamiglio DS, Ortolan EVP, Weber SAT. Sleep quality in medical students: a comparison across the various phases of the medical course. *Jornal Brasileiro de Pneumologia*. 2017;43:285-9.