Vita Medica Scientica Journal

VMS J Vol.2, No.1, 51-61(2026)
doi: 10.64514/vmsjournal.2026.20
ORIGINAL RESEARCH

Evaluation of the Relationship between Caffeine Use Disorders and Sleep Quality and Perceived Stress Level in Research Assistants of a University Hospital

Selcuk Mistik[1], Şeyma Varol Ölç[2]

[1]Erciyes University Medical Faculty, Department of Family Medicine Kayseri, Türkiye (0000-0003-0657-3881)
[2]Erciyes University Medical Faculty, Department of Family Medicine Kayseri, Türkiye (0009-0007-1630-557X)

Accepted 05 March 2026

Abstract

Objective and Aim

The aim of this study was to investigate the relationship between caffeine consumption, sleep quality and perceived stress level in physician assistants.

Materials and Methods

The study was a single-centre, cross-sectional and analytical study and 315 participants who met the inclusion criteria among the resident physicians working at Erciyes University Health Application and Research Centre Hospitals were included in the study. A questionnaire form prepared by us including the sociodemographic data of the participants and information about the frequency of consumption of caffeine-containing beverages, caffeine use disorder scale (CUDS), Pittsburgh sleep quality index (PSQI) and perceived stress scale (PSS) were applied as a face-to-face questionnaire. The data obtained were evaluated with SPSS (Statistical Package for the Social Sciences) 29.0 package programme and Graphpad Prism version 10.0.3 statistical package programme. Continuous variables were expressed as mean and standard deviation values. Categorical variables were expressed as number and percentage (%). Statistical significance level was accepted as $p < 0.05$ in all tests.

Results

The mean age of the individuals participating in the study was 28.87±3.05 years. 58.7% of the participants were female and 41.3% were male. The proportion of participants working in internal departments was 65.1%, 28.6% in surgical departments and 6.3% in basic departments. The mean score of the Caffeine Use Disorder Scale (CUDS) was 16.06±5.9, the mean score of the Perceived Stress Scale (PSS) was 26.50±6.96, and the mean score of the Pittsburgh Sleep Quality Index (PSQI) was 6.07±2.94. It was found that 67.6% of the participants had poor sleep quality. The Perceived Stress Scale scores of women were statistically significantly higher than men ($p = 0.007$). Caffeine Use Disorder Scale scores of research assistants working in surgical units were statistically

Corresponding Author:
Selcuk Mistik
Erciyes University Medical Faculty, Department of Family Medicine, Kayseri, Turkey
Email: selcukmistik@gmail.com

To cite:
Mistik S, Olc ŞM. Evaluation of the Relationship between Caffeine Use Disorders and Sleep Quality and Perceived Stress Level in Research Assistants of a University Hospital. VMS Journal 2026;2(1):51-61. doi: 10.64514/vmsjournal.2026.20

significantly higher than those of research assistants working in internal and basic departments (p = 0.001). A statistically significant correlation was found between Pittsburgh Sleep Quality Index scores and Caffeine Use Disorder Scale scores (r = 0.382, p<0.001). Similarly, there was a positive and statistically significant relationship between Pittsburgh Sleep Quality Index scores and Perceived Stress Scale scores (r = 0.276, p<0.001). The relationship between Perceived Stress Scale scores and Caffeine Use Disorder Scale scores was statistically significant and positive (r = 0.132, p = 0.019). Caffeine Use Disorder Scale scores of participants who slept well were statistically significantly lower than those of participants who slept poorly (t (313) = -4,950, p<0,001), and Perceived Stress Scale scores of participants who slept well were statistically significantly lower than those of participants who slept poorly (t (313) = -3,737, p<0,001).

Conclusion

In this study, it was concluded that caffeine use disorder affects sleep quality and perceived stress level. Those working in surgical departments are more at risk for caffeine use disorder. The sleep quality of on-call physicians was worse and their stress levels were higher. The CUDS score is associated with the PSQI score and the PSS score.

Keywords: Physician, Caffeine, Sleep, Stress

1. Introduction

Introduction Caffeine is the most widely consumed psychostimulant in the world (1). The European Food Safety Authority has concluded that caffeine intake of 400 mg or less per day for adults and up to 3 mg/kg per day for children and adolescents is safe (2). At moderate doses (40 to 300 mg), caffeine reduces fatigue, increases alertness and decreases reaction time by antagonizing the effects of adenosine (3). Caffeine typically prolongs sleep latency, worsens perceived sleep quality, and decreases total sleep time and sleep efficiency (4). Side effects associated with very high levels of caffeine intake include anxiety, restlessness, irritability, dysphoria, insomnia, excitation, psychomotor agitation, and disorganized thought and speech flow (5). Sleep quality is often defined as the individual's overall satisfaction with the sleep experience. Its main components are the amount of sleep, the continuity of sleep and the feeling of revitalization after waking up (6). Factors such as age, gender, exercise, occupational factors, working conditions, individual habits and stress cause changes in sleep quality (7). Stress, which is important for daily life, occurs as a result of reactions to the environmental conditions in which the person lives or to events and situations that develop depending on him/her (8). Studies have shown that some individuals experience more work stress than other individuals in their work environment (9). The excessive working hours and irregular working hours of physicians cause negativities in the provision and quality of health services and lead to changes in eating habits, problems with sleep, and negativities in family relationships and relationships with the social environment (10).

In addition, individuals working in the health sector generally have a shift-shift working style. People who have to work in this way develop irregularities in the circadian systems that regulate the sleep-wake cycle and prepare the person for night sleep, and these people are excluded from social life and deprived of a regular way of working. In addition, these people do not have a regular night's sleep and their sleep quality is severely impaired. For this reason, it is important to conduct studies examining the sleep quality of physicians (11).

In this study, we aimed to evaluate the relationship between caffeine consumption and sleep quality and perceived stress level in physician assistants.

Materials and Methods

This cross-sectional study was conducted on 315 research assistants working at Erciyes

University Faculty of Medicine in 2024. The aim of the study was to investigate the effects of caffeine consumption characteristics on sleep quality and stress levels in physician assistants. The sample size was calculated as a minimum of 256 people in the power analysis with a 5% margin of error at 95% confidence interval. Statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) 29.0 package program and Graphpad Prism version 10.0.3. Continuous variables were expressed as mean and standard deviation values. Categorical variables are expressed as number and percentage (%). Visual inspection of çarpıklık-basıklık values and histogram graphs were used to evaluate the normal distribution. Accordingly, it was concluded that the scale scores used in the study fit the normal distribution. Student's t-test was used for two group comparisons and one-way ANOVA test was used for multiple group comparisons. Homogeneity of variance was evaluated by Levene's test. Correlations between variables were evaluated by Pearson correlation analysis. Analysis results were presented in tables and graphs. Statistical significance level was accepted as $p < 0.05$ in all tests.

Results

A total of 315 research assistant doctors working at Erciyes University Faculty of Medicine in 2024 participated in our study. Of the participants, 185 (58.7%) were female and 130 (41.3%) were male. The mean age of the participants was 28.87 years (sd: 3, 05). While 164 (52.1%) of the participants were married, 151 (47.9%) were single/separated. The proportion of participants working in internal departments was 65.1% (n = 205), 28.6% (n = 90) in surgical departments, and 6.3% (n = 20) in basic departments. 161 (51.1%) of the participants worked less than 9 hours per day and 154 (48.9%) of the participants worked more than 9 hours per day. None of the participants had chronic diseases. Regarding smoking and alcohol use, 18.1% (n = 57) of the participants were active smokers and 13.0% (n = 41) were alcohol users. Data on the descriptive characteristics of the participants are shown in Table 1.

Table-1: Descriptive characteristics of participants (n=315)

	$\bar{x}$	sd
Age (years)	28,87	3,05
	n	%
Gender		
Woman	185	58,7
Male	130	41,3
Marital status		
Married/Coupled	164	52,1
Single/seperate	151	47,9
Unit of study		
İnternal	205	65,1
Surgical	90	28,6
Basic	20	6,3
Daily working time		
Less than 9 hours	161	51,1
More than 9 hours	154	48,9
Time spent as an assistant		
1th year	111	35,2
2th year	108	34,3
3th year	40	12,7
4th year and above	56	17,8
Number of shifts per month		
Does not keep watch	81	25,7
Between 1 and 4 shifts	76	24,0
5 shifts or more	158	50,3
Smoking		
Never drank	242	76,8
Left	16	5,1
Actively using	57	18,1
Alcohol use		
Never drank	373	86,7
Left	1	0,3
Actively using	41	13,0

n: Number of units, %: Percentage value, $\bar{x}$: Mean, sd: Standard deviation

In the statistical analysis process, the psychometric properties of the scales used were examined. The mean Caffeine Use Disorder Scale (CUDS) score of the participants was 16.06 (standard deviation: 5.90). The minimum score was 10 and the maximum score was 34. The internal consistency coefficient (Cronbach's alpha) of the PBSS was calculated as 0.901 (Table-2).

Table 2: Statistics from the Caffeine Use Disorder Scale

x̄	sd	Minimum	Maksimum	Cronbach alpha
16,06	5,90	10	34	0,901

x̄: Mean, sd: Standart deviation

The mean score obtained from the Perceived Stress Scale (PSS) used in the study was 26.50 (standard deviation: 6.96). The minimum score was 8 and the maximum score was 51. The internal consistency coefficient (Cronbach's alpha) of the scale in the present sample was found to be 0.840 (Table-3).

Table 3: Statistics from the Perceived Stress Scale

x̄	sd	Minimum	Maksimum	Cronbach alpha
26,50	6,96	8	51	0,840

x̄:Mean, sd: Standart deviation

The mean score obtained from the Pittsburgh Sleep Quality Index (PSQI), another scale used in the study, was 6.07 (standard deviation: 2.94). The minimum score obtained from the scale is 0 and the maximum score is 18. In the instructions of this scale, it is mentioned that sleep quality is "poor" if the calculated score is 5 or above and "good" if the score is below 5. Accordingly, 102 (32.4%) and 213 (67.6%) of the current participants had "good" and "poor" sleep quality, respectively (Table-4).

Table 4: Classification of participants according to PSQI scores

	n	**%**
Good sleepers	102	32,4
Bad sleepers	213	67,6
n: Number of units, %: Percentage value, PSQI: Pittsburgh Sleep Quality Index		

The relationship between the descriptive variables of the participants and the scale scores is shown in Table-5. Females had statistically significantly higher PSS scores than males (p = 0.007). Research assistants working in surgical units had statistically significantly higher scores on the CUDS than research assistants working in internal and basic departments (p = 0.001). The PSQI scores of resident physicians working in surgical departments were statistically significantly higher than those working in internal departments (p<0.001). Participants with 5 or more monthly shifts had higher PSQI scores than those with no shifts and those with less than 5 monthly shifts (p<0.001). It was found that the PSS score was higher in residents who had 5 or more shifts per month compared to those who had no shifts and those who had 4 or less shifts per month, and this difference was statistically significant (p=0.005). In addition, in our study, participants with a daily working time of more than 9 hours had a statistically significant higher PSS score than those with a daily working time of less than 9 hours (p=0.016).

Participants with a daily tea consumption of 4 cups or more had a significantly higher score on the CUDS scale than those with a daily tea consumption of 1 cup or less (p=0.017). Participants with daily Turkish coffee consumption of 1 cup or more had a significantly higher CUDS score than those who did not consume any Turkish coffee during the day (p<0.001). Participants whose daily consumption of other types of coffee (filter, americano, latte, etc.) was 1 cup or more had a higher CUDS score compared to those who never consumed coffee, and this difference was statistically significant (p<0.001). Participants with a weekly consumption frequency of 2 or more servings of cola and energy drinks had a statistically significant higher CUDS score compared to participants with a weekly consumption frequency of less than 2 servings (p<0.001). Participants who consumed 2 or more servings of cola per week had a significantly higher PSS score than those who consumed less than 2 servings of cola per week (p=0.018). There was no significant correlation between daily tea consumption frequency and PSQI scores (p=0.409). However, there was a significant relationship between daily consumption of Turkish coffee and coffee (filter, americano, latte, etc.) and PSQI total scores. Participants who consumed 2 cups or more of coffee (filter, americano, latte, etc.) per day had significantly higher PSQI scores than those who drank 1 cup of coffee per day and those who never drank coffee (p<0.001). Participants who consumed 1 cup or more of

Table 5: Scale scores according to descriptive variables

	CUDS score	p value	PSS score	p value	PSQI score	p value
Gender						
Women	15,81±5,01	0,399	27,39±6,98	0,007	5,82±6,33	0,083
Male	16,42±6,99		25,23±6,77		6,42±3,31	
Marital status						
Married/Coupled	15,37±5,67	0,011	26,15±6,97	0,390	5,77±2,81	0,076
Single/seperate	16,91±6,09		26,82±6,84		6,36±3,03	
Unit of study						
Internal	15,38±5,11b		26,94±7,30		5,65±2,53b	
Surgical	17,96±7,36a	0,001	25,40±6,04	0,209	7,10±3,55a	<0,001
Basic	14,50±4,21b		26,85±7,09		5,70±2,83a,b	
Daily working time						
Less than 9 hours	15,09±5,19	0,003	25,58±7,16	0,016	5,47±2,50	<0,001
More than 9 hours	17,08±6,43		27,46±6,64		6,69±3,23	
Time spent as an assistant						
1th year	16,59±5,87		26,14±6,72		6,37±2,79	
2th year	15,64±5,80	0,668	26,41±7,29	0,504	5,81±2,93	0,421
3th year	15,75±5,79		28,05±6,56		5,70±2,94	
4th year and above	16,04±6,32		26,27±7,12		6,23±3,25	
Number of shifts per month						
Does not keep watch	14,79±4,40b		25,40±6,39b		5,52±2,46b	
Between 1 and 4 shifts	15,34±6,11a,b	0,009	25,04±7,80b	0,005	5,29±2,80b	<0,001
5 shifts or more	17,06±6,32a		27,77±6,62a		6,72±3,10a	
Smoking (actively)						
No	15,45±5,40	<0,001	26,47±6,97	0,857	5,78±2,72	0,002
Yes	18,82±7,27		26,65±7,00		7,37±3,52	
Alcohol use (actively)						
No	15,66±5,65	0,009	26,51±6,90	0,480	5,91±2,83	0,016
Yes	18,73±6,87		25,78±7,44		7,10±3,45	

Same letters indicate no statistically significant difference, different letters indicate significant differences between groups.

Turkish coffee per day had a higher PSQI score compared to those who never consumed Turkish coffee, and this relationship was statistically significant ($p<0.001$). Participants who consumed 2 or more cups of cola and energy drinks per week also had a statistically higher PSQI score compared to those who consumed 1 cup per week and those who never consumed ($p<0.001$).

Correlation analysis was applied to examine the relationship between the participants CUDS, PSS and PSQI scores. A statistically significant correlation was found between the participants PSQI scores and their CUDS scores ($r = 0.382$, $p<0.001$). Similarly, there was a positive and statistically significant relationship between PSQI scores and PSS scores ($r = 0.276$, $p<0.001$). The correlation between the PSS scores and the CUDS scores was statistically significant and positive ($r = 0.132$, $p = 0.019$) (Table-7).

Table 6: Scale scores according to beverage consumption frequency

	CUDS score	p value	PSS score	p value	PSQI score	p value
Daily tea consumption						
≤1 cup/day	14,86±5,29[b]		27,06±8,06		6,02±2,84	
2-3 cups/day	15,93±5,55[a,b]	**0,017**	26,17±6,20	0,648	5,84±2,05	0,409
≥4 cups/day	17,26±6,66[a]		26,40±6,82		6,37±2,90	
Daily coffee consumption (filter, americano, latte etc.)						
<1 cup/day						
1 cup per day	12,85±3,06[c]		25,93±7,07		5,50±2,57[b]	
>1 cup/day	15,13±4,57[b]	**<0,001**	26,72±7,91	0,550	5,35±2,75[b]	**<0,001**
	19,57±6,45[a]		26,88±6,22		7,04±3,12[a]	
Daily Turkish coffee consumption						
<1 cup/day	14,13±4,62	**<0,001**	26,49±6,92	0,971	5,42±2,63	**<0,001**
≥1 cups/day	19,46±6,28		26,52±7,07		7,21±2,11	
Weekly cola consumption						
≤1 cup/week	14,99±5,02	**<0,001**	25,90±7,06	**0,018**	5,66±2,64	**<0,001**
>1 cup/week	18,78±7,18		28,03±6,30		7,21±3,48	
Weekly energy drink consumption						
≤1 cup/week	15,49±5,40	**<0,001**	26,63±7,06	0,685	5,80±2,76	**<0,001**
>1 cup/week	21,52±6,93		26,04±5,62		8,80±3,37	

Same letters indicate no statistically significant difference, different letters indicate significant differences between groups.

It was evaluated whether there was a significant difference between "good sleepers" and "poor sleepers" in terms of PSS and CUDS scores according to PSQI scores. The CUDS scale scores of the participants who slept well were statistically significantly lower than those of the participants who slept poorly (t (313) = -4.950, p<0.001). Similarly, the PSS scale scores of participants who slept well were statistically significantly lower than those of participants who slept poorly (t (313) = -3.737, p<0.001).

Discussion

This study aimed to evaluate the relationship between caffeine use disorder and sleep quality and perceived stress level in resident physicians working at Erciyes University Faculty of Medicine in 2024. As a result of the study, statistically significant relationships were found between the sleep quality of the participants and some descriptive variables (number of monthly shifts, department, daily working hours, smoking and alcohol use status). Significant relationships were found between the stress scores of the participants and the descriptive variables of gender, number of monthly shifts, and daily working hours. In addition, statistically significant relationships were found between caffeine use disorder scale scores and perceived stress scores and sleep quality. These findings are discussed below in the light of the existing literature.

Table-7: Correlations between scale scores

Variables	**CUDS score**	**PSS score**	**PSQI score**
1-CUDS score	-		
2-PSS score	0,132*	-	
3-PSQI score	0,382**	0,276**	-
*Pearson correlation analysis, *p<.05, **p <.001*			

In our country, physicians working hours and high number of shifts cause disruptions in the sleep-wake cycle. This causes physicians to consume more caffeine to increase concentration and alertness during the day. High doses of caffeine impair sleep quality and perceived stress levels increase in individuals with poor sleep quality. In this study, in which we aimed to investigate the characteristics of caffeine use in resident physicians and to examine its relationship with sleep quality and perceived stress level, 315 research assistant physicians, 185 of whom were female and 130 of whom were male, were included. 58.7% of the participants were female and 41.3% were male. The average age of the participants was 28.87 years. Similar to our study, the mean age of the participants was 29.8±3.0 years and 65.4% of the participants were female in a study conducted by Bölükbaşı and Özcan, which included the examination of stress perceptions of family medicine residents (12).

In our study, the mean PSQI score of the participants was 6.07±2.94 and 67.6% (n=213) had poor sleep quality. These findings are consistent with similar studies on sleep quality in healthcare workers. In a study conducted on nurses, the mean PSQI score of the participants was 6.70±3.35 and it was concluded that 55.8% had poor sleep quality (13). In a thesis study in which the relationship between sleep quality and perceived stress level in resident physicians at Dicle University was examined, the mean score of PSQI was 7.55±3.46 and 68.2% of the participants were found to have poor sleep quality (14). Studies on sleep quality in healthcare workers are important and should be emphasized. In addition to the fact that sleep problems are a result of exposure to stress, it should not be forgotten that people who do not get enough sleep experience more tension in the face of events and trigger stress by negatively affecting performance and attention. Although we often see stress-related sleep problems as insomnia in clinical practice, sometimes we can also see some individuals with an excessive tendency to sleep. In this way, it is observed that people who are inclined to sleep want to forget their worries, stress and difficulties they face by sleeping (15). When the literature is examined, there are many studies showing that healthcare workers have poor sleep quality. In a study examining the relationship between sleep disorders and burnout in physicians, it was concluded that physicians frequently experienced sleep deficiency, had poor sleep quality and this was associated with occupational burnout (16). Khan et al. In another study conducted with 1790 healthcare workers working in India, Pakistan and Nepal, 57% of the participants reported having poor sleep quality (17). The residency process for physicians is a challenging process both in terms of providing healthcare services and because it is a process based on education and learning. Resident doctors are often caught between the dilemma of student and employee and try to cope with them. In this period, especially in the first years of their education, residents try to create a balance with the difficulty of taking care of patients, financial problems, frequent shifts, being responsible for continuous learning, relationships with their professors and residents with higher seniority and responsibilities in their personal lives (18, 19). Increased anxiety and stress levels in these individuals also affect sleep quality negatively. In our study, a statistically significant correlation was found between the number of monthly shifts of the participants and their PSQI scores ($p<0.001$). It was found that the PSQI score was higher in participants with 5 or more monthly seizures compared to those with no seizures and those with less than 5 monthly seizures. Since the increase in the PSQI score indicates poor sleep quality, it can be said that the sleep quality of the participants with a high number of shifts is poor. As a result of a study examining the sleep quality of healthcare workers, it was found that the sleep quality

of those who worked night shifts was worse and sleep quality worsened as the number of shifts increased, supporting our study (20). In a study conducted by Çelik et al. similar to our study, it was concluded that participants working in surgical departments had worse sleep quality and higher PSQI scores compared to those working in internal departments and those working on call had worse sleep quality compared to those not working on call (21). In our study, it may be related to the fact that resident physicians working in surgical departments had worse sleep quality because they had more daily working hours and more shifts than those working in internal departments. In a study conducted by Tel et al. examining the stress level of healthcare workers in the work environment and the factors affecting stress, the participants stated that the most important source of stress in the work environment was the on-call working style and work-related tension scores were found to be higher in nurses and physicians working on-call compared to other professions (22). In our study, it was found that the PSS score was higher in resident physicians who worked 5 or more shifts per month compared to those who did not work any shifts and those who worked 4 or less shifts per month, and this difference was statistically significant ($p=0.005$). In addition, in our study, participants with a daily working time of more than 9 hours had a statistically significant higher PSS score than those with a daily working time of less than 9 hours ($p=0.016$). In our study, the mean score of the CUDS was found to be 16.06 and this value gives us information about the moderate level of caffeine use disorder. This may vary in relation to the daily caffeine consumption levels of the participants. When the relationship between the participants PSQI scores and the CUDS scores was examined, it was found that there was a statistically significant relationship between the two ($r = 0.382$, $p<0.001$). In other studies conducted in this field in the literature, there are results that support our study. In a study conducted by Aydın et al. similar to our study, a significant positive correlation was found between the score obtained from the caffeine use disorder scale and the score obtained from the Pittsburgh sleep quality index (23). In another study by Erdoğan et al. it was found that sleep quality was worse in those who consumed caffeine-containing beverages compared to those who did not (24). In the literature, there are studies showing that caffeine use adversely affects sleep quality as well as studies showing that there is no such relationship (4,25-27). The score on the CUDS was found to be higher in smokers and alcohol users and this difference was statistically significant. This may be explained by the fact that the use of addictive substances is related to each other. In addition, in our study, the PSQI scores of smokers were found to be higher than those of non-smokers ($p=0.002$). In a study conducted on 183 academicians working at Erciyes University in 2020, similar to our study, it was found that the PSQI score of smokers was higher than that of non-smokers and the mean sleep duration of smokers was lower than that of non-smokers (28). Alcohol consumption can cause sleep disorders by impairing sleep quality, reducing the total duration of sleep and prolonging the time to fall asleep. The relationship between alcohol consumption and sleep disorders can be explained by the pharmacokinetic properties of alcohol. This effect is dose-dependent and a stimulant effect is observed in the first two hours after use at low and moderate doses and a sedative effect is observed at high doses (29). In our study, it was concluded that the PSQI scores of alcohol users were higher compared to non-users ($p=0.016$). In another study conducted in medical students, sleep quality of participants who consumed alcohol 2 or more times a week was found to be significantly lower, similar to our study (30). In another study investigating the effect of alcohol consumption on sleep quality in university students, it was concluded that those who consumed alcohol had poor sleep quality (31). In our study, the mean perceived stress scale score of women was 27.39 ± 6.98 and the mean perceived stress scale score of men was 25.23 ± 6.77, and the perceived stress scale score of women was statistically higher than that of men ($p=0.007$). There are studies in the literature supporting that the

stress level in women is higher than in men. Similar to our study, Erşan et al. concluded that women were more stressed than men in a study (32). In a study examining the stress levels of nurses working in Zonguldak province according to gender, it was found that women were more likely to be stressed than men (33). This may be related to the fact that women's stress levels are higher due to the fact that women get tired mentally and physically more quickly and have a more emotionally sensitive structure due to the addition of responsibilities in home and family life to the responsibilities of women in working life. Limitations of this study include cross-sectional design, focusing problems due to administering the questionnaires to resident physicians during their working hours, and the fact that some variables (depression, anxiety disorder and occupational burnout level) that have the potential to affect the perceived stress level were not addressed. Future studies can make more comprehensive evaluations by taking these limitations into consideration and better understand the relationship between depression and sleep quality.

Conclusion

As the amount and frequency of consumption of caffeine-containing foods increase, the rate of negative effects of caffeine on human health increases. As the daily caffeine intake increases, the sleep quality of individuals decreases. Physicians may consume excessive amounts of caffeine in order to stay awake the next day because they cannot get enough sleep during the night shift. Questioning the daily caffeine intake, especially in physicians with sleep problems, is important in terms of correcting preventable sleep problems. It is important to conduct more studies on the use and effects of supplements such as caffeine-containing foods, beverages and medicines, the use of which is increasing frequently today, in order to raise the awareness of physicians and the public against the negative effects that may arise from this issue. Another issue that should be emphasized for physicians is the increased susceptibility to stress due to the working environment and working conditions. Excessive patient circulation, excessive working hours, follow-up of patients with life-threatening risks, dealing with the relatives of patients, striving to learn a lot of information in a limited period of time, and working in an on-call basis all contribute to the development of stress. In addition, since individuals working shifts cannot get enough sleep at night, their sleep-wake cycles are disrupted and their sleep quality worsens over time.

Conflict of interest

The authors declare no conflict of interest.

References

1. Reyes CM, Cornelis MC. Caffeine in the diet: country-level consumption and guidelines. Nutrients. 2018;10(11):1772.

2. Verster JC, Koenig J. Caffeine intake and its sources: A review of national representative studies. Critical Reviews in Food Science and Nutrition. 2018;58(8):1250-9.

3. van Dam RM, Hu FB, Willett WC. Coffee, caffeine, and health. New England Journal of Medicine. 2020;383(4):369-378.

4. Clark I, Landolt HP. Coffee, caffeine, and sleep: A systematic review of epidemiological studies and randomized controlled trials. Sleep medicine reviews. 2017;31:70-78.

5. Lara DR. Caffeine, mental health, and psychiatric disorders. Journal of Alzheimer's disease. 2010;20 Suppl 1:239S-248S.

6. Wang F, Bíró É. Determinants of sleep quality in college students: A literature review. Explore. 2021;17(2):170-177.

7. Çetinol T, Özvurmaz S. Sleep quality and related factors in nurses. Medical Sciences. 2018;13(4):80-89.

8. Göksel A, Tomruk Z. The relationship between sources of stress and behaviors shown in coping with stress and in situations

of stress in academics. Turkish Journal of Social Research. 2016;20(2):315-343.

9. Gök S. An Important Problem of Working Life: Organizational Stress. Marmara University Journal of Economics and Administrative Sciences. 2009;27(2):429-448.

10. Hot İ, Karlıkaya E. Ethical evaluation of the regulation of physicians' working hours. Turkey Clinics Journal of Medical Ethics-Law and History. 2007;15(1):39-44.

11. Günaydın N. The quality of sleep and effects on general mental health of nurses who works in a state hospital. Journal of Psychiatric Nursing. 2014;5(1):33-40.

12. BÖLÜKBAŞI H, Özcan S. Perceived stress, burnout levels and healthy behaviors of family medicine residents: the impact of a psychoeducational program. Turkish Journal of Family Medicine and Primary Care. 2019;13(4):437-447.

13. Pirinçci E, Yaraşır E, Özbey S, et al. Examination of sleep quality of nurses working in a public hospital in eastern Turkey. Balıkesir Journal of Health Sciences. 2021;10(1):35-42.

14. Avcılar Can M. Sleep quality and perceived stress level in assistant physicians. Dicle University Faculty of Medicine Family Medicine Department Specialization Thesis, Diyarbakır 2019.

15. Yılmaz A, Ekici S. A research on the effects of stress in organizational life on the performance of public employees. Journal of Management and Economics. 2003;10(2):1-20.

16. Stewart NH, Arora VM. The impact of sleep and circadian disorders on physician burnout. Chest. 2019;156(5):1022-1030.

17. Khan HR, Ashraf F, Ullah I, et al. Cross-cultural prevalence of sleep quality and psychological distress in healthcare workers during COVID-19 pandemic. Brain and behavior. 2021;11(11):e2383.

18. Civaner M,Sarıkaya Ö, Balcıoğlu H. Medical ethics in specialty education. Anatolian Journal of Cardiology. 2009;9(2):132-138

19. Yeniçeri N, Mevsim V, Özçakar N, Özan S, Güldal D, Başak O. Comparison of the anxiety experienced by senior medical students about their future professional lives and their trait anxiety. Dokuz Eylül University Faculty of Medicine Journal. 2007;21(1):19-24.

20. Karakoç B. A study on sleep quality: example of private hospital healthcare workers. Master's Thesis. Istanbul: Marmara University Health Sciences Institute, 2009.

21. Çelik N, Eğici MT, Toprak D. Evaluation of Restless Leg Syndrome Frequency and Sleep Quality in Healthcare Workers. Eurasian Journal of Family Medicine. 2018;7(2):53-60.

22. Tel H, Karadağ M, Tel H, Aydın Ş. Determining the coping situation of healthcare professionals with stress experiences in the work environment. Journal of Research and Development in Nursing. 2003;5(2):13-23.

23. Aydın A. Determination of the relationship between caffeine consumption and sleep quality in healthcare workers: Tekirdağ Namık Kemal University Nutrition and Dietetics Department Master's Thesis, Tekirdağ 2022.

24. Erdoğan N, Karabel MP, Tok Ş, Güzel D, Ekerbiçer HÇ. Determination of sleep quality and affecting factors in Sakarya University Faculty of Medicine students. Sakarya Medical Journal. 2018;8(2):395-403.

25. Hu Y, Stephenson K, Klare D. The dynamic relationship between daily caffeine intake and sleep duration in middle-aged and older adults. Journal of sleep research. 2020;29(6):e12996.

26. Del Brutto OH, Mera RM, Zambrano M, Castillo PR. Caffeine intake has no effect on sleep quality in community dwellers living in a rural Ecuadorian village (The Atahualpa Project). Sleep Science. 2016;9(1):35-39.

27. Saygılı S, Akıncı AÇ, Arıkan H, Dereli E. Sleep quality and fatigue in university students. Ejovoc (Electronic Journal of Vocational Colleges). 2011;1(1):88-94.

28. Vandekerckhove M, Weiss R, Schotte C, et al. The role of presleep negative emotion in sleep physiology. Psychophysiology. 2011;48(12):1738-1744.

29. Pavlović M, Đinđić B. Alcohol consumption habits and sleep quality. Acta Medica Medianae. 2014;53(2):10-15.

30. Narin E, Tavil G, Karayel R, et al. Sleep Quality of Medical Faculty Students and Factors Affecting It. Journal of Current Medical Research. 2023;3(1):25-36.

31. Kenney SR, LaBrie JW, Hummer JF, Pham AT. Global sleep quality as a moderator of alcohol consumption and consequences in college students. Addictive behaviors. 2012;37(4):507-512.

32. Erşan EE, Yıldırım G, Doğan O, Doğan S. Examining the relationship between health workers job satisfaction and perceived job stress. Anatolian Journal of Psychiatry. 2013;14(2):115-121.

33. Özen HÖ. Employees levels of being affected by organizational stress according to their gender: A study on nurses working in Zonguldak province. Gümüshane University Electronic Journal of the Institute of Social Science. 2013;4(8):71-95.