Original Article

Sleep Behaviours and Burnout in Nursing Students: A Cross-Sectional Study

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Abstract

Background: Burnout is accepted as a significant problem both in working life and students' academic life. Sleep problems are one of the most important factors causing burnout.

Objectives: The purpose of the study determine nursing students' sleep behaviors and burnout and examine the relationship between sleep and burnout.

Methodology: The study planned as a cross-sectional descriptive study. The total of 260 nursing students were included in the study. The study was carried out during April/July 2019 in a faculty of nursing. The data of the study were collected with Self-description Form, Pittsburg Sleep Quality Index and Insomnia Severity Index.

Results: It was found as a result of the present study that a great majority of the students experience insomnia and have poor sleep quality. Students' burnout levels were moderate at all three subscales and it was determined that students who chose their profession unwillingly, had low-life satisfaction levels and poor perceptions of academic achievement experienced higher levels of burnout at all three subscales. The subscales of exhaustion and cynicism were positively correlated with sleep quality and severity of insomnia at a moderate level.

Conclusions: Considering the fact that sleep quality and burnout are critical in terms of academic achievement, it is necessary to include the subjects of sleep hygiene and overcoming stress into the educational curriculum.

Keywords: burnout; nursing students; sleep

Background

Burnout is a significant problem in the modern working life which has considerably increased in prevalence over the last ten years (De la Fuente et al., 2015). Healthcare professionals are an important group to experience burnout. Nurses face physical and mental problems and experience symptoms of burnout more often compared with other professions since nursing requires direct interaction with the human (Pınar et al., 2015). Burnout is accepted as a significant problem both in working life and students' academic life (Arbabisarjou et al., 2016).

Students are expected to attend classes, do the assignments and fulfill responsibilities given to them as well as succeeding in exams. Moreover, nursing students work at the hospital environment during their practices and work the night shift on some educational programs (Kaya & Arıoz, 2014; Pınar et al., 2015). Considering all the above mentioned factors, nursing students, as nurses of future generations, are at risk of burnout due to both their theoretical courses and clinical practices. Individuals suffering from burnout usually experience psychosomatic problems (weakness and insomnia), emotional

problems (anxiety and depression), attitude problems (hostility, indifference and mistrust) and behavioral problems (aggression, nervousness and isolation) (De la Fuente et al., 2015). Insomnia is observed very frequently in individuals suffering from burnout. Insomnia is defined as a subjective complaint of falling asleep or difficulty staying asleep or waking up very early (Gunes & Arslantas, 2017). As well as its negative effects on physical health, short sleep duration has impacts on many psychological problems including stress and burnout (Chin, Guo, Hung, Yang, & Shiao, 2017). Students' daytime sleepiness, sleep deprivation and irregular sleeping habits are important factors that affect their academic achievement adversely (Arbabisarjou et al., 2016; Gaultney, 2010; Hershner, 2016). Insomnia and sleepiness usually cause oral and written performance of students to decrease. Chronic insomnia leads to an increase in the use of healthcare services and the risk of depression, memory problems as well as a decrease in concentration, performance at work, and perceived or real success at the workplace (Angelone, Mattei, Sbarbati, & Orio, 2011). In addition, irregular sleeping habit is associated with psychoactive substance use, fatigue and accompanying physical or psychological cases (Mahfouz et al., 2013). Jiang et. al (2015) found in their systematic compilation that insomnia prevalence varies between 9.4% and 38.2% among university students (Jiang et al., 2015). In studies carried out with nursing students, on the other hand, insomnia prevalence is reported to range between 9.5% and 37.1% (Angelone et al., 2011; Taylor DJ, Bramoweth AD, Grieser EA, Tatum JI, & Roane BM., 2013). While the literature includes studies on burnout and sleep behaviors in nursing students, the number of studies examining the relationship between burnout and sleep behaviors is only limited. Examining the relationship between sleep behaviors and burnout of nursing students is critical in terms of preventing some serious future problems. The present study was conducted to determine nursing students' sleep behaviors and burnout and examine the relationship between sleep and burnout. In this respect, the study is expected to contribute to the related literature.

Research questions

1.   What are the factors affecting students' sleep quality and insomnia?
2.   What are the factors affecting burnout in students?

3.   Is there a correlation between sleep and burnout?

Methodology

Study design and participants

The study was carried out in a cross-sectional-descriptive method with students attending at Ege University Faculty of Nursing between April and July 2019. The population of the study consisted of 1st year (n=300), 2nd year (n=293), 3rd year (n=297) and 4th year (n=260) students of the nursing faculty. The sample size was determined as 289 students using the sample size calculation formula for known population (n=1150) with an error rate of 5% and 95% reliability. The sample was selected using stratified sampling method as 75 students from 1st year, 73 students from 2nd year, 74 students from 3rd years and 67 students from 4th years. 336 students volunteered to participate in the study; however, 13 of the forms were excluded from evaluations due to missing information. The study was conducted with a total of 323 students.

Data Collection

Data collection instruments: The data of the study were collected using questionnaires.

Self-description Form: This form was developed by the researchers in accordance with the literature (Capri, Gunduz, & Gokcakan, 2009; De la Fuente et al., 2015; Gunes & Arslantas, 2017; Thomas, McIntosh, Lamar, & Allen, 2017). The question form includes 18 multiple choice and open ended items. The questions are about the participants' descriptive characteristics, social life and sleep conditions.

Pittsburg Sleep Quality Index (PSQI): The index was developed by Buysse et al. (1989) and adapted into Turkish by Agargun et. al.(1996) (Agargun, Kara, & Anlar, 1996). PSQI is a 19-item self-report questionnaire and consists of 7 components. Each component is evaluated over 0-3 points. The total score ranges between 0 and 21 and a global sum of 5 or greater indicates poor sleep quality. Internal consistency of the questionnaire is 0.83 for the present study.

Insomnia Severity Index (ISI): The index which was developed by Bastien et. Al (2001) was adapted into Turkish by Boysan et. al (2010) (Bastien, Vallieres, & Morin, 2001; Boysan, Gulec, Besiroglu, & Kalafat, 2010; Jiang et al., 2015). The five-point Likert type scale comprises seven items each or which is scored in the range of 0 and 4. The total score ranges between 0 and

28. The total score is interpreted as follows: 0-7 points clinically insignificant insomnia, 8-14 points sub-threshold insomnia, 15-21 points clinical insomnia (moderate), and 22-28 points clinical insomnia (severe). Cronbach's alpha internal consistency coefficient was found as 0.79 in the study conducted by Boysan et. al (2010) and 0.81 in the present study.

Maslach Burnout Inventory – Student Scale (MBI-SS): Developed by Schaufeli et. al (2002), Maslach Burnout Inventory was adapted to Turkish by Capri et. al (2011). The 13-item scale captures three subscales: exhaustion, cynicism and efficacy. High scores on exhaustion and cynicism, low scores on efficacy indicate burnout. Cronbach's Alpha coefficients for the subscales are 0.76, 0.82, 0.71 respectively [14]. They are 0.88, 0.85, 0.79 respectively in the present study.

*Data Collection:*Before starting the study, a pilot study was conducted with 20 students to test the form and scales. Some changes were made on the form as a result of the pilot study. The students were informed about the study and the forms were handed out. It took the students approximately 20 minutes to fill in the question forms.

Data analysis: Data analysis was performed using Statistical Package for Social Science (SPSS) 22.0 package program. Numbers, percentages, means, standard deviation, minimum and maximum values were used for descriptive analyses.

Normal distribution was tested with Shapiro-Wilk and Kolmogrov tests. Independent Samples t-Test and ANOVA were performed for comparisons between groups, while Pearson correlation test was used for correlational analysis. The results were assessed in the 95% reliability range at the significance level of $p<0.05$.

Ethics: Permissions were taken from the Scientific Research Ethics Committee of a university (BAYEK) (Desicion no: 237) and the faculty where the study was carried out. Written and oral consent was taken from the students who participated in the study.

Results

According to the students' socio-demographic data, their mean age was 21.54±1.34 years and a majority of them were females (83%). Most of the individuals (75.9%) were at the middle income level and more than half of them (58.2%) accommodated in dormitories. It was also seen that most of the students (76.8%) went to bed at irregular times and almost two thirds had poor sleep quality and experienced sleeplessness (67.5%) (Table 1).

Data concerning sleep-related characteristics of nursing students in Table 2, and the factors affecting the students' sleep quality, insomnia and burnout are presented in Table 3.

The students' sleep quality conditions (F=2.89 p=0.03) showed significant difference according to their income levels (F=2.89 p=0.03), smoking behaviors (t=4.66 p=0.00), regular bedtimes (t=-4.60 p=0.00) and life satisfaction levels (F=28.96 p=0.00). The severity of insomnia changed significantly among the participants depending on their accommodation (t=-2.19 p=0.02), smoking behaviors (t=3.88 p=0.00), regular bedtimes (t=-3.98 p=0.00) and life satisfaction levels (F=21.81 p=0.00). Students' burnout at all three subscales of cynicism, exhaustion and efficacy showed a significant difference according to their choices of profession, perceptions of academic achievement and life satisfaction levels (p<0.05)(Table 3).

The relationship between the nursing students' burnout and sleep behaviors is given in Table 4 with the Pearson correlation analysis results. A moderate positive correlation was found between sleep quality and insomnia scores (r=0.652). There is a strong positive correlation between exhaustion scores and cynicism scores (r=0.767) whereas exhaustion scores have a weak negative correlation with efficacy scores (r=-0.195) (Table 4).

Table 1: Sociodemographic characteristics of nursing students (n=323)

Variables	n	%
Age		
Mean ± SD	21.54±1.34	
Min-max	19-25	
Gender		
Female	268	83.0
Male	55	17.0
Class		
First year	76	23.5
Second year	87	26.9
Third year	80	24.8
Fourth year	80	24.8
Perception of income level		
Poor	61	18.9
Middle	245	75.9
Good	17	5.3
Accommodation		
Home	135	41.8
Dormitory	188	58.2
Smoking		
Yes	59	18.3
No	264	81.7
Prefer of profession		
Willing	189	58.5
Not willing	134	41.5
Life satisfaction		
Satisfied	143	44.3
Partially satisfied	155	48.0
Not satisfied	25	7.7
Perception of academic achievement		
Successful	71	22.0
Partially successful	244	75.5
Unsuccessful	8	2.5

Table 2: Sleep-related characteristics of nursing students (n=323)

Variables	n	%
Regular bedtime		
Yes	75	23.2
No	248	76.8
Room sharing		
No room sharing or partner	131	40.6
Not in the same bed in the same room as the partner	41	12.7
	148	48.5
A partner or roommate in the other room	3	0.9
In bed with partner		
Insomnia Severity		
Clinically insignificant insomnia	105	32.5
Lower threshold of insomnia	169	52.3
Clinical insomnia	43	13.3
Severe insomnia	6	1.9
Pittsburg Sleep Quality		
Good	107	33.1
Poor	216	66.9
Pittsburg Sleep Quality score		
Mean ±SD	6.73±2.55	
Sleep duration		
Mean ±SD	6.38±1.08	

SD= standart deviation

Table 3: Sleep quality, insomnia and burnout scores based on sociodemographic characteristics of nursing students

	Pittsburg Sleep Quality Index (Min:0 Max:21)	Insomnia Severity Index (Min:0 Max:28)	Maslach Burnout Inventory		
			Exhaustion (Min:5 Max:25)	Cynicism (Min:4 Max:20)	Efficacy (Min:4 Max:20)
Gender					
Female	6.64±2.50	9.66±4.72	15.36±4.84	10.04±3.76	12.60±2.74
Male	7.21±2.72	10.49±5.42	15.74±4.18	11.63±3.52	12.27±2.92
	t=-1.52 p= 0.12	t=-1.14 p=0.25	t=-0.54 p=0.58	t=-2.88 p=0.00	t=-0.80 p=0.42
Class					
First year	6.86±2.41	10.77±5.41	14.92±4.39	10.18±3.63	12.31±2.84
Second year	6.37±2.65	9.33±4.63	14.85±5.03	9.68±3.56	12.36±2.62
Third year	7.37±2.54	10.17±4.92	15.96±4.45	10.97±3.98	12.46±2.89
Fourth year	6.37±2.47	9.03±4.33	16.00±4.94	10.47±3.82	13.07±2.73
	F=2.89 p=0.03	F=2.13 p=0.09	F= 1.45 p= 0.22	F= 1.70 p=0.16	F= 1.31 p= 0.26
Perception of income level					
Poor	7.39±2.94	11.40±5.42	16.24±4.62	11.40±3.89	11.73±3.05
Middle	6.58±2.42	9.43±4.61	15.28±4.74	10.06±3.73	12.71±2.69
Good	6.58±2.59	9.47±5.25	14.52±4.87	10.00±3.20	13.11±2.47
	F= 2.89 p= 0.03	F= 2.13 p=0.09	F= 1.45 p= 0.22	F=1.70 p= 0.16	F= 3.41 p= 0.03
Accommodation					
Home	6.71±2.65	9.11±4.89	15.38± 4.70	10.17±3.71	12.83±2.88
Dormitory	6.75±2.48	10.30±4.77	15.45± 4.77	10.42±3.80	12.34±2.69
	t= -0.12 p=0.89	t=-2.19 p=0.02	t= -0.13 p=0.89	t= -0.57 p= 0.56	t=- 1.58 p= 0.11
Smoking					
Yes	8.27±2.87	11.98±5.26	16.30±5.05	10.74±3.58	12.96±2.84
No	6.39±2.34	9.32±4.63	15.23±4.65	10.22±3.80	12.45±2.76
	T=4.66 p=0.00	t= 3.88 p=0.00	t=1.57 p=0.11	t=0.96 p=0.33	t=-1.28 p=0.20
Regular bedtime					
Yes	5.58±2.21	7.89±4.03	14.68± 4.91	9.73±3.91	13.24±3.01
No	7.08±2.54	10.38±4.93	15.65±4.66	10.49±3.71	12.33±2.67
	T=-4.60 p=0.00	T=-3.98 p=0.00	t=-1.56 p=0.11	t=-1.54 p=0.12	T=-2.48 p=0.01

Prefer of profession					
Willing	6.40±2.40	9.19±4.65	14.97±4.65	9.83±3.67	12.78±2.84
Not willing	7.20±2.68	16.05±4.79	16.05±4.79	11.00±3.80	12.20±2.65
	T=-2.81 p=0.00	t=-2.74 p=0.00	t=-2.03 p=0.04	t=-2.79 p=0.00	t=-1.85 p=0.05
Life satisfaction					
Satisfied	5.27±2.11	8.25±4.65	13.63±4.23	8.95±3.32	13.06±2.77
Partially satisfied	7.32±2.42	10.53±4.17	16.28±4.37	10.90±3.46	12.19±2.68
Not satisfied	8.92±3.16	14.20±6.18	20.36±4.79	14.48±4.07	11.76±2.90
	F= 28.96 p=0.00	F= 21.81 p=0.00	F= 31.25 p=0.00	F= 31.67 p=0.00	F= 4.90 p=0.00
Perception of academic achievement	6.23±2.33	10.02±4.82	14.02±4.98	9.23±3.77	13.06±2.59
Successful	6.85±2.57	9.66±4.79	15.77±4.63	10.56±2.70	12.19±2.68
Partially successful	7.62±3.42	12.25±6.73	17.12±3.18	12.37±3.66	11.76±1.45
Unsuccessful	F= 2.11 p=0.12	F= 1.19 p=0.30	F= 4.37 p=0.01	F= 4.74 p=0.00	F= 4.90 p=0.00

F=Anova Test; t=Student T Test

Table 4. The correlation between sleep and burnout of nursing students (n=323)

	Mean ± SD	Cronbach α		Sleep Quality	Insomnia	Exhaustion	Cynicism	Efficacy
Sleep Quality	6.73±2.55	0.83	r	1				
			p					
Insomnia	9.80±4.85	0.81	r	.652**	1			
			p	.000				
Exhaustion	15.42±4.73	0.88	r	.340**	.336**	1		
			p	.000	.000			
Cynicism	10.31±3.76	0.85	r	.255**	.231**	.767**	1	
			p	.000	.000	.000		
Efficacy	12.54±2.77	0.79	r	-.140*	-.101	-.195**	-.255**	1
			p	.012	.070	.000	.000	

SD= Standart deviation

Discussion

Sleep Quality and Insomnia

University students experience many sleep problems that may affect their academic performance, physical and mental health (Gaultney, 2010; Suen, Ellis Hon, & Tam, 2008). The most common of these problems are insomnia and daytime sleepiness (Gaultney, 2010). In the present study, the students' total sum on the PSQI was found as 6.73±2.55, which indicated poor sleep quality with PSQI>5. Moreover, it was seen that 67.5% of the students had insomnia, 76.8% did not have regular bedtimes and their average night sleep duration was found as 6.3 hours (Table 2). Studies show that students sleep for 6.7 hours on average (Gaultney, 2010; Suen et al., 2008) and 26% of them experience insomnia (Angelone et al., 2011). Some studies support the findings of our study (Angelone et al., 2011; Buboltz, Brown, & Soper, 2001).

The literature reports that insomnia and poor sleep quality is more common among females (Buboltz et al., 2001; Silva, Chaves, Duarte, Amaral, & Ferreira, 2016). In one study conducted with different profession groups in healthcare, females were found to have poorer sleep quality than males (Okutan, 2018). Since the number of female students in the present study was higher, it was expected to find more frequent insomnia among females; however, no difference was observed according to gender.

Some studies support our finding, reporting that insomnia (Silva et al., 2016) and sleep quality (Suen et al., 2008; Yoldas, 2017) do not differ by gender.

Sleep quality and insomnia have a critical effect on academic achievement. However, it was seen in the present study that insomnia and sleep quality did not differ by perception of academic achievement. Gaultney (2010) detected insomnia in 22% of the students who were experiencing academic failure. In addition, he asked students who had had one sleepless night to solve a problem at a difficulty level which the students could choose themselves and observed that those who had insufficient sleep tended to solve the problems more easily (Gaultney, 2010). In similar studies conducted with students, a significant relationship was found between poor sleep quality and low academic achievement (Angelone et al., 2011; Yoldas, 2017). When insomnia and sleep quality was examined according to class variable, 3rd year were seen to have worse sleep quality. This is considered to result from the fact that 3rd year curriculum is more intensive than other classes at our faculty. On the other hand, another study reported that first year students had poorer sleep quality (Silva et al., 2016). This difference in the literature is thought to be caused by the differences in educational systems and curricular practices.

It was found in the present study that students of lower income status had significantly poorer

sleep quality and more severe insomnia, but the difference statistically significant. Yoldas (2017) stated that students with worse economic conditions had poorer sleep quality (Yoldas, 2017). It is considered that low income status is a stressor for students which affects their sleep quality negatively causing them to experience insomnia.

It was seen that sleep quality did not differ significantly by the accommodation variable while students living in a dormitory were found to have more severe insomnia. This could be due to some stimuli such as sharing the room with others, noise, light (Yoldas, 2017). In the study conducted by Silva et. al (2016) students living with their families were observed to have better sleep quality (Silva et al., 2016). Other studies, on the other hand, report no difference between accommodation type and sleep quality (Aysan, Karakose, Zaybak, & Gunay-Ismailoglu, 2014; Tuygar & Arslan, 2015).

In the present study, it is seen that students who smoke experience insomnia more and have poorer sleep quality. Several studies carried out with healthy adults (Okutan, 2018), nurses and nursing students (Yoldas, 2017) have reported similar findings that support our study. In some other studies, however, no difference was found between smoking behaviors and sleep quality (Araújo et al., 2014; Okutan, 2018). The impact of cigarette smoking on sleep results from the effect of nicotine on dopamine and the fact that chronic exposure to nicotine leads to hypoxia sensitivity (Yılmazer, 2019).

Burnout

Academic burnout may result from the insufficiency of a student's self-resources related with his/her school work or the incompatibility of others' expectations in his/her close circle (Tansel, 2014). Burnout negatively affects individuals' quality of life and as well as their professional satisfaction (Altay, Gonener, & Demirkıran, 2010; Denat, Dikmen, Yılmaz, & Karalar, 2018). In the study conducted by Pınar et. al (2015) with university students receiving healthcare education, nursing students were found to be the second among those experiencing burnout the most at the exhaustion and cynicism subscales (Pınar et al., 2015). In the present study, students' mean scores at the subscales of the burnout questionnaire were determined to be at the moderate level (Table 3). Some studies

conducted in Turkey also report similar findings to ours (Akın, 2018; Denat et al., 2018; Pınar et al., 2015).

Burnout is associated with some personal, social, psychological and economic variables in the literature (De la Fuente et al., 2015; Denat et al., 2018; Jones, Hansen, Kaddoura, Schwab-McCoy, & Tocchini, 2018). The effect of gender on burnout differs across studies. When students' burnout levels were examined by gender in the present study, no difference was found at the exhaustion and efficacy subscales, while male students were seen to be more prone to burnout than the female ones at the cynicism subscale. Some studies support this finding of our study (Denat et al., 2018; Gunduz, Capri, & Gokcakan, 2012; Tansel, 2014). In another study with nursing students, it was revealed that female students experienced higher levels of burnout at the efficacy and exhaustion subscales (Akın, 2018). This difference is considered to result from the difference in the distribution of the participants' gender ratios.

Academic life related variables such as grade level, choice of profession and perception of academic achievement are known to be associated with burnout. Examining the students' burnout levels by class year, it was seen that although fourth year students had higher mean scores at the cynicism and exhaustion subscales, the difference among class years at all three subscales was found to be statistically insignificant. In one study, no difference was found between burnout and class year (Denat et al., 2018), while some others reported that first year students experienced burnout less at the cynicism (Gunduz et al., 2012; Kaya & Arıoz, 2014) and exhaustion (Kaya & Arıoz, 2014) subscales. In another study, on the other hand, it was observed that burnout increased as class years got higher (Rudman A & Gustavsson JP, 2012). This difference is thought to result from different educational systems employed by schools and countries.

The findings of the present study show that individuals who did not choose nursing profession willingly suffer more from burnout at all three of the subscales. Students who made their choices of profession consciously and willingly are known to be more successful in professional practices and to experience lower levels of burnout (Akın, 2018). Findings of

several other studies support the findings obtained from the present study (Akın, 2018; Kaya & Arıoz, 2014). The findings of the study conducted by Denat et. al (2018) are similar to our finding at the exhaustion and cynicism subscales, while it is seen that those who chose the profession willingly experience burnout more commonly at the efficacy subscale (Denat et al., 2018). Pınar et. al (2015) found that students who believe the profession is not suitable for them had stronger feelings of burnout (Pınar et al., 2015; Tansel, 2014). In a similar study conducted with medical students, it is stated that students who wanted to leave school suffered more from burnout (de Abreu Santos, Grosseman, de Oliva Costa, & de Andrade, 2011). Different from these findings, Tansel (2014) stated that students who chose the profession willingly experienced burnout at all three of the subscales (Tansel, 2014).

It was found in the present that students who perceive themselves as academically unsuccessful experienced a higher level of burnout. Kaya et. al (2014) report that individuals with academic failure suffer more from burnout at the exhaustion and cynicism subscales (Kaya & Arıoz, 2014). A similar study conducted with nursing students presents similar findings to our study in terms of perception of academic achievement at the exhaustion and cynicism subscales, while it is seen that students perceiving themselves as successful experience higher levels of burnout at the efficacy subscale (Denat et al., 2018).

Our study findings showed no difference among the burnout subscales according to life satisfaction, but it was found that efficacy is lower in those with worse socio-economic conditions. Another study conducted with students in healthcare studies showed that exhaustion and cynicism were higher in students who reported to have bad socio-economic conditions and that burnout increased at all three subscales as life satisfaction decreased (Pınar et al., 2015). In a study carried out with university students, those with better socio-economic conditions were seen to have higher life satisfaction (Chow, 2005). A sufficient income is a critical and necessary need for individuals to be able to meet their basic physiological needs, participate in scientific and social activities and fulfill their educational and academic needs (Pınar et al., 2015). Therefore, it is an expected

result that students with better economic conditions and higher life satisfaction suffer less from burnout. Different from the findings of the present study, one previous study with nursing students showed that efficacy levels fell as income levels increased (Akın, 2018).

Certain factors concerning burnout are related to individuals' habits. The present study found that the three subscales of burnout did not vary significantly by smoking behaviors, regular bedtimes and accommodation. Parallel with our finding, no difference was found between smoking behavior and burnout (Njim et al., 2018; Pınar et al., 2015). Nevertheless, in some situations, individuals may turn to smoking, alcohol or drugs in order to cope with the psychological problems caused by burnout (Akın, 2018). No study has been found on regular bedtimes and accommodation types in the literature.

Sleep-Burnout

A moderate positive correlation was found between sleep quality and insomnia in the present study. In another study conducted with nurses, similar to our finding, a weak positive correlation was determined between poor sleep quality and insomnia (Tarhan, Aydin, Ersoy, & Dalar, 2018). When the relationship between sleep quality and insomnia was examined, it was seen that cynicism and burnout increased as sleep quality got poorer while efficacy decreased. Different studies carried out with nurses report that individuals suffering from insomnia (Kousloglou, 2014) and having poor sleep quality (Demir Zencirci & Arslan, 2011) experience higher levels of burnout.

Giorgi and et. al (2018) found a strong correlation between sleep quality and burnout (Giorgi, Mattei, Notarnicola, Petrucci, & Lancia, 2018). In the study carried out by Chin et. al (2017), it was seen that individuals whose daily sleeping time was shorter than six hours experienced more burnout compared with those whose sleeping time was longer than seven hours a day (Chin et al., 2017). Still another study revealed that sleep quality and burnout states of medical students were strongly correlated (Arbabisarjou et al., 2016).

Conclusion

It was found as a result of the present study that a great majority of the students experience

insomnia and have poor sleep quality. It was also seen that students who smoked, had irregular bedtimes, chose their profession unwillingly and had low life satisfaction levels had poorer sleep quality and suffered from more severe insomnia. Students' burnout levels were moderate at all three subscales and it was determined that students who chose their profession unwillingly, had low-life satisfaction levels and poor perceptions of academic achievement experienced higher levels of burnout at all three subscales. It was found that the subscales of exhaustion and cynicism were positively correlated with sleep quality and severity of insomnia at a moderate level.

Considering the fact that sleep quality and burnout are critical in terms of academic achievement, it is necessary to include the subjects of sleep hygiene and overcoming stress into the educational curriculum. In addition, it is recommended that students' use of substances such as cigarettes etc. be restricted, their diets and sleep be regulated and their physical activity be encouraged.

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