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Araştırma / *Research Article*

Evaluation of Sleep Quality in Medical Faculty Residents

Tıp Fakültesi Asistanlarının Uyku Kalitesinin Değerlendirilmesi

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ABSTRACT

Objective: *We aimed to determine sleep quality of medical faculty assistants and evaluate this with socio-demographic characteristics.*
Method: *This cross-sectional study was conducted from June to October 2012, after receiving approval from local Ethics Committee. The data for the research were collected using the Pittsburgh Sleep Quality Index (PSQI) and a socio-demographic questionnaire completed with face-to-face interviews after providing necessary explanation and receiving oral consent of the participants.*
Results: *A total of 133 residents were included in the study. Significant differences were found between their bedtimes, time to falling asleep, duration of sleep and waking time with mean PSQI scores for residents included in the study according to their clinical departments (p<0.05). According to departments, the highest PSQI scores and worst sleep quality were observed among residents working in surgical departments and anesthesiology (24.7±7.8; p<0,05).*
Conclusion: *As highest PSQI scores and worst sleep quality were obtained by anesthesiology residents, we have concluded that precautions must be taken for the safety of patients and health workers in surgical departments and intensive care units.*

Keywords: *medical faculty residents, sleep quality, Pittsburgh Sleep Quality Index*

ÖZ

Amaç: *Tıp fakültesi asistanlarının uyku kalitesini belirlemeyi ve bunu sosyodemografik özellikleriyle değerlendirmeyi amaçladık.*
Yöntem: *Bu kesitsel çalışma Lokal Etik Kurulu onayı alındıktan sonra Haziran-Ekim 2012 tarihlerinde gerçekleştirildi. Araştırmanın verileri, katılımcılara gerekli açıklamalar yapılıp sözel izinleri alındıktan sonra, Pittsburg Uyku Kalitesi İndeksi (PUKİ) ve sosyodemografik özellikleri sorgulama formu kullanılarak yüz yüze görüşme tekniği ile toplandı.*
Bulgular: *Çalışmaya 133 asistan dâhil edildi. Çalışmamıza dâhil edilen asistanların çalıştıkları anabilim dallarına göre uykuya yatış saatleri, uykuya dalma, uyku ve uyanma süreleri ile PUKİ puan ortalamaları arasındaki fark anlamlı bulundu (p<0,05). Çalıştıkları anabilim dallarına göre asistanların PUKİ puanları değerlendirildiğinde en yüksek PUKİ puanının ve en kötü uyku kalitesinin cerrahi bilimlerde ve Anesteziyoloji ve Reanimasyon Anabilim Dalı asistanlarında olduğu gözlendi (24,7±7.8; p<0,05).*
Sonuç: *En yüksek PUKİ puanı ve en kötü uyku kalitesinin Anesteziyoloji ve Reanimasyon asistanlarında olması nedeniyle ameliyat odaları ve yoğun bakımlardaki hasta ve sağlık çalışanı güvenliğinin sağlanması için önlem alınması gerektiği kanısına varılmıştır.*

Anahtar kelimeler: *tıp fakültesi asistanları, uyku kalitesi, Pittsburgh Uyku Kalitesi İndeksi*

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INTRODUCTION

Quality sleep is a prerequisite for healthy functioning of a person's mind and body [1]. Occupation affects the prevalence of sleep disorders and it is known that health workers commonly have sleep problems [2]. Long working hours, negative physical and social working conditions, shiftwork, lack of sleep, drowsiness on duty, physical tiredness and high levels of responsibility are among occupational difficulties felt by doctors during their working life [3,4]. Tired doctors do not just negatively affect their own personal life, but also the lives of their patients [5].

It is thought that sleep quality of the doctors continuously working in ways that do not coincide with biological rhythms is negatively affected. In the literature there are studies on sleep quality of health workers, but we did not encounter any study researching the sleep quality of medical faculty residents in Turkey. This study aimed to identify the sleep quality of residents of basic, internal and surgical sciences and evaluate it together with their sociodemographic characteristics.

MATERIAL and METHODS

This cross-sectional study was completed after receiving local ethics committee approval (protocol no: 2012-72-02/05, date: 05/29/2012) from June to October 2012. Residents aged 24-45 years and receiving training in various medical specialties in our university in basic (Group B), internal (Group I) and surgical (Group S) sciences were included in the study. Our study was planned as a descriptive, cross-sectional research, so the sample was not selected and all residents were included in the scope of the research. The research was completed with 133 residents, excluding those who were not on duty during the time the survey was administered and those who did not wish to participate.

To ensure standardization of the survey questions, interviews were conducted with the same researcher who was incognizant of participant names. Research data were collected using a socio-demographic characteristics questionnaire (age, sex, marital status, education duration) and the "Pittsburgh Sleep Quality Index (PSQI)" to measure sleep quality (6). The validity and reliability studies of the Turkish version of the scale were completed by Agargün (7). Data were collected in face-to-face interviews after explaining the study and receiving oral consent.

Statistical Analysis: For statistical analysis the Statistical Package for Social Sciences (SPSS) 15.0 for Windows (SPSS Inc., Chicago, IL, USA) program was used. Data indicating frequency are shown as frequencies (n) and percentages (%). Data with continuous values are shown as mean and standard deviation (mean±SD). For comparison of frequency data, chi-square test was used. For comparison of continuous data, after assessment of normality of data distribution, the Mann Whitney U test was used. A p value of <0.05 was accepted as statistically significant.

RESULTS

The study population consisted of a total of 133 participants including 67 residents in surgical medical sciences, 45 in internal medical sciences and 21 in basic medical sciences. The mean age of residents was 30,23±3,13 years, with a mean duration of training of 26,24±13,63 months. There was no significant difference identified between the groups in terms of age, sex, marital status and duration of training duration (p>0.05). There was no significant difference observed between the mean total PSQI scores and sex and marital status of participants in the study. There was no correlation between age and PSQI scores, however there was a negative significant correlation between duration of training and PSQI scores (p=0,008, correlation coefficient=0,229). Significant differences were observed regarding bedtime and rising time, time to falling asleep and total duration of sleep and mean PSQI scores bamong participants from different departments in the research (p<0,005) (Table 1). As there were differ-

Table 1. Bedtime and rising, duration to fall asleep and total sleep duration with comparison of mean PSQI points for assistants mean±SD).

	Group S (n=67)	Group I (n=45)	Group B (n=21)
Bedtime (hr:min)	00:30±01:35*	00:00±01:37†	22:30±01:18‡
Rising time (hr:min)	6:00±00:37*	7:00±00:53†	7:30±00:49‡
Duration to fall asleep (min)	17,14±15,87*	10,97±9,42†	9,76±5,58‡
Sleep Duration (hours)	5,52±0,82*	7,08±1,08†	9,09±0,76‡
PSQI points	16,71±8,84*	9,37±5,08†	4,90±3,49‡

Group S: Surgical medical science, Group I: Internal Medical Science, Group B: Basic Medical Science
**p<0.05: Comparing Group S with Group I, Mann Whitney U test*
†p<0.05: Comparing Group I with Group B, Mann Whitney U test
‡p<0.05: Comparing Group S with Group B, Mann Whitney U test

Table 2. PSQI points based on department (mean±SD).

Department	PSQI points	Duration to fall asleep (min)	Sleep Duration (h)
Anesthesia (n=19)	24,73±7,88	24,68±22,61	5,26±0,99
Brain surgery (n=3)	17,33±10,59	33,33±15,27	6,00±0,00
Gynecology (n=6)	15,83±9,13	14,33±9,93	5,50±0,83
General Surgery (n=13)	15,46±8,50	8,92±7,52	5,23±0,59
Plastic Surgery (n=6)	15,00±6,44	9,33±6,37	5,33±0,81
PTR (n=3)	11,66±3,05	13,33±7,63	7,00±1,73
Urology (n=9)	11,33±4,24	17,22±10,34	6,11±0,60
Pedatrics (n=8)	11,25±7,08	6,62±4,68	6,50±1,06
Internal Medicine (n=18)	10,55±5,50	10,16±9,16	6,88±1,18
ENT (n=7)	10,28±3,40	18,28±11,49	5,85±0,69
Orthopedics (n=3)	9,00±6,55	11,33±16,19	5,33±0,57
Neurology (n=2)	7,00±2,82	11,50±12,02	7,50±0,70
Cardiology (n=2)	6,50±2,12	20,50±27,57	7,50±0,70
Biochemistry (n=5)	6,40±3,91	10,00±5,00	9,00±0,70
Psychiatry (n=5)	6,20± 0,83	8,40±5,02	8,00±0,00
Microbiology (n=7)	6,00±4,00	12,14±8,09	8,85±0,69
Dermatology (n=3)	6,00±2,00	12,33±4,61	7,66±0,57
Chest Diseases (n=2)ı	5,00±1,41	7,50±3,53	8,00±0,00
Pharmacology (n=2)	5,00±0,00	7,50±3,53	10,00±0,00
Pathology (n=4)	3,00±2,70	7,50±2,88	8,75±0,95
Genetics (n=2)	3,00±2,82	7,50±3,53	10,00±0,00

PTR: Physical therapy and rehabilitation, ENT: Ear-nose-throat

ences between the mean total PSQI scores and departments of the participants, the highest PSQI scores and worst sleep quality was observed in residents training in the Anesthesiology and Reanimation Department (24,7±7,8; p<0,05) (Table 2).

DISCUSSION

This study demonstrated that higher PSQI scores were obtained by the surgical science assistants. Residents of surgical sciences went to bed later, fall asleep at late hours, and wake up were earlier than residents working in the other departments.

Nojomi et al. [8] stated that in a study with 285 medical students and 150 medical residents, only 14% of them had perfect sleep satisfaction with high prevalence of sleep disorders which was related to age, sex, living conditions and work load. In contrast, when PSQI scores were accepted as a major indicative of low quality sleep as in our study, we didn't notice any impact of age and sex on sleep quality. Ok et al. [9] in a study evaluating sleep quality in doctors working in intensive care units and other departments found no difference in objective sleep parameters defined as sleep efficacy, sleep latency and total duration of sleep, but sleep quality was worse

for intensive care doctors. In our study, PSQI scores of residents training in surgical sciences were significantly higher with significantly shorter sleeping times.

According to the National Sleep Foundation, the mean sleep duration for an adult is 7-8 hours; however it is reported that sleep duration varies from person to person(10). When healthy adults sleep for less than 5 hours per night on an average , cognitive performance begins to fall. In both short and long term, expression and problem-solving skills apparently deteriorate due to sleep disorder [11]. Sarıcaoğlu et al. [12] in a study researching attention and anxiety levels in anesthesia residents working shift work stated that mean sleeping hours were 5-6 hours and there was no difference between the groups.

The performance of anesthesia and surgical residents after working hours and on-call duties is a topic of curiosity researched in a variety of studies and simulations [4,13]. In a study evaluating subjective tiredness, sleep duration and sleep quality of anesthesia residents, the participants reported similar levels of drowsiness as narcolepsy patients. This situation did not fully resolve with rest and sleep, while sleep was frequently interrupted and duration of deep sleep was shortened. The majority of anesthesia doctors had severe chronic lack of sleep and disrupted sleep habits due to working long shifts, with reduced attention due to both workload and the effect of sleep requirements, disrupted judgment and delayed decision making [4].

When the correlation between long working hours and preventable medical mistakes was noted, the interest in the effects of sleeplessness on doctors increased [14]. Anesthesia residents may remain sleepless for long durations on night duty and have excessive workload. Continuing to work after being on night duty forms a risk in terms of errors when dealing with human health. Sarıcaoğlu et al. [12] evaluated a group of anesthesia residents in terms of errors made during shifts and reported that while the daytime group made no mistakes, the nightshift group made mistakes. This study linked the lack of mistakes made by residents to the presence of supervision by a senior expert. Wu et al. [15] in a study of 254 medical residents reported that 41% of medical mistakes were due to tiredness and made the interesting conclusion that 31% of errors resulted in patient death. They stated that this situation was dangerous and worrying for both doctor's health and patient care.

Due to the fact that our study was completed in a single center, and with limited sample size, care must be taken before generalizing these results.

LIMITATIONS

Present study has several limitations. First data collection of this study was completed at 2012, and data presented in this paper may not reflect the current situation of the residents' sleep patterns at 2017 although such a change is not expected since nothing has changed in their working conditions so far. Second, sample size estimation for this study has not been conducted since the study was planned as a cross-sectional cohort survey reflecting the present situation at that time. However, absence of such a sample size estimation might have brought out unique distribution of specialities of the residents.

CONCLUSION

We have showed that among residents the highest PSQI scores and worst sleep quality were detected among residents of the anesthesiology and reanimation department. Sleep quality of surgical science residents should be ,mproved to ensure the safety of patients.

Ethics Committee Approval: Bülent Ecevit University Clinical Research Ethics Committee received approval (29.05.2012 / 2012-72-02 / 05).
Conflict of Interest: No conflict of interest was declared by the authors.

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