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Vardiyalı Çalışan Hemşirelerde Mesleki Yorgunluğu Etkileyen Faktörlerin Belirlenmesi

Determination of Factors Affecting Occupational Fatigue in Shift Working Nurses

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ABSTRACT

Purpose: This study aims to determine the occupational fatigue and the factors affecting occupational fatigue in shift working nurses.

Methods: This descriptive study was carried out at Harran University Research and Application Hospital between the dates of February-March 2020. The sample of the study consisted of 318 nurses. Introductory information form, which was prepared by the researchers, the Occupational Fatigue Exhaustion/Recovery Scale (OFER) and the Pittsburg Sleep Quality Index (PSQI) were used as Data Collection tools.

Findings: Subscale mean scores were found as follows respectively: 66.84 ± 24.01 for chronic fatigue, 70.03 ± 22.49 for acute fatigue, 40.19 ± 18.91 for recovery and 9.1 3± 3.39 for the Pittsburgh Sleep Quality Index. 10.1% of employees have good sleep quality, 89.9% of them have bad sleep quality.

Conclusions: It was found that healthcare professional's quality of sleep, income status, job satisfaction, choosing their profession voluntarily, means of transportation to their workplace, the clinic they work, having a physical or mental complaint, setting aside time for himself/herself and making exercise affect their occupational fatigue. It is suggested to determine and make necessary interventions to minimize the occupational fatigue of nurses that has an important and critical place in the provision of healthcare.

Keywords: Occupational fatigue, shift, nurses

ÖZET

Amaç: Bu çalışma vardiyalı çalışan hemşirelerde mesleki yorgunluğun ve mesleki yorgunluğu etkileyen faktörlerin belirlenmesi amacıyla yapılmıştır.

Materyal ve Metod: Çalışma tanımlayıcı tipte olup Şubat-Mart 2020 tarihleri arasında Harran Üniversitesi Araştırma ve Uygulama Hastanesi'nde yürütülmüştür. Araştırmanın örneklemini 318 hemşire oluşturmuştur. Veri Toplama aracı olarak araştırmacılar tarafından hazırlanmış olan tanıtıcı bilgi formu, Mesleki Yorgunluk Tükenmişlik Toparlanma Ölçeği (OFER) ve Pittsburg Uyku Kalitesi İndeksi (PUKİ) kullanılmıştır.

Bulgular: Kronik yorgunluk alt boyutu puan ortalamaları 66.84 ± 24.01, akut yorgunluk alt boyutu puan ortalamaları 70.03 ± 22.49, toparlanma alt boyutu puan ortalamaları 40.19 ± 18.91ve Pittsburgh Sleep Quality Index puan ortalması 9.1 3± 3.39 olarak bulunmuştur. Çalışanların %10.1 iyi uyku kalitesine sahip, %89.9'u kötü uyku kalitesine sahiptir.

Sonuç ve öneriler: Çalışanların uyku kalitesi, gelir durumu, meslekten memnuniyeti, mesleği isteyerek seçmeleri, işyerine ulaşım olanakları, çalıştığı klinik, fiziksel veya ruhsal bir şikayeti bulunma durumları, kendisi için vakit ayırma ve egzersiz

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yapma durumlarının mesleki yorgunluğu etkilediği tespit edilmiştir. Sağlık hizmetinin sunumunda önemli ve kritik bir yere sahip olan hemşirelerin mesleki yorgunluklarının tespit edilerek en aza indirilmesi için gerekli müdahalelerin yapılması önerilmektedir.

Anahtar Kelimeler:Mesleki yorgunluk, vardiya, hemşire

INTRODUCTION

Fatigue is a common complaint among employees (Fang et al., 2018). More than a third of adult workers report occupational fatigue as an unpleasant symptom of fatigue and burnout that creates conditions that interfere with the ability to function at normal capacity (Ricci et al., 2007). Fatigue is defined by the North American Nursing Diagnosis Association as a self-recognized state in which an individual experiences decreased labor ability because of physical and mental over work and feels an overwhelming persistent sense of tiredness, weakness, and exhaustion that is not moderated by rest (Aaronson et al., 1999). Fatigue is estimated to be 37.9% among employees in US (Ricci et al., 2007). It was found that the prevalence of fatigue is much higher in nurses than other employees (Raftopoulos et al., 2012; Barker et al., 2011).

Occupational fatigue is called fatigue among nurses and negatively affects patient care and patient safety as well as nurses themselves (Smith-Miller et al., 2014). When the time to rest is insufficient, occupational fatigue leads to adverse outcomes such as increased medical errors, improper implementation of procedures, patient injuries, an increase in hospital infections, a decrease in work performance, requests to be exempted from shifts, increase in increased healthcare costs, higher employer costs (Rogers, 2008; Steege et al., 2017; James, 2013;).

Particularly due to the shift work system, the matter of day and night is broken out in nurses, besides, they get out of their routine work and social lives and therefore they face many physical and mental problems (Conway et al., 2008). These are physical ailments such as cerebrovascular disorders, cardiovascular diseases, diabetes, hypertension, gastrointestinal diseases and mental problems such as anxiety, depression, sleepiness, attention deficit and loss of concentration (Ricci et al., 2007; Rogers, 2008).

The risk of acute and chronic fatigue increases in cases of sleep withdrawal and sleep disorder (Smith-Miller et al., 2014; Steege et al., 2017; Conway et al., 2008). People working in shift systems are obliged to sleep when they are not used to sleeping and are obliged to work during sleep hours. Shift work, therefore, disorders the physiological circadian rhythm and the sleep-wake cycle. This imbalance leads to many endocrine, metabolic and hormonal diseases, as well as psychological and social problems (Selvi et al., 2010). The American Academy of Sleep Medicine and the Sleep Research Society have reported that healthy sleep duration should be at least 7 hours per night for adults (Watson et al., 2015). Investigating the literature, it was found that the nurses slept 4.3-6.7 hours, below the reported time (Chaiard et al., 2018; Hazzard et al., 2013).

The most important factor affecting occupational fatigue was shown as shift work involving night shifts (Geiger-Brown et al., 2012; Min et al., 2019; Winwood et al., 2006). People's dissatisfaction in their professional life, their exposure to danger in their working environments, anxiety and stress situations also affect fatigue negatively (Fang et al., 2013). Besides, marital status, education, age, number of patients per nurse and years of experience were also shown as other determinants that affect occupational fatigue (Winwood et al., 2006; Younan et al., 2019; Chen et al.; 2014).

Occupational fatigue, which is a critical issue and directly affects patient care and, accordingly, negatively affects human health, is an important problem that needs to be further investigated in nursing populations. This study, therefore, aims to determine the occupational fatigue and the factors affecting occupational fatigue in shift working nurses.

METHODS

This descriptive study was carried out at Harran University Research and Application Hospital between the dates of February-March 2020. No sampling method was used in the research. The population of the study consisted of 428 nurses working in the hospital and the sample consisted of 318 nurses (74%) who agreed to participate in the study.

Introductory information form, which was prepared by the researchers, the Occupational Fatigue Exhaustion/Recovery Scale (OFER) and the Pittsburg Sleep Quality Index (PSQI) were used as Data Collection tools. Filling in the data collection forms took approximately 15 minutes. The introductory information form consists of 23 questions on the matters as follows: age, gender, educational status, marital status, number of children, monthly income status, people he/she lives together, whether he/she is a staff nurse, means of transportation to the workplace, whether he/she chooses his/her profession voluntarily, whether he/she likes his/her profession, the unit he/she works, working hours, weekly working hours, health problems, use of cigarettes, making exercise, making activity other than his/her profession.

The Occupational Fatigue Exhaustion/Recovery Scale (OFER)

OFER was developed by Winwood et al. in 2005 to measure occupational fatigue. The Cronbach's alpha coefficient of the scale was found to be 0.93 for chronic fatigue, 0.82 for acute fatigue, and 0.75 for recovery. The scale consists of 15 items and three subscales; (1) chronic fatigue includes 1-5 questions, (2) acute fatigue 6-10 questions (3) and recovery

11-15 questions. The statements consist of experiences about fatigue at work and home within the last few months. Questions including negative statements are coded reversely, and thus the scoring is made. A seven-point Likert scale (ranging from 0 = strongly disagree to 6 = strongly agree) is used for the scale responses. The scale has no total score, and the scores are calculated separately for each subscale (item scores / 30 x 100). A score of 0-100 is obtained from the scale. While high scores in the subscales of chronic and acute fatigue signify an increase in occupational fatigue, high scores in the subscale of recovery signify a recovery between the shifts. 0-25 indicates low fatigue, 25-50 moderate/low fatigue, 50- 75 moderate/high fatigue and 75-100 high fatigue (Havlioglu et al., 2019; Winwood et al., 2005). In this study the cronbach's alpha coefficient found as 0.85 in the chronic fatigue subscale, 0.79 in the acute fatigue subscale, and 0.66 in the recovery subscale.

Pittsburgh Sleep Quality Index (PSQI)

PSQI is a sleep questionnaire that helps to assess sleep quality, sleep rate, presence and severity of sleep disturbance within the last month. The scale consists of 19 items and measures seven subscales of sleep quality including subjective sleep quality (C1), sleep latency (C2), sleep duration (C3), habitual sleep efficiency (C4), sleep disturbances (C5), sleep medication (C6), and daytime dysfunction (C7). Total PSQI score is obtained by summing seven sub-scores and total score is between 0-21. PSQI total score definitively differentiates the well sleepers (PSQI total score ≤5) from poor sleepers (PSQI >5). The Cronbach's alpha coefficient of the scale was found to be 0.80 (Agargün et al., 1996).

SPSS 20.0 package program was used to evaluate the data. In the analysis of the data, descriptive statistics (number, percent, average) were used; for normally distributed variables, t-test in independent groups and variance analysis in independent groups was performed; for non-normally distributed variables, Mann Whitney-U test and Kruskal Wallis tests were carried out; and correlation analysis was performed for the correlation. In statistical comparisons, alpha error level was accepted as $p < 0.05$.

Ethics committee approval was obtained from the Noninvasive Clinic Ethical Committee of the Medical Faculty at Harran University (Decision no. 9, dated 13.01.2020), institution approval of the study was obtained from the Harran University Research and Application Hospital, and consent was obtained from the participants.

FINDINGS

57.9% of the participants were female, 42.1% were male, and the average age was 28.39±5.82. Table 1 gives the professional characteristics of individuals participating in the study. 70% of the participants stated that they chose the nursing profession voluntarily, and 55.3% of them stated that they liked their profession. 67.3% stated that they had a profession-driven physical or mental complaint.

Table 2 gives the mean scores of nurses regarding the Occupational Fatigue Exhaustion/Recovery Scale and Pittsburgh Sleep Quality Index. Subscale mean scores were found as follows respectively: 66.84 ± 24.01 for chronic fatigue, 70.03 ± 22.49 for acute fatigue, 40.19 ± 18.91 for recovery and 9.1 3± 3.39 for the Pittsburgh Sleep Quality Index. 10.1% of employees have good sleep quality, 89.9% of them have bad sleep quality.

Table 1. Professional Features Of Nurses (N=318)

Professional Feature		Number	Percentage
Choosing his/her profession voluntarily	Yes	223	70.1
	No	95	29.9
The status of liking his/her profession	Yes	176	55.3
	No	47	14.8
	Sometimes	95	29.9
Year of employment in this profession	1-5	182	57.2
	6-10	85	26.7
	11-33	51	16.0
The service he/she works	Intensive care	135	42.5
	Internal service	69	21.7
	Surgical service	17	5.3
	Emergency	74	23.3
	Operating room	23	7.2
Having physical or mental complaints	Yes	214	67.3
	No	104	32.7

Table 2. The Mean Scores Of Nurses Regarding The Occupational Fatigue Exhaustion/Recovery Scale And Pittsburgh Sleep Quality Index

	Obtainable Min-Max	Received Min-Max	$\bar{X}$	Ss
ChronicFatigue	0-100	0-100	66,84	24.01
AcuteFatigue	0-100	3-100	70.03	22.49
Recovery	0-100	0-100	40.19	18.91
Puki	0-21	0-18	9.13	3.39

Table 3. Comparison Of Between Occupational Fatigue Exhaustion/Recovery And Variables

		ChronicFatigue		AcuteFatigue		Recovery	
The means of transportation to the workplace	Easy	59.12±26.90	F:7.89 p=**.001**	62.50±25.13	F:14.95 p=**.001**	43.11±19.73	F:7.72 p=**.001**
	Middle	66.57±22.63		67.83±21.68		42.70±16.94	
	Difficult	73.51±21.85		79.75±17.93		33.90±19.84	
Choosing his/her profession voluntarily	Yes	62.43±24.43	t:.-5.71 p=**.001**	66.72±23.03	t:.-4.51 p=**.001**	43.07±18.06	t:.4.27 p=**.001**
	No	66.72±19.48		77.96±19.05		33.43±19.23	
The status of liking his/her profession	Yes	60.49±25.18	F:15.18 p=**.001**	66.00±24.61	F:7.25 p=**.001**	42.65±18.99	F:3.63 p=**.027**
	No	73.19±19.54		72.48±19.16		38.79±20.63	
	Sometimes	75.47±20.13		76.45±17.98		36.35±17.28	
The service he/she works	Intensive care	67.25±22.03	F:.2.90 p=.022	71.16±19.28	F:8.87 p=.001	39.90±18.29	F:4.99 p=.001
	Internal service	63.76±23.40		61.64±25.72		46.13±18.11	
	Surgical service	80.19±10.63		95.09±3.35		25.68±13.47	
	Emergency	69.09±26.85		71.62±21.32		37.52±19.04	
	Operating room	56.52±29.70		65.65±26.76		43.47±21.30	
Having physical or mental complaints	Yes	74.31±20.32	t:.8.41 p=.001	77.44±18.42	t:.8.83 p=.001	35.87±18.98	t:.-6.18 p=.001
	No	51.47±23.77		54.93±22.58		49.10±15.37	
Exercise status	Yes	63.22±23.80	t:1.28 p=.199	61.63±23.38	t:.-3.24 p=.001	45.59±15.70	t:.2.44 p=.006
	No	67.67±24.02		72.00±21.87		38.97±19.38	
Setting aside time for himself/herself puki	Yes	60.94±23.59	t:.-3.81 p=.001	61.44±22.04	t:.-6.18 p=.001	45.12±19.01	t:.4.05 p=.001
	No	71.14±23.45		76.37±20.70		36.61±18.05	
	good sleep	48.85±27.15	t:.-4.61 p=.001	51.35±22.63	t:.-5.16 p=.001	50.83±14.73	t:.4.16 p=.001
	bad sleep	68.85±22.81		72.17±21.51		39.00±18.97	

Table 3 gives the comparison of some variables regarding the Occupational Fatigue Exhaustion/Recovery Scale and Pittsburgh Sleep Quality Index. The following results were obtained, respectively: those with lower income and those who did not make exercise had higher scores in the subscale of acute fatigue, while lower scores in the subscale of recovery; those who said that it was difficult to reach the workplace, those who choose their profession involuntary, those who have a physical or mental complaint, those who do not set aside time for themselves, those with poor sleep quality have higher scores in the subscale of acute fatigue and chronic fatigue, while lower scores in the subscale of recovery; those who like their profession have lower scores in the subscale of acute fatigue and chronic fatigue, while higher scores in in the subscale of recovery; those who work in the emergency have higher scores in the subscale of acute fatigue and chronic fatigue, while lower scores in in the subscale of recovery ($p<.05$) (Table 3).

When examining the Pearson correlation results between the scale mean scores of the nurses; it was found that there was a positive, moderate relationship between sleep quality and chronic fatigue and acute fatigue subscale, and a negative moderate correlation with recovery subscale.

DISCUSSION

The mean scores regarding the OFER scale of the nurses participating in this study were found to be medium high in the chronic fatigue subscale, medium high in the acute fatigue subscale and medium low in the recovery subscale. In a study carried out in Korea, similar to this study, it was found to be medium-high in the chronic fatigue subscale, medium-high in the acute fatigue subscale and medium-low in the recovery subscale (Min et al., 2019). In the original version of the scale, developed by Winwood et al. (Winwood et al., 2006), on shift working nurses in Australia, it was

identified that they experienced high acute and chronic fatigue and low recovery. In a study conducted by Barker et al. on shift working nurses in the USA, acute fatigue levels were higher than chronic fatigue. In another study carried out by Chen et al. (Chen et al., 2014) on shift working nurses in the USA, high levels of acute fatigue, moderate recovery, and chronic fatigue was found. As a result of this study, in accordance with the literature, we can say that the nurses experienced a high level of fatigue and showed a moderate recovery. Shift work, by the nature of the nursing profession, is thought to increase fatigue levels of long and busy working hours.

In this study, those with physical and mental complaints were found to have higher acute and chronic fatigue than those without complaints, while lower recovery scores. In the study carried out by Havlioglu and Laberge, chronic and acute fatigue of those with health problems were higher than those without health problems (Havlioglu et al., 2019; Laberge et al.,, 2011). This is evaluated as the health problem may have increased professional fatigue due to the negative results it creates both in social life and business life.

In this study, it was found that those with poor sleep quality have higher scores in the acute fatigue and chronic fatigue subscale and lower scores in the recovery subscale. In the literature, similarly, in the studies conducted on the occupational fatigue, people with poor sleep quality were shown to experience more fatigue (Havlioglu et al., 2019; Laberge et al., 2011; Fang et al., 2013; Martin et al., 2012). In the study, the average sleep duration of health professionals was determined to be 6.1 hours. However, an adult needs to sleep at least 7 hours for healthy sleep. Therefore, the fact that those with poor sleep quality below healthy sleep duration have high scores of fatigue is an inevitable result.

In this study, those who set aside time for themselves, in other words, who have a special hobby, and those who make physical exercise, acute fatigue and chronic fatigue subscale scores were found to be lower, while recovery subscale scores were higher. In the literature, similarly, acute fatigue and chronic fatigue subscale scores were lower and recovery subscale scores were higher among those who do exercises and social interactions (Chen et al., 2014; Winwood et al., 2007). It is thought that the feeling of pleasure awakens thanks to setting aside time for themselves and making the activities they like and this reduces fatigue. However, when the working conditions of nurses in Turkey are examined, it was seen that they have little time to rest, therefore it was found that they did not have time to do an additional hobby or exercise.

In this study, no effect of gender factor on occupational fatigue was found. The studies in the literature indicated that the gender variable does not affect occupational fatigue (Winwood et al., 2006; Younan et al., 2019). By the nature of the nursing profession, both genders can work in all clinics. So this is an expected result.

In this study, there was no effect of age factor in terms of professional fatigue. In the literature, it was observed that fatigue was more common in young people (Winwood et al., 2006; Chen et al., 2014). The difference here is thought to be caused by the high workload of nurses in each age group due to the shortage of staff in the hospital where the research was conducted.

It was found that those who like the nursing profession and who chooses his/her profession voluntarily have lower scores of acute fatigue and chronic fatigue subscale and higher recovery subscale scores. In the study carried out by Fang, it was clearly shown that job satisfaction is associated with chronic fatigue (Fang et al., 2013). Those who are satisfied with their job and like their job are thought to overcome their professional difficulties, experience less anxiety and accordingly experience less fatigue.

In this study, it was found that those working in the emergency service had higher scores in the acute fatigue and chronic fatigue subscales and lower scores in the recovery subscale. In his study, Younan reported that the units of nurses have no effect on the fatigue (Younan et al., 2019). The result of this study is thought to arisen from the psychological tension experienced in emergencies and the patient population encountered.

In this study, it was found that those with lower incomes than their expenditures had higher scores in the acute fatigue subscale and lower scores in the recovery subscale. Besides, those who think that it is difficult to reach the workplace were found to have higher scores in the acute fatigue and chronic fatigue subscales and lower scores in the recovery subscale. The factors that create stress factors on the employees are thought to contribute to the increase of occupational fatigue.

CONCLUSION

As a result, the occupational fatigue levels of the shift working nurses were found to be high. It was determined that factors such as sleep quality, income status, job satisfaction, choosing their profession voluntarily, means of transportation to their workplace, the clinics they work, having a clinical, physical or mental complaint, setting aside time for themselves and doing exercise affect occupational fatigue.

It is suggested to determine in a larger sample and make necessary interventions to minimize the occupational fatigue of nurses that has an important and critical place in the provision of healthcare.

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