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Examining the Relationship Between Occupational Fatigue and Health Perception Among Textile Factory Workers

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ABSTRACT

Objective: The study examined the relationship between occupational fatigue and health perceptions among workers in a textile factory.
Method: This descriptive study was carried out in textile factories. These were located in the Nusaybin district of Mardin. The study took place between October 2023 and October 2024. A total of 760 textile workers were included in the study. However, of those who agreed to participate in the study, only 654 were included in the sample. Data were collected using three forms: the Information Form, the Occupational Fatigue, Exhaustion and Recovery Scale, and the Health Perception Scale. The analysis of the data involved descriptive statistics, a t-test for independent groups, an analysis of variance and a correlation analysis. All the necessary permits have been obtained for the work to be carried out.
Results: The study found very weak relationships between health perception and chronic fatigue ($r = .161$, $p = .000$) and between perceived health and acute fatigue ($r = .115$, $p = .003$) among the subscales of the Occupational Fatigue, Burnout and Recovery Scale. A weak but significant relationship was found between health perception and the recovery sub-dimension ($r=.299$, $p=0.000$).
Conclusion: Therefore, proactive measures should be taken to reduce occupational fatigue levels among textile factory workers and encourage positive health perceptions.

Keywords: Textil Workers, Occupational Fatigue, Perception of Health.

INTRODUCTION

Occupational fatigue prevents the efficient and effective use of time in the workplace, which ultimately affects productivity and efficiency. This situation reduces workers' job performance. It also negatively affects their mental health (1). Employees who work long hours are at risk of fatigue, injury and occupational diseases. This situation poses a significant occupational health and safety hazard to the working population (2).

The working conditions in textile factories can cause numerous health problems for workers, which can negatively affect their perception of health (3). Health perception is defined as the totality of individuals' feelings and thoughts about their own health (4). It is important to understand workers' perceptions of health when developing health promotion programmes. This is because health perception is directly related to improving individuals' health (5). Only a limited number of studies focusing on how workers perceive health have been found. A study by Kolaç et al. indicated that the health perception of factory workers was moderate (39.8 ± 8.2) (6). Another study found that the average health perception score was 48.8 ± 6.3 (7).

No studies have been found that reveal the relationship between occupational fatigue and health perception among textile workers. It is therefore thought that establishing the relationship between occupational fatigue and health perception will inform future interventional studies in this area. In addition, organising health promotion programmes in factories can reduce illness, extend life expectancy and improve quality of life and health perception levels, ensuring the well-being of employees (8). Determining workers' levels of occupational fatigue and their perception of health, and identifying the relationship between the two, will inform the design and delivery of training programmes that promote

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health-protective behaviours. The relationship between occupational fatigue and health perception among textile factory workers was the focus of this study.

METHODS

This descriptive study was carried out across seven textile factories in the Mardin/Nusaybin district between October 2023 and October 2024. The study population consisted of 760 textile workers employed in textile factories. Of these individuals, 654 (86.05%) agreed to participate in the study on a voluntary basis.

The following tools were used to collect data: an information form and two scales: the Occupational Fatigue, Exhaustion and Recovery and the Health Perception Scales.

Information Form: This form consists of 17 questions and was created by reviewing the literature (6, 9).

The Occupational Burnout Exhaustion/Recovery Scale (OFERS) was developed in 2005 to measure occupational burnout. This scale, developed in 2005, is used to measure occupational burnout. Winwood and colleagues developed the scale in 2005 to measure occupational burnout. Havlioğlu and colleagues established the scale's validity and reliability in Turkish in 2019. The scale consists of 15 items. There are three subscales (chronic fatigue, acute fatigue and recovery). The reverse-coded items on the scale are 9, 10, 11, 13 and 15. The scale uses a seven-point Likert format. This scale does not provide a total score. Calculations are performed separately for each sub-dimension. A score between 0 and 100 is obtained for each sub-dimension. A high score on the chronic and acute fatigue subscales suggests a higher level of occupational fatigue. In contrast, a high score on the recovery subscale suggests the ability to recover between shifts. The following coefficients were found: 0.93 for chronic fatigue, 0.82 for acute fatigue and 0.75 for recovery (9). This study found that the Cronbach's alpha coefficient was 0.84 for chronic fatigue, 0.68 for acute fatigue and 0.69 for recovery.

Health Perception Scale (HPS): Kadıoğlu and Yıldız (2012) validated and tested the Health Perception Scale, developed by Diamond and colleagues (2007), for reliability in Turkish. The Health Perception score is obtained by summing the scores from the four subdimensions Scale, Control Centre, Self-Awareness and Certainty and 15 items. Statements on the scale that are positive are scored as such, and negative statements are scored as negative. The lowest possible score on the scale is 15, while the highest possible score is 75. The Cronbach's alpha coefficient for this scale was found to be 0.77 (10). The Cronbach's alpha value for this study was found to be 0.74.

Factory workers completed data collection forms during their lunch breaks, breaks and after work, which took approximately 30 minutes. The purpose of the study was explained beforehand, and volunteers were recruited. The researcher collected the data using face-to-face interviews.

A statistical analysis of the data was performed using the SPSS 26.0 software programme on a computer. The descriptive statistics related to the questions in the introductory information form prepared by the researcher were determined using numbers, percentages and averages. The study also involved performing an independent groups t-test, an analysis of variance and a Pearson correlation analysis. The Shapiro-Wilk (W) test and Skewness-Kurtosis values were examined to determine the suitability of the normal distribution.

Permission to conduct the research was obtained from the Clinical Research Ethics Committee at Harran University (dated 18 September 2023 and numbered 2023/17/26), the relevant institutions and the authors of the scale.

RESULTS

Table 1. Socio-demographic Characteristics of Workers

Variables		
Age	**X̄ ± SS**	25.39±5.75
	Sayı (n)	**Yüzde (%)**
18-24 years old	327	50.0
24 years old and above	327	50.0
Gender		
Women	329	50.3
Man	325	49.7
Marital Status		
Married	195	29.8
Single	459	70.2
Educational Status		
Literate	58	8.9
Elementary School Graduate	105	16.1
Middle School Graduate	287	43.9
High School Graduate	171	26.1
Higher Education Graduate	33	5.0
Income Status		
Revenue exceeds expenses.	107	16.4
Revenue equals expenses.	258	39.4
Revenue is less than expenses.	289	44.2
The number of people he/she is responsible for		
0-4 people	387	59.2
5 or more people	267	40.8
Total	**654**	**100.0**

The average age of workers is 25.39 (±5.75). Fifty per cent are aged 18–24, 50.3 per cent are female, 70.2 per cent are single and 43.9 percent have completed middle school. Additionally, 44.2% of respondents said that their income was lower than their expenses The percentage of workers with between 0 and 4 dependants was 59.2% (Table 1).

Table 2. Distribution of Characteristics Related to Workers' Working Conditions

Variables	Number (n)	Percentage (%)
Working Year		
1-2 years	361	55.2
3 years and over	293	44.8
Department where he works		
Machine-Sewing	186	28.4
Folding-Production	328	50.2
Cleaning-Kitchen	42	6.4
Administration-Accounting	14	2.1
Ironing-Packaging	84	12.8
Working Hours		
3-10 hours	326	49.8
11-14 hours	328	50.2
Overtime Work Situation		
Yes	404	61.8
No	250	38.2
Status of Receiving Work-Related Training		
Yes	336	51.4
No	318	48.6
Work Accident Survival Rate		
Yes	182	27.8
No	472	72.2
Total	**654**	**100.0**

55.2% of workers said they had been in their current role for between one and two years. It was found that 50.2% of the workforce were employed in the folding and production department. Of these, 50.2% worked between 11 and 14 hours, and 61.8% worked overtime. 51.4% of employees stated that they received training. This training was related to their job. 72.2% stated that they did not experience a work accident (Table 2).

In addition, 10.2% of employees reported having a chronic illness. Meanwhile, 48.5% reported smoking, 8.6% reported drinking alcohol and 19.7% reported exercising regularly.

Table 3. Distribution of Average Total Scores on the Occupational Fatigue, Burnout and Recovery Scale and Health Perception Scale for workers

Scales	Min	Max	$\bar{X} \pm SS$
Occupational Burnout Renoveyi Scale			
Chronic Fatigue	0	100	54.12±25.88
Acute Fatigue	0	100	54.71±20.33
Recovery	0	100	49.17±20.74
Health Perception Scale	15	74	45.01±9.27

The mean scores for the OFERS subscale were found to be as follows: chronic fatigue: 54.12 ± 25.88, acute fatigue: 54.71 ± 20.33, recovery: 49.17 ± 20.74. The average HPS total score was found to be 45.01 ± 9.27 (Table 3).

Table 4. Correlation Between The Total Score Averages of The Workers' Occupational Fatigue, Burnout and Recovery Scale and The Health Perception Scale

OFER and HPSCorrelation	Health Perception	
	r	p
Chronic Fatigue	.161**	**0.000**
Acute Fatigue	.115**	**0.003**
Recovery	.299**	**0.000**

**<0.01

A positive, very weak, statistically significant correlation was found between the OFERS chronic fatigue subscale and the HPS total score average ($r = 0.161$, $p < 0.05$). A positive, very weak, statistically significant correlation was found between the OFERS acute fatigue subscale and the HPS total score average ($r = 0.115$, $p < 0.05$). A weak, yet statistically significant, positive correlation was found between the OFERS recovery subscale and the average HPS total score ($r = .299$, $p < 0.05$) (Table 4).

DISCUSSION

This study examined the relationship between occupational fatigue experienced by textile factory workers and their perception of their own health. As studies on workers are limited, the discussion has used studies on different samples.

The study found that levels of chronic (54.12 ± 25.88) and acute (54.71 ± 20.33) fatigue were moderate to high among participating workers, while recovery levels (49.17 ± 20.74) were moderate to low. Santos et al.'s (2022) study of industrial workers found that they had high levels of chronic and acute fatigue, while recovery was lower (11). These findings are similar to those of this study. In a study of workers conducted by Di Fabio et al., it was noted that mean scores for the acute fatigue and recovery subdimensions were high, whereas the mean score for chronic fatigue was lower (12). Havlioğlu's study revealed the following levels: Chronic fatigue: 45.81 ± 31.15, Acute fatigue: 59.63 ± 23.48, recovery: 52.18 ± 17.37 (9). A study of nurses found that the mean score for the chronic fatigue sub-dimension was 66.84 ± 24.01, for the acute fatigue sub-dimension 70.03 ± 22.49 and for the recovery sub-dimension 40.19 ± 18.91(13). A study conducted in Korea produced similar results, revealing moderate to high levels on the chronic fatigue subscale and the acute fatigue subscale, and moderate to low levels on the recovery subscale (14). In a study conducted among orthopedic nurses in Iran, chronic fatigue

was found to be 63.47 ± 21.38, acute fatigue was found to be 70.39 ± 17.75, and recovery was found to be 35.43 ± 15.60 (15). In a study by Yamaguchi et al. examining nurses' shift work, it was found that nurses working 16-hour shifts experienced lower acute and chronic fatigue, while their recovery levels were higher (16). In a study by Alsayed et al., high mean scores were found for the sub-dimensions of chronic fatigue (52.27 ± 23.19), acute fatigue (57.01 ± 17.12), and recovery (50.60 ± 13.08) (17). This study suggests that textile workers may experience high levels of acute and chronic fatigue and low recovery. The literature also states that chronic fatigue is common among individuals who frequently experience acute fatigue and have poor recovery between shifts (9). In addition, the moderate/low recovery levels observed among workers in this study can be attributed to the fact that over half of the participants (61.8%) work overtime.

This study shows that the average HPS score for workers is 45.01 ± 9.27. Studies conducted on workers have found the following average health perception scores: 39.84 ± 8.29 (6); 46.02 ± 5.86 (18); 49.76 ± 6.36 (19); 49.68 ± 7.14 (20); and 48.8 ± 6.3 (7). This study suggests that low health perception may be associated with high levels of chronic and acute fatigue among workers.

This study reveals a weak positive correlation between chronic fatigue and health perception among workers ($r = 0.161$, $p = 0.000$). Similarly, the relationship between acute fatigue and health perception is weak and positive ($r = 0.115$, $p = 0.003$). The relationship between health perception and level of recovery is weak and positive ($r = 0.299$, $p = 0.000$). A study has shown that health perception is negatively correlated with fatigue (21). Although there has been an increase in reports of fatigue, it has been found that people are trying to adopt healthier lifestyles and make efforts to be healthier (22). In this respect, the relationship between chronic and acute fatigue and health perception is positive. This result is also important because it shows that the importance given to health increases as fatigue increases. Furthermore, it is expected that the relationship between recovery and health perception will be a positive one. This result suggests that workers adopted positive health behaviours during the recovery period. Furthermore, recovery will lead to positive health behaviors and increase positive health perception.

CONCLUSION

On average, workers' scores on the OFERS sub-dimensions are moderate. Furthermore, it can be seen that the average HPS score is not high. Proactive measures should be taken to reduce fatigue levels and improve the health perception of textile workers. Employers should also plan social activities to reduce employee fatigue and improve quality of life. Furthermore, adjustments to employees' working hours, as well as training to improve health awareness, may be recommended. Training in health literacy can be beneficial in reducing fatigue and improving perceptions of health.

DESCRIPTIONS

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REFERENCES

1. Özcan E. Ergonomics Risk Assessment and Quick Exposure Check (QEC). Mühendis ve Makine. 2011;52(616):86-89.

2. Cunningham TR., Guerin RI., Ferguson J, Cavallari J. Work-related fatigue: A hazard for workers experiencing disproportionate occupational risks. Am J Ind Med. 2022;65(11):913-925. doi: 10.1002/ajim.23325.

3. Soonthorndhada K. Health problems and illness of female workers in textile industries. Warasan Prachakon Lae Sangkhom. 1989;2(1):63-90.

4. Tosunöz İ.K. (2021). Can healthy life style behaviors and health perceptions of nursing students be improved with health

promotion course? Journal Of Ankara Health Sciences. 2021;10(1):71-83.

5. Tokur Kesgin M. Ve Kublay G. İşyerinde çalışan hemşirelerin görevlerine ilişkin bilgi gereksinimlerinin belirlenmesi. HUHEMFAD. 2015;1(2):16-31.

6. Kolac N, Balcı AS, Şişman FN, Atacer BE. Dincer S. Health perception and healthy lifestyle behaviors in factory workers. Mediacl Journal of Bakırköy. 2018;14(3):267-274. doi:10.5350/BTDMJB.20170328092601

7. Çetinkaya A, Ovat Cankurtaran D, Önat G. Health perceptions and health promotion behaviors of workers working in an industrial field. Journal of Health Science and Profession 2019; 6(3): 564-74. doi:10.5152/hsp.2019.576916

8. Bostan N, Beşer A. Factors affecting the healthy lifestyle behaviors of nurses. Journal of Research and Development in Nursing, 2017;14 (1): 38-44. doi:10.5222/HEAD.2017.038

9. Havlioğlu S. Determination of the relevance of occupational fatigue to sleep quality and pain and ınvestigation of the effectiveness of health education in yarn factory workers. Hasan Kalyoncu University. Department of Nursing, Phd Thesis, Gaziantep, 2019.

10. Kadıoğlu H. Ve Yıldız A. Validity and Reliability of Turkish version of perception of health scale. Turkiye Klinikleri J Med Sci. 2012;32(1):47-53. doi:10.5336/medsci.2010-21761

11. Santos J, Ramos C, Silva A, Amorim S, Winwood P, and Carvalhais C. Psychometric Properties Of The Portuguese Version Of The Occupational Fatigue Exhaustion/Recovery (OFER) Scale Among İndustrial Shift Workers. Arch Environ Occup Health. 2022;77(7):554-560. doi: 10.1080/19338244.2021.1967842.

12. Di Fabio A, Svicher A.And Gori A. Occupational Fatigue:Relationship With Personality Traits And Decent Work. Front Psychol. 2021;8(12):742809. doi: 10.3389/fpsyg.2021.742809.

13. Havlioğlu S, Ersin F, Kahraman S. Determination of factors affecting occupational fatigue in shift working nurses. Gevher Nesibe Journal Of Medical & Health Sciences. 2020;5(9):15-20. http://dx.doi.org/10.46648/gnj.125

14. Min A, Min H, Hong H.C. Psychometric properties of the Korean version of the Occupational Fatigue Exhaustion Recovery Scale in a nurse population. Res Nurs Health. 2019;42:358–368.

15. Moosavian Hiaq SS, Jabbarzadeh Tabrizi F, Parvan K, Sarbakhsh P, Dickenset G. Relationship between burnout and occupational fatigue exhaustion and recovery among orthopaedic nurses in Tabriz, Iran: a crosssectional survey. BMJ Open 2024;14:e084522. doi:10.1136/ bmjopen-2024-08452

16. Yamaguchi S, Sato M, Sumi N, Ito Ym, Winwood Pc, Yano R. Psychometric properties of the japanese version of the occupational fatigue exhaustion recovery scale among shift-work nurses. Journal of Occupational Health. 2022;64(1):e12325. doi: 10.1002/1348-9585.12325

17. Alsayed Sa, Abouhashish Ea, Alshammari F. Occupational fatigue and associated factors among saudi nurses working 8-hour shifts at public hospitals. Sage Open Nursing. 2022; 7(8):23779608221078158. doi: 10.1177/23779608221078158.

18. Koç N. Tarım İşçilerinin Yaşam Koşulları, Sağlık Algısı, Sağlık Okuryazarlığı Düzeyleri ve İlişkili Faktörler. Aydın Adnan Menderes Üniversitesi Sağlık Bilimleri Enstitüsü, Master's Thesis, Aydın, 2020

19. Durmaz S, Sürücü E, Ozvurmaz S. determination of health literacy, health perception levels and related factors of marble factory workers. Medical Sciences. 2020;15(3): 81-91. doi: 10.12739/NWSA.2020.15.3.1B0092.

20. Yeşiltepe A, Karadağ G, Öztürk A, Dokuzcan DA. The effect of hazards and risks encountered by farmers affiliated to the chamber of agriculture on health perception. Gümüşhane University Journal of Health Sciences, 2023;12(3):1230-1240.

21. Kang S. Influence of Fatigue, Health Perception, And Happiness on Health Promoting Behaviors Among General Hospital Nurses. Journal of The Korea Academia-Industrial Cooperation Society. 2018;19(8):456-465.

22. Maghout-Juratli S, Janisse J, Schwartz K. Arnetz BB. The causal role of fatigue in the stress-perceived health relationship: a metronet study. The Journal of The American Board of Family Medicine. 2010;23(2):212-219. doi: 10.3122/jabfm.2010.02.090132.