



The Relationship Between Fatigue and Job Burnout Dimensions in Hospital Nurses

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Abstract

Background: Fatigue, as a destructive phenomenon, can have adverse effects on various aspects of workers' lives. Job burnout is one of the important consequences of fatigue among employees including nurses in different workplaces, especially healthcare centers.

Objectives: The present study aimed to assess the relationship between fatigue and job burnout.

Methods: This cross sectional study was conducted on 522 nurses, who were randomly selected from teaching hospitals of Shiraz University of Medical Sciences (SUMS), Shiraz, Iran. Fatigue dimensions and job burnout were measured by Multidimensional Fatigue Inventory (MFI-20) and Maslach Burnout Inventory (MBI), respectively.

Results: The results revealed that among burnout dimensions, depersonalization and diminished personal accomplishment had the highest mean scores, while emotional exhaustion had the lowest mean score. Among different fatigue dimensions, the highest mean score was related to general fatigue. Moreover, the results of Pearson's correlation test showed a significant positive relationship between emotional exhaustion and fatigue dimensions. Also, a significant direct correlation was found between depersonalization and general, physical, and mental fatigue. On the other hand, a significant negative correlation was observed between diminished personal accomplishment and all fatigue dimensions, except mental fatigue.

Conclusions: Considering the adverse effects of fatigue on various aspects of nurses' job burnout, more attention should be paid to fatigue in healthcare facilities, especially hospitals. In addition, a suitable managerial program should be developed to decrease nurses' job burnout and other fatigue consequences and to improve working conditions.

Keywords: Fatigue, Burnout, Nurses, Surveys and Questionnaires

1. Background

Fatigue refers to an overwhelming sense of tiredness, lack of energy, and exhaustion, associated with impaired physical and/or cognitive functioning (1), which may lead to health impairment, performance decrement, increased risk of accident, and work disability (2, 3). In recent years, special attention has been paid to fatigue in occupational health. Today, safety and health costs comprise only a small part of fatigue consequences in many developed and developing countries. Recent epidemiological studies have shown the high prevalence of fatigue among the working population of European Union members. According to statistics, 22% of 12 000 workers suffered from fatigue in various industries of these countries (3, 4).

The results of a study by Houtman (1999) on workers

from the Netherlands indicated that one out of three workers received compensation for occupational disability associated with mental problems, which are the underlying cause of fatigue (5). In all parts of the world, nurses have reported high levels of fatigue. They introduced fatigue as one of the major factors contributing to the decision to leave the nursing profession (6). In a study by Linsey et al. (2011), high levels of mental, physical, and total fatigue were reported among nurses. In addition, the incidence of perceived mental fatigue was higher than that of physical fatigue.

Overall, fatigue is a phenomenon with a multifactorial etiology in which psychological factors play a critical role (6). The findings of a national research by the UK Institute of Work Psychology among healthcare work-

ers demonstrated that psychological factors, such as high job demands and role ambiguity, were among the most important factors influencing the onset of fatigue among workers (7). However, higher levels of fatigue were reported among healthcare workers in comparison with other working populations (7), which could be related to occupational burnout syndrome (8).

Job burnout was first introduced by Freudenberger (1974), who stated that burnout occurred more frequently in jobs dealing directly with people (9). Burnout syndrome is a psychological state, resulting from prolonged exposure to job stressors (8). Symptoms of this syndrome become apparent when an individual's ability is not appropriated to his/her job demands. Generally, the three dimensions of occupational burnout include emotional exhaustion (EE), depersonalization (DP), and diminished personal accomplishment (DPA) (10, 11).

Job burnout has several effects on an individual's social, physical, and psychological status. In comparison with other occupations, healthcare personnel (especially physicians, nurses, and healthcare assistants) are more prone to burnout due to their exposure to stressors including: thanatophobia (12); interpersonal problems (13); low social support (14); verbal and physical aggression and violence (15, 16); poor hospital work environments (17); high workload (18); high number of patients per day (19); decision-making in emergency situations (based on insufficient information) and accepting responsibility for the consequences (20); exertion along with mental pressure to avoid any mistakes (21); and rotating shift work, particularly night work (22).

Farsi et al. (2014) conducted a study at Army University of Medical Sciences (AJA) hospitals of Tehran, Iran and showed that quality of nurses' working life was reversely related to EE and DPA (23). Moreover, Habibi et al. (2014) reported that the highest level of burnout was related to EE in the vascular wards and DP in the dialysis wards, while the lowest level was associated with DPA in the intensive care unit (ICU) (24). According to a study by Lu et al. (2014), the highest mean score of occupational burnout was related to personal fatigue, followed by work-related fatigue (25). Furthermore, a study by Raftopoulos et al. (2012) indicated different effects of burnout and fatigue on nurses and showed that fatigue might be a predictor of burnout. In fact, self-reported fatigue interfered with the onset of EE and DP (26). It has been also reported that chronic fatigue might be one of the symptoms of burnout syndrome (27).

2. Objectives

Although many studies have been conducted on fatigue and burnout, the relationship between these two

phenomena is not yet well-established, and only few studies have been performed in this area. Considering the high prevalence of fatigue, stress, and burnout in nurses, besides the complicated association of these phenomena, it is important to assess this relationship in order to identify susceptible individuals to fatigue and burnout and prevent both financial and social consequences. Accordingly, given the large population of nurses, this group was selected in the present study.

3. Methods

3.1. Study Population and Sample Selection

The study population consisted of nurses working at teaching hospitals (Namazi, Faghihi, Hafez, Mother and Child, and Ali-Asghar hospitals), affiliated to Shiraz University of Medical Sciences (SUMS), Shiraz, Iran. The subjects included employed fulltime nurses with at least one year of work experience at hospitals. All participants signed an informed consent form before the study. The study was reviewed and approved by the Ethics Committee of SUMS. Simple random sampling was used to select the hospitals, wards, and nurses from different wards (i.e., CCU, ICU, emergency, surgery, internal, neonatal, child-birth, and dialysis wards). After explaining the study objectives to the ward supervisors, 570 questionnaires were distributed among nurses. In total, 522 questionnaires were completed or returned to the researchers (response rate, 92%).

3.2. Data Collection Tools

Data were collected through self-reports, using several questionnaires. The demographic questionnaire included demographic characteristics, including age, sex, job tenure, marital status, and educational level.

Multidimensional Fatigue Inventory (MFI-20): MFI-20 consists of 20 items in five dimensions, including general fatigue, physical fatigue, mental fatigue, reduced motivation, and reduced activity. The MFI-20 items are scored based on a five-point scale ("Yes" or true and "No" or not true). The validity and psychometric properties of the Persian version of this inventory (P-MFI-20) were assessed and approved by Hafezi et al. (Cronbach's alpha, 0.851) (28).

Maslach Burnout Inventory (MBI): MBI measures job burnout in 22 items, classified in three different dimensions. These dimensions include EE (nine items), DP (five items), and DPA (eight items). The MBI items are scored using a six-point scale: zero (never), one (few times a year), two (once a month or less), three (few times a month), four (once a week), five (few times a week), and six (every day). The score of each subscale was calculated in accordance

with the MBI guidelines (29). The validity and reliability of MBI have been confirmed in several studies in Iran. Cronbach's alpha was 0.83 for the total inventory, 0.88 for EE, 0.76 for DPA, and 0.79 for DP (30).

3.3. Data Analysis

Data were entered into SPSS version 20 and analyzed using descriptive statistics (i.e., mean, standard deviation [SD], maximum and minimum values, and frequency) and Pearson's correlation test. P-value less than 0.05 was considered statistically significant.

4. Results

The demographic characteristics (i.e., sex, age, job tenure, marital status, and educational level) of hospital nurses, who participated in the study, are presented in Table 1. In addition, the mean + SD scores of P-MBI subscales are demonstrated in Table 2. Based on the results presented in Table 2, among burnout dimensions, nurses obtained the highest mean scores in DP and DPA and the lowest mean scores in EE.

Table 1. Demographic Characteristics of Nurses (n, 522)

Characteristics	Values
Age, y	
Mean (SD)	29.5 (7.03)
Min-max	19 - 62
Job tenure (SD)	9.3 (7.4)
Sex, %	
Female	78.4
Male	21.6
Marital status, %	
Single	42.7
Married	53.8
Divorced	1.3
Widowed	2.2
Educational level, %	
BSc	92.7
MSc or PhD	7.3

The mean scores of various MFI-20 subscales are presented in Table 3. The minimum and maximum attainable scores are also presented for better comparison of the results. Based on the findings, general fatigue, physical fatigue, and mental fatigue showed higher mean scores in comparison with reduced activity and reduced motivation. The correlations between job burnout dimensions

Table 2. The Mean Scores of the Scales of Maslach Burnout Inventory (MBI, Persian Version, 22 Items)

Scales	Mean	SD
Emotional exhaustion (EE) (n, 9)	13.1	6.6
Depersonalization (DP) (n, 5)	28.45	9.1
Diminished personal accomplishment (DPA) (n, 8)	18.42	7.1

and different dimensions of fatigue are presented in Table 4. As the table depicts, the results of Pearson's correlation test revealed a significant positive relationship between EE and all fatigue dimensions. Furthermore, a significant positive correlation was found between DP and general fatigue, physical fatigue, and mental fatigue. On the other hand, a significant negative correlation was observed between DPA and reduced activity, physical fatigue, reduced motivation, and general fatigue.

Table 3. The Mean Scores of the Scales of Multidimensional Fatigue Inventory (MFI, Persian Version, 20 Items)

Scales	Mean (SD)	Min-Max Scores	Min-Max Attainable Scores
General fatigue (n, 4)	12.7 (3.3)	4 - 20	4 - 20
Physical fatigue (n, 4)	10.5 (3.3)	4 - 20	4 - 20
Mental fatigue (n, 4)	10.9 (2.2)	4 - 20	4 - 20
Reduced motivation (n, 4)	9.6 (2.4)	4 - 20	4 - 20
Reduced activity (n, 4)	8.5 (3.3)	4 - 20	4 - 20

5. Discussion

The present study aimed to assess the prevalence of fatigue and burnout and to survey the relationship between these two phenomena among hospital nurses. Nursing is among professions in which employees (nurses) are strongly prone to burnout (31). In a study by Maslach, the prevalence of job burnout was reported to be 79% and 62% among females and males, respectively (31, 32).

The results of the present study showed a high level of DP among nurses; this implies that the personnel were distrustful of their patients and did not treat them suitably. In general, DP has various underlying causes, including unawareness about work-related laws, insufficient managerial attention to nurses' performance, low courage, and job dissatisfaction; accordingly, nurses lose their humane perspective about patient treatment and experience DP. According to the study by Maslach et al., high DP scores indicate an increase in job burnout (10). Khazaei et al. also

Table 4. Pearson's Correlation Between the Scales of Maslach Burnout Inventory (MBI) and Multidimensional Fatigue Inventory (MFI)^a

Scales	General Fatigue	Physical Fatigue	Mental Fatigue	Reduced Motivation	Reduced Activity
Emotional exhaustion (EE)	0.314*	0.307*	0.103**	0.176*	0.213*
Depersonalization (DP)	0.299*	0.224*	0.129**	0.028	0.042
Diminished personal accomplishment (DPA)	-0.133**	-0.282*	0.084	-0.169*	-0.385*

^aSignificant correlation ($P < 0.05$), **Significant correlation ($P < 0.001$).

reported that 54.2% of nurses had high levels of DP (33). In addition, Habibi et al. revealed that the highest level of burnout was related to DP in the dialysis ward (24).

In the present study, the majority of nurses had low personal accomplishment. Habibi et al. reported that the lowest level of personal accomplishment was related to the ICU (24). Grath et al. concluded that high workload, long work shifts, inadequate support, and inadequate rest were among job stressors, leading to burnout (34, 35). Demir et al. also stated that shift work increased job burnout, and workers had lower levels of personal accomplishment (36). In general, lack of job satisfaction and negative attitude towards one's job and future lead to DPA. Therefore, identifying the stressors and finding coping strategies can reduce job burnout among nurses.

The current findings revealed low EE among nurses. Generally, sufficient income and support by the family, colleagues, and supervisors can effectively reduce EE. In this regard, Sahebazamani et al. reported that individuals with sufficient income experienced lower EE (35). In the present study, support by the family and colleagues might have resulted in the nurses' low EE. In addition, the prevalence of general fatigue was higher in our study, compared to other dimensions of MFI. Since general fatigue measures the staff's general view about fatigue in their working environment, the high mean score in the current study might be attributed to reduced health, current and future employment instability, and undesirable work conditions.

Tumulty et al. concluded that job burnout and job satisfaction were affected by the physical environment (37). Similarly, another study demonstrated that the more unfavorable a working environment is, the higher the level of fatigue will be (17). Therefore, these phenomena have adverse effects on performance and efficiency, and their improvement can have positive impacts on the individual's performance and productivity.

The high mean score of physical fatigue in the present study revealed the high workload of nurses and showed the negative effects of long-term work and shift work. Previous studies have also frequently confirmed the negative effects of long-term shift work and high workload on fatigue (34, 35). In this regard, a study indicated that job burnout and physical fatigue were higher among shift

workers, compared to other nurses (22). Peter et al. also showed that shift workers experienced higher levels of physical fatigue and job burnout, compared to daytime workers (38). Therefore, creating balance between nurses' physical requirements, such as physical workload and working time, and their abilities can be effective in reducing physical fatigue. Ergonomic factors and work conditions, such as temperature, noise, and accidents (organizational internal factors), can be also effective in fatigue and job burnout.

The present results showed that nurses had a high level of mental fatigue. In fact, they had high levels of mental stress due to the nature of nursing profession. Similarly, Choobineh et al. demonstrated high levels of psychological stress among nurses because of their working conditions (39). Several studies have also indicated that factors, including job security, long-term work, shift work, lack of organizational support, and poor environmental conditions, are effective in nurses' stress (14, 17); therefore, improving each of these factors can help reduce pressure.

In the current study, contact with individuals from different cultures, high number of patients, and patients' unrealistic expectations were among nurses' issues. Accordingly, measures, such as work rotation and reduction of nurses' direct contact with the clients, can decrease their psychological pressure and burnout.

In the current study, reduced motivation had a high mean score, which could promote irresponsibility and lack of enthusiasm among nurses while performing their tasks. Many studies have also confirmed the effects of motivation on working life (40). For instance, Mohammadi et al. reported low levels of motivation among nurses and introduced lack of managerial support as the major cause (40). Therefore, encouraging the staff and implementing a reward and punishment system can be effective in raising motivation among the personnel. In fact, one of the important factors in fatigue is the relationship between effort-reward imbalance and job burnout, which results in job-related stress according to Weigl et al. (17).

The findings of the present study showed that EE was significantly associated with general fatigue, physical fatigue, mental fatigue, reduced motivation, and reduced activity. In other words, reduction in EE caused general

fatigue, physical fatigue, mental fatigue, reduced motivation, and reduced activity. Considering the overlap of different aspects of fatigue, the impact of EE on other aspects is expected. In case insufficient organizational and familial support continues (effective in EE), motivation, physical activity, and psychological activity may be affected.

Generally, healthcare workers experience high levels of environmental stress, and burnout syndrome may be associated with high levels of fatigue (17). In this regard, Habibi et al. carried out a study among nurses of Alzahra Hospital and reported that the highest level of job burnout was related to EE in the vascular ward (24). Mayton et al. also conducted a study on pediatric nurses and found that work environment and patient care requirements were a source of fatigue and burnout (41).

In addition, the current study revealed that nurses with high levels of DP had high levels of general fatigue, physical fatigue, and mental fatigue. Accordingly, negative attitude towards patients and lack of managerial support resulted in constant stress and eventually led to mental and general fatigue. In addition, unawareness of work-related laws, such as patient handling, and high workload during working time caused physical fatigue. Therefore, high levels of DP can lead to fatigue, which in turn results in job burnout.

The findings of this study showed that nurses had high levels of DP, general fatigue, physical fatigue, and mental fatigue, which had destructive effects on their burnout. Since job burnout causes physical and mental problems among nurses, it is recommended to identify the sources of stress, introduce proper coping strategies, and develop a comprehensive program to reduce job burnout among nurses.

5.1. Recommendations

- Awareness of work-related laws, sufficient managerial attention to nurses' performance, and job satisfaction can improve DP.
- Job satisfaction and positive attitude towards one's job and future can lead to high personal accomplishment.
- Factors, such as physical environment and favorable working environment, can have positive impacts on the individual's performance and productivity.
- Balance between nurses' physical requirements and abilities can be effective in reducing physical fatigue.
- Ergonomic factors and working conditions can be effective in fatigue and job burnout.
- Work rotation and reduction of nurses' direct contact with the clients can decrease their psychological pressure and burnout.
- Encouraging the staff and implementing reward/punishment systems can be useful in raising motivation among the personnel.

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Footnotes

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