

Original Article

The Relationship between Shift Work and Burnout among ICU Nursing Staff in Hospitals of Shahid Beheshti University of Medical Sciences

Parvin Nassiri¹, Shakiba Bakhtom^{2*}, Hasti Borgheipour³

¹ Department of Occupational Health, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

² Department of Health, Safety and Environment Management, Science and Research Branch, Islamic Azad University, Tehran, Iran

³ Department of Environmental Engineering, Central Tehran Branch, Islamic Azad University, Tehran, Iran

Received: 26 May 2019; Accepted: 27 June 2019

Abstract

Background: Recent studies have indicated the high prevalence of burnout among nursing staff. Shift work is one of the characteristics of the nursing job; therefore, this study aimed to investigate the relationship between shift work and burnout among intensive care unit (ICU) nursing staff in hospitals of Shahid Beheshti University of Medical Sciences.

Materials and Methods: This descriptive-analytic study of cross-sectional type was carried out the period of 2017-2018. The research population was of all nursing staff in the intensive care unit (ICU) in 7 public hospitals and 5 private hospitals. The sample size was 320 nursing staff that was surveyed by census method. To collect data, Maslach burnout inventory (with 78% and reliability and internal validity ranges from 71% to 92 %) and demographic profile questionnaire were used. All statistical analyses analyzed by SPSS software.

Results: There was a significant relationship between emotional exhaustion and rotational shift work. There was no significant relationship between emotional exhaustion and night shift. There was a significant relationship between depersonalization and morning shifts in public hospitals. The shift component was only significant in the work shift of the evening and night of public hospitals with personal accomplishment as well.

Conclusion: The shift work was considered as an effective factor in the burnout of nursing staff in ICU. By utilizing the results of the study, we can reduce the effects of shift work and make an appropriate intervention plan for promoting staff health.

Keywords: Shift work, Burnout, Nursing staff

*Corresponding Author: Shakiba Bakhtom, MS, Health, Safety and Environment Management, Science and Research Branch, Islamic Azad University, Tehran, Iran. Tel: (+98) 933 1374881; Email: sh.bakhtom@gmail.com

Please cite this article as: Nassiri P, Bakhtom Sh, Borgheipour H. The Relationship between Shift Work and Burnout among ICU Nursing Staff in Hospitals of Shahid Beheshti University of Medical Sciences. *Novel Biomed*. 2019;7(4):181-6.

Introduction

Occupation is one of the most important causes of stress in human life, the factor of shaping social identity, the source of living needs and creator of

social relationships¹. The nature of some occupations have a lot of psychological pressure on individuals. A significant percentage of physical illnesses and mental distress is due to the constant work pressure. Employees who are involved in this type of pressure

are often affected by burnout². Freud Neberger first used the term burnout in 1974 to mean tiredness and failure³. Job burnout is also known as a physical and emotional fatigue syndrome that results from increased job negative tendencies and loss of interest in colleagues⁴.

The main dimensions of burnout are emotional exhaustion (chronic fatigue, sleep disturbances, and various physical symptoms); depersonalization (negative reaction, feeling free with excessive disregard for colleagues and clients, feeling sin, isolation, diminish work and daily activities) and personal accomplishment (dissatisfaction with job, feeling of failure, and loss of ability of judgment and understanding)⁵. Burnout is more common in staffs that need to work effectively and calmly in critical and stressful situations⁶. One of the most stressful jobs is the nursing profession. A nurse is an individual who is in charge of full-time control and monitor of patients and is, therefore, continually exposed to several stressors. No doubt, those stressors, in the end, can lead to burnout and affect the working process of this tough working class⁷. The drop in the quality of patient care is one of the worst consequences of nursing job burnout. When a nurse gets burned out, the patient is deprived of adequate care and, in most cases, his human rights are ignored⁸. Considering the importance of the nursing profession and its direct relationship with the health and well-being of patients, many researchers around the world have addressed the rate and causes of job burnout among nurses. Research by Cabrera Gutiérrez et al., about Mexican nurses shows that nurses' burnout rate is 40%, 32% and 63% in different dimensions of emotional exhaustion, depersonalization, and individual inefficiency, respectively⁹. Barret's research on nurses in the hematology and oncology sections also suggests that the prevalence of burnout is more than 70% in these nurses¹⁰. According to reports provided in Iran, the prevalence of burnout among nurses is high^{11,12}. For example, in the study of Masoudi et al, (2008) on nurses working in private hospitals in Tehran showed that 68.6% of nurses had high burnout rates and 0.7% had very high burnout. Investigations on the causes of this phenomenon in nurses indicate that factors such as low salaries and benefits, lack of managers'

support, job insecurity and high work hours contribute to burnout¹³. One of the characteristics of nursing is shift work and serving in various job shifts. Shift work affects nurses' general health. Some epidemiological studies have shown that due to the disorder of the biological cycle of the body, various diseases such as gastrointestinal, cardiovascular, skeletal-muscular disorders with shift work and night shift are relevant¹⁴. In this regard, the present study aimed to identify the effects of shift work on the burnout of nurses working in public and private hospitals affiliated with Shahid Beheshti University of Medical Sciences.

Methods

This study is a cross-sectional descriptive-analytic study that conducted in 2017 and 2018. The research population was all nursing staff (nurse, anesthesia technician, practical nurse, nurse assistant) of intensive care unit (ICU) of hospitals. The research environment was seven public hospitals (Ayatollah Taleghani, Shohdaye Tajrish, Shahid Modarres, Imam Hussein, Akhtar, Loghman Hakim, and Masih Daneshvari) and five private hospitals (Nikan, Bank-e-Melli, Mardom, Al-Ghadir, and Arad) affiliated with Shahid Beheshti University of Medical Science. In total, the statistical population was 320 people who were evaluated by the census method after receiving satisfaction from all subjects. A two-part questionnaire was used to collect data. The first part of the questionnaire was designed to collect demographic and work-shift data of subjects including age, sex, marital status, name of the hospital, employment status, educational level, housing situation, having a second job, work experience, occupation, overtime, shifting procedure (the dominant shift), the type of shift system, the amount of workload at any shifts (morning shift, evening shift, night shift), satisfaction with the shifting system, and occupational accident. The second part consists of the Maslach burnout inventory, which is the most common burnout-assessing tool. The questionnaire consists of 22 separated items and measures three aspects of burnout (emotional exhaustion, depersonalization, and personal accomplishment) with a seven-degree Likert scale with scores from 0 (never) to 6 (very high). The first nine questions related to emotional exhaustion, the second five questions related to depersonalization, and the last eight

questions are related to personal accomplishment. Filian et al, first approved the validity and reliability of the Maslach burnout questionnaire in Iran, with a reliability coefficient of 78%¹⁵. The internal validity of this questionnaire using Cronbach's alpha for each of the components of the questionnaire from 71% to 92% was reported¹⁶. All analyzes were performed using SPSS software. Descriptive statistics (frequency, mean, standard deviation) and linear regression test were used to measure and the result compared the effect of work shift on burnout. A significant level of 0.05 was considered.

Permission for this study was through the Ethical Committee of Shahid beheshti University of Medical Sciences. IR.SBMU.RETECH.REC.1396.666.

Results

In this study, 74.1% of subjects were female, 57.5% were married and 96.6% had bachelor's degree and higher. The survey on occupational characteristics of subjects indicated that 87.5% of them were nurses, 0.9% surgical technologist, 5.9% anesthesia technician and 5.7% nurse assistant. With respect to the type of employment, 35.3% permanent, 8.1% temporary-to-permanent and rest of them were

contractual and those who are committed to serving medical service. Studies on the type of shifting system also showed that 28.7% of the subjects were working in the morning shift, 16.9% evening shift, 15.6% night shift, and 24.7% the evening and night shifts. 14.1% had rotational shifts. 80.9% of subjects had no second job, and 86.9% of them had to work overtime. Table 1 shows the status of the workload of work-shift from the perspective of nursing staff in the studied hospitals.

According to the table, morning shift has been the heaviest shift, so that 63.1% of the subjects evaluated the morning shift heavy and very heavy. After that, night, rotational, and evening were the most workload. In order to measure and compare the effect of work shift on the three dimensions of burnout in nursing staff of public and private hospitals, 15 simple regression equations were developed and calculated. Information on the linear regression test of the dimensions of burnout due to work shift in private and public hospitals can be seen in Table 2. The effect of the work shift on each post-burnout job is calculated with the coefficient of determination (R²) and can be seen in the table.

Table 1: Frequency distribution of the workload of work-shift from the perspective of the nursing staff.

Work-shift	Rate of workload	Frequency	Percent
Morning or Daylight	Very light	5	1.6
	Light	14	4.4
	Medium	99	30.9
	Heavy	130	40.6
	Very heavy	72	22.5
Evening	Very light	3	0.9
	Light	24	7.5
	Medium	132	41.2
	Heavy	129	40.4
Night	Very heavy	32	10
	Very light	0	0
	Light	22	6.9
	Medium	127	39.7
	Heavy	121	37.8
Rotational	Very heavy	50	15.6
	Very light	1	0.3
	Light	8	2.5
	Medium	116	36.2
	Heavy	139	43.4
	Very heavy	56	17.6

Table 2: The results of linear regression analysis of the effect of work shift on different dimensions of burnout.

Work shift	Type of hospital	Burnout dimensions	Mean	β - coefficient	Coefficient of	P-Value
					determination	
Morning	Public	Emotional exhaustion	3.21±1.10	0.482	0.22	0.00
		Depersonalization	1.63±1.33	0.272	0.06	0.024
		Personal accomplishment	3.54±1.06	0.169	0	0.166
	Private	Emotional exhaustion	2.71±1.19	0.501	0.25	0.00
		Depersonalization	1.1±1.16	0.227	0	0.298
		Personal accomplishment	4.05±0.88	0.008	0	0.972
Evening	Public	Emotional exhaustion	3.25±0.98	0.544	0.27	0.00
		Depersonalization	1.43±0.99	0.178	0	0.278
		Personal accomplishment	3.56±0.85	0.111	0	0.500
	Private	Emotional exhaustion	3.09±1.25	0.669	0.40	0.006
		Depersonalization	1.57±1.61	0.364	0	0.183
		Personal accomplishment	3.68±1.17	0.209	0	0.455
Evening & Night	Public	Emotional exhaustion	3.02±1.11	0.511	0.24	0.00
		Depersonalization	1.81±1.28	0.011	0	0.938
		Personal accomplishment	3.60±0.96	0.484	0.07	0.022
	Private	Emotional exhaustion	2.83±1.29	0.442	0.13	0.050
		Depersonalization	1.75±1.41	0.285	0	0.198
		Personal accomplishment	3.42±0.82	0.285	0	0.198
Night	Public	Emotional exhaustion	3.41±1.03	0.308	0	0.068
		Depersonalization	2.54±1.45	0.089	0	0.606
		Personal accomplishment	3.35±0.97	0.225	0	0.187
	Private	Emotional exhaustion	2.25±1.064	0.204	0	0.484
		Depersonalization	1.18±1.16	0.126	0	0.667
		Personal accomplishment	3.80±1.29	0.079	0	0.788
Rotational	Public	Emotional exhaustion	3.40±1.13	0.505	0.23	0.002
		Depersonalization	1.64±1.33	0.133	0	0.453
		Personal accomplishment	3.62±0.90	0.273	0	0.119
	Private	Emotional exhaustion	2.80±1.49	0.754	0.52	0.007
		Depersonalization	1.24±0.94	0.548	0	0.081
		Personal accomplishment	3.50±0.97	0.353	0	0.287

According to the data presented in Table 2, there is a significant relationship between the morning shift and emotional exhaustion aspect of nursing staff in public and private hospitals. The findings also indicated a significant relationship between morning shift and depersonalization aspect in nursing staff in government hospitals. The information showed that there was no significant relationship between morning shifts with other dimensions of job burnout. Studies on the evening shift also revealed that this work shift had a significant relationship with the emotional exhaustion dimension of the subjects. Similarly, at night and in the evening shift work, there was a significant relationship between work shift and emotional exhaustion. On the other hand, this shift shows a significant relationship with the personal accomplishment in the nursing staff of public hospitals $p < 0.05$. At night shift, there was no significant relationship between the dimensions of

burnout and shift work ($p > 0.05$). Studies on rotational nursing staff indicate that there is a significant relationship between the emotional exhaustion of them with their work shift.

Discussion

Burnout is a psychological syndrome and is more likely to be found in occupations that have long contact with humans. People in such jobs gradually feel under pressure, and their emotional energy is reduced to the benefit of those who serve those¹⁷. Some occupations, such as nursing and its associated occupations, such as a practical nurse, anesthesia technician, and surgical technologist due to a stressful environment and work stress, are more prone to burnout. In addition to the inherent stress of these professions, factors such as work shift are also added to its tension and are capable of affecting the

performance of employees in these professions. The current study was an attempt to investigate the effect of work rotations on burnout among nursing staff in the intensive care unit of public and private hospitals affiliated with Shahid Beheshti University of Medical Sciences. In this regard, the relationship between the five work shifts (morning, evening, evening, and night, night, and rotational) with three main dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment) was investigated. The results showed that shifting in all work shifts, except for the night shift affected the emotional exhaustion of the subjects. This effect was observed in the morning, evening and rotational hours of private hospital staff more than public hospitals. At night and evening shifts, we saw more shifting effects on the emotional exhaustion of public hospital staff. The findings of this study were in agreement with the research results of Setoudeh Asl et al. His study on burnout among nurses and midwives working in Semnan University of Medical Sciences showed that the rate of burnout in rotational nurses was higher than that of fixed-time nurses¹¹. In the study of Habibi et al, exhaustion that is more emotional was reported in nurses in the evening shift of Alzahra hospital in Isfahan¹⁸. Investigations on the effect of shift work on depersonalization revealed that there was only a significant relationship between morning shift and this dimension of burnout in public hospitals. Other work shifts in private and public hospitals had not an impact on the depersonalization dimension. Findings of the study of Mousavian Asl et al, also showed that the worst burnout of depersonalization dimension occurs during the morning shift¹², which is consistent with the findings of the present study. According to the findings of the present study, the shift component was associated only with the night and evening shift of public hospitals with a sense of personal accomplishment. In other work shifts (morning shift, evening shift, night shift and rotational), no significant relationship was found between shift indices and personal accomplishment. The results of this study in this section were not consistent with the findings of Habibi et al. since based on this study; the highest rate of burnout in personal accomplishment was reported at the night shift¹⁸.

Conclusion

The new age requires the optimal use of time. Shifting and burnout are also the results of the advent of this complicated industrial era. The prevalence of burnout in sensitive occupations, such as nursing, causes many problems in the health system. In the present study, shift work has been recognized as an effective factor in the burnout of nursing staff in the intensive care unit of hospitals affiliated with Shahid Beheshti University of Medical Sciences. Among the various work shifts, morning shift, and evening and night shifts, played the most role in the burnout of the studied subjects. These shifts were identified as the most effective factor in most of the burnout subscales, while the work shift of the night had no negative effect on burnout. It can be reduced the nursing staff burnout using the appropriate intervention program based on the results of this study. Voluntary selection of employees at critical shifts such as morning and evening and night shifts can be a good solution to reduce burnout in these work shifts. In addition, identification of factors affecting the burnout of nursing staff in these shifts and efforts to overcome these factors will greatly help to reduce the disadvantages of these work shifts. It is suggested that the provision of counseling services to nursing staff should be considered more. Providing these services, in the end, will improve communication factors, as well as enhance the health of the staff and it provides the groundwork for more adaptation of staff with shift work.

Acknowledgment

This study was the result of a master's thesis of HSE School of Islamic Azad University, Science and Research Branch. Researchers would like to express deep appreciation for the cooperation of the authorities and nursing staff of the hospitals of Shahid Beheshti University of Medical Sciences.

References

1. Kaygobadi S. Nursing stressors in nurses of Tehran nursing and midwifery faculties. *Edu Med Sci.* 2002;5:61.
2. Hosseinijad SM, Aminiahidashti H, Montazer SH, Elyasi F, Moosazadeh M, Ahmadi N. Job burnout among the emergency department nurses of medical training centers affiliated to Mazandaran university of medical sciences. *Iranian Journal of*

- Emergency Medicine. 2016;3(4):125-31.
3. Malliarou MM, Moustaka EC, Konstantinidis TC. Burnout of nursing personnel in a regional university hospital. *Health Science Journal*. 2008;2(3).
 4. Zamini S, Hosseini Nasab D, Zarei P. The relationship between organizational culture and job satisfaction and job burnout among the employees in Tabriz University. *Iran occupational health*. 2011;8(1):30-40.
 5. Talaei A, Mokhber N, Mohammad-Nejad M, Samari A. Burnout and its related factors in staffs of university hospitals in Mashhad in 2006. *Koomesh*. 2008;9(3):237-46.
 6. Delpasand M, Raeissi P, Begdeli F, Shahabi M. The impact of job rotation on nurses burnout in Ayatollah Kashani hospital, Tehran: A case study. *Iran Occupational Health*. 2011;7(4):2-0.
 7. Rahimi A, Ahmadi F, Akhond M. An investigation of amount and factors affecting nurses' job stress in some hospitals in Tehran. *Journal of hayat*. 2004;10(3):13-22.
 8. Lachman VD. *Stress management: A manual for nurses*: Saunders; 1983.
 9. Gutiérrez LSC, Rojas PL, Tovar SS, Tirado JGO, Cotoñieto IAM, García LH. Burnout syndrome among Mexican hospital nursery staff. *Revista medica del Instituto Mexicano del Seguro Social*. 2005;43(1):11-5.
 10. Barrett L, Yates P. Oncology/haematology nurses: a study of job satisfaction, burnout, and intention to leave the specialty. *Australian Health Review*. 2002;25(3):109-21.
 11. Sotodeh Asl N, Bakhtiari AH. Occupational exhaustion and its related factors in nurses and midwives of Semnan University of Medical Sciences. *Scientific Journal of Kurdistan University of Medical Sciences*. 2006;11(1):77-83.
 12. MosavianAsl Z, BabaeiPouya A, Karimi A. The Relationship between Shift Work and Occupational Burnout among Nurses in a Teaching Hospital in Ahvaz. *Occupational Hygiene and Health Promotion Journal*. 2017;1(2):118-28.
 13. Massoudi R, Aetemadifar S, Afzali SM, Khayri F, Hassanpour Dehkordi A. The influential factors on burnout among nurses working in private hospitals in Tehran. *Iranian journal of nursing research*. 2008;3(9):47-58.
 14. Frese M, Okonek K. Reasons to leave shiftwork and psychological and psychosomatic complaints of former shiftworkers. *Journal of Applied Psychology*. 1984;69(3):509.
 15. Filian E. Evaluation of burnout and its correlation with coping mechanisms in nurses of educational hospitals of Tehran [dissertation]. Tehran University of Medical Sciences. 1993;45.
 16. Ezzati E, Anooshe M. Assessment of nursing burnout in practical nursing in Kermanshah hospitals: Thesis for master of science. Tehran, Tarbiat Modares University 2005: 3-18; 2005.
 17. Hakim SM, Arabgol F, Khajeh AN, Elahi F. The relationship between burnout syndrome in mothers in nursing career and their children's behavioral problems. 2004:67-72.
 18. Habibi E, Dadkhah Tehrani S, Ghareh baei S, Mahaki B. A survey of the relationship between shift work and job burnout in nurse staff of Alzahra hospital application maslach's burnout questionnaire. *J Health Syst Res*. 2015;11(1):77-87.