



Study of Job Burnout and Problems of Shift Workers of a Water & Wastewater Contracting Company in Tehran

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ABSTRACT

Aims Shift work is an unusual work pattern compared to day work. It can have adverse effects on human life from various aspects. Effects of shift work on people depend on their job, organizational and social environment, personal traits, and shift work schedule characteristics. The present study aimed at determining the job burnout and problems of shift workers of a water & wastewater contracting company in Tehran.

Instruments & Methods This is a cross sectional study conducted in a water and wastewater contracting company in Tehran in 2015. The subjects of the study were 89 males (51 shift workers and 38 daytime workers). The Survey of Shift workers (SOS) and Maslach Burnout Inventory (MBI) questionnaires were used to assess the shift work-related problems and job burnout, respectively. Finally, the data were analyzed by R software and statistical tests.

Findings The findings of this study did not show significant difference in the values of job burnout dimensions in both groups (shift workers and daytime workers). Job burnout scores for shift workers group showed that 27.3% in depersonalization and 19.5% in personal accomplishment dimensions were in severe problems category. According to the independent samples t-test, there was a significant difference in sleep hours in both groups ($p < 0.05$). Also, 5.8% of the shift workers and 23.6% of the daytime workers had cardiovascular disorders.

Conclusion In this study, most of the shift workers were satisfied with their shift work system. It seems that more surveys in this area for the future studies is necessary.

Keywords Job Burnout; Shift workers; Water and Wastewater Contracting Company; Maslach Burnout Inventory; Survey of Shift workers

CITATION LINKS

[1] Quality nursing care: Leadership makes ... [2] Hospital nurse ... [3] Shift work, long hours, and cardiovascular ... [4] Comparison of fixed and rotating shifts on burnout among nurses working in ... [5] Making shiftwork ... [6] Shift work and its complications: A case study in ... [7] What do petrochemical workers, healthcare ... [8] Rotating night shifts and risk of breast ... [9] Night-shift work and risk of colorectal cancer ... [10] Shift work and chronic disease: The epidemiological ... [11] Metabolic disturbances in male workers with rotating three-shift ... [12] The relationship between shift work, sleep, and cognition in career ... [13] Shift work is a risk factor for increased blood pressure in Japanese ... [14] Shiftwork and metabolic risk factors ... [15] Obstructive sleep apnea as a risk factor for stroke ... [16] Biomedical and psychosocial aspects of shift ... [17] Health effects of shift work and extended ... [18] Night shift work and the risk of endometrial ... [19] Increased breast cancer risk among women ... [20] Effectiveness of shift schedule change ... [21] Work load and work hours in relation to disturbed ... [22] Health disorders of shift ... [23] Some theoretical viewpoints on ... [24] Work shift duration: A review comparing ... [25] Burnout levels and some related factors ... [26] Burnout, perceived stress, and cortisol ... [27] Occupational health: Recognizing and ... [28] Job ... [29] Nurses' professional burnout and ... [30] A survey of the relationship between shift ... [31] Standard shiftwork index ... [32] An investigation of shift work disorders in security personnel ... [33] Comparison of shift work-related health problems ... [34] Burnout and its related factors in ... [35] Burnout and productivity among Iranian ... [36] The relationship between job burnout and personality ... [37] The relationship between burnout and quality of working life in nurses of AJA hospitals in ... [38] The relationship between burnout and mental health among ... [39] Shiftwork tolerance and circadian rhythms in oral temperature and heart ... [40] The relation between shift work, fatigue and sleepiness and accidents among workers in sugar ... [41] Assessment of effect of shift work on blood ...

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Introduction

Human resources are the most important resources for managers to achieve the goals of an organization [1]. Effective human resources are the main factors in achieving and sustaining the success of organizations [2].

The kind of work shifts may affect the human performances. Compared to day work, shift work is known as an unusual work pattern [3]. Shift work is defined as working out of daytime hours, i.e. 7 am to 4 pm [4].

As a risk factor, it can have adverse effects on human life from various aspects [5]. In recent decades, shift work has extensively grown among the working population, especially in developing countries [6]. It is also a very common aspect in industries and occupations due to their working nature [7]. According to the International Labor Organization (ILO) report, about 25% of workforces in developed countries and 15% to 30% in developing countries are shift workers [7].

Some epidemiological studies showed that shift work might be associated with health problems and disorders [8, 9], including sleep disorders [10-12], cardiovascular diseases and hypertension [13-15], digestive and mental disorders [16], social and familial problems [17], and increased cancer risk [18, 19].

The combination of shift work with workplace risks, heavy physical and cognitive demands can reduce work control person and other stressful psychosocial factors that may have many negative effects on people's health [20-23]. Mainly, effects of shift work on people depend on their job, organizational and social environment, personal traits, and shift work schedule characteristics [24].

One of the problem for workers is job burnout, which is often characterized by symptoms such as fatigue, anorexia, headache, disturbed sleep pattern, lack of concentration, and job apathy [25, 26]. In this situation, people experience a feeling of inability to work, lack of self-competence, unwillingness to work, and inability to maintain balance and it may be also cause depression, fatigue, and insomnia [27]. Maslach defined burnout as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment [25, 28]. Khazaei *et al.* [29] showed that among the Maslach Burnout Inventory subscales, frequency of depersonalization in different work shifts among nurses were significantly different. There are other researches showing a relationship between job burnout and shift work [30]. These studies highlighted the importance of shift work and job burnout in workplaces. According to these studies, shift work and job burnout affect the human life from various aspects.

One of the jobs that has a shift work system is working for contractors like water and wastewater

contracting companies. In this type of companies, there are different shifts including morning, evening, night, and 24-hour shifts.

Since no study had been previously reported in Iran to focus on job burnout in 24-hour shifts and its relationship with issues like physical and psychological problems, the present study focused on job burnout and problems of shift workers in a water and wastewater contracting company in Tehran.

Instruments and Methods

This is a cross sectional study conducted on workers of a water and wastewater contracting company in Tehran, 2015. The study subjects included 120 males, 89 of whom had study inclusion criteria. The sampling method was census and all the subjects were assessed. The daytime working hours were 8 am to 4 pm for 6 days a week; on the other hand, the shift workers were 24 hours in workplace and 48 hours in rest. The criteria for entering to the study included work for the water and wastewater contracting company in daytime or 24-hour shift work, providing informed consent of participating in the study, and undertaking the same tasks. Also, the exclusion criteria were unwillingness to participate in the study at each stage, having a second job, and having a post-history of cardiovascular diseases, digestive disorders, musculoskeletal disorders, respiratory disease, migraine and neurological attacks, genetic sleep disturbances, and mental disorders, which are not dependent on current jobs.

It is notable that in this study in step 1, the informed consent was presented to the subjects and procedure of the study was explained to them. The survey of shift workers (SOS) and Maslach burnout inventory (MBI) questionnaires were used to assess physical and shift work-related problems and job burnout, respectively. The questionnaires were distributed among 51 shift workers and 38 daytime workers. SOS was developed by the MRC/ESRC Social and Applied Psychology Unit in the United Kingdom, and it is considered a reliable measurement instrument for shift-related problems [31]. SOS comprises 57 items, including questions about demographic, sleep disorders, personal disorders, family disorders, social life disorders, mental disorders, cardiovascular disorders, digestive, and musculoskeletal disorders [32].

It also should be noted that this questionnaire consisted of 44 items for non-shift workers in this study due to the exclusion of shift-related items. The validity and reliability of this questionnaire were tested and confirmed in some Iranian studies [32, 33]. MBI was used to measure job burnout in this study. This questionnaire is one of the most commonly instruments that is used for job burnout measurement, including 22 questions and 3 dimensions of depersonalization, emotional

exhaustion, and personal accomplishment [34-36]. Individual answers to each question scored according to 7-point Likert scale from "Never" (0) to "Always" (6) and, finally, the score of each dimension would be obtained [37]. The validity and reliability of this questionnaire were assessed and confirmed in Iranian studies, too [35, 38]. Items 1, 2, 3, 6, 8, 13, 14, 16, and 20 represent the subscale of emotional exhaustion. Items 5, 10, 11, 15, and 22 represent the subscale of depersonalization. Items 4, 7, 9, 12, 17, 18, 19, and 21 represent the subscale of personal accomplishment. In the case of emotional exhaustion, the scores above 27 are classified as high emotional exhaustion, the scores 17-26 as moderate emotional exhaustion, and the scores below 17 as low emotional exhaustion. In the case of depersonalization, the scores above 13 are considered as high depersonalization, 7-12 as moderate depersonalization, and below 7 as low depersonalization. In the case of personal accomplishment, the scores above 39 are regarded as high personal accomplishment, 32-38 as moderate personal accomplishment, and below 31 as low personal accomplishment [25]. Finally, the data were analyzed by R software and statistical tests such as Mann-Whitney and Pearson correlation coefficient.

Findings

In this study, all subjects were male. The average age and work experience of the subjects shown in Table 1. In terms of the level of education, there were more subjects with diploma (32.6 %) compared to those under diploma (26.5%). Table 2 shows scores for job burnout dimensions in two groups of day and shift workers. As can be seen, the personal accomplishment has the highest score in two groups. The statistical significance differences of level of the job burnout dimensions between daytime and shift workers was also measured by independent samples t-test, indicating insignificant difference in the values of burnout dimensions in both groups, so that the amount of p values for emotional exhaustion, depersonalization, and personal accomplishment were 0.118, 0.135, and 0.997, respectively. In the case of emotional exhaustion, the findings showed that 50%, 21.1% and 28.9% of daytime workers had low, moderate, and high emotional exhaustion, respectively. In this term, the findings of shift work group showed that 51%, 21.6%, and 27.3% had low, moderate, and high emotional exhaustion. In the case of depersonalization, the daytime workers represented 42.1%, 34.2%, and 23.7% of low, moderate, and high depersonalization. In this term, the shift workers represented 54.9%, 17.6%, and 27.4% of low, moderate, and high depersonalization, respectively. In the case of personal accomplishment, the daytime workers represented 63.2%, 28.9%, and 7.9 of low, moderate, and high

personal accomplishment, respectively. In this term, the shift workers represented 72.6%, 7.7%, and 19.5% of low, moderate, and high personal accomplishment.

Table 1) The average age and work experience

Group	Age Mean± SD	Job background Mean± SD
Day workers	38.4±8.51	8.04±3.31
Shift workers	36.8±8.97	7.61±2.82

Table 2) Mean scores of job burnout dimensions in two groups of day and shift workers

Group	Emotional exhaustion Mean± SD	Depersonalization Mean± SD	Personal accomplishment Mean± SD
Day workers	20.76±6.01	8.68±3.55	28.02±7.67
Shift workers	16.35±5.06	6.60±2.333	28.01±9.37

The results of the study also showed that the mean sleep hour was 6.94 in the daytime worker group with a standard deviation of 1.03 and 5.96 in the shift worker group with a standard deviation of 1.23. According to the independent samples t-test, there was a significant difference in sleep hours in both groups ($p < 0.05$). The results also indicated that the mean required sleep hours were 8.5 and 8.13 for daytime and shift worker groups, respectively, and the difference of these amounts was not significant according to independent samples t-test ($p > 0.05$). About 66.6% of the shift workers remarked the impossibility of sleep during their shift, while about 33.3% of them stated that they sometimes find the opportunity to sleep during their shift. 64.7% of the shift workers expressed that the benefits of the shift work system outweigh its disadvantages, 9.8% said that it does not make much difference for them, and 23.5% mentioned that the benefits of the shift work system do not outweigh its disadvantages. 74.5% of the shift workers and 55.2% of the daytime workers expressed their satisfaction with the number of hours they are able to spend with their families. Only less than 30% of the shift workers said that shift work had a negative effect on their family life. In the case of focus, 25.4% of the shift workers and 13.2% of the daytime workers said they have recently less focus on their work and found it more difficult to make decisions. 86.2% of the shift workers and 60.5% of the daytime workers claimed that they had recently suffered from complications such as headache and dizziness, anger, carelessness, repeated mistakes, boredom, irritability, depression, and exhaustion during the day. About 32% of shift workers and 12.5% of daytime workers had experienced gastrointestinal problems such as constipation, diarrhea, gastrointestinal tract infection, and acid flux (Diagram 1). 5.8% of the shift workers and 23.6% of the daytime workers also mentioned that they suffer from cardiovascular disorders. Also, 53% of shift workers and 47.3% of

daytime workers suffered from musculoskeletal disorders such as knee, back, shoulder, or neck pain (Diagram 2).

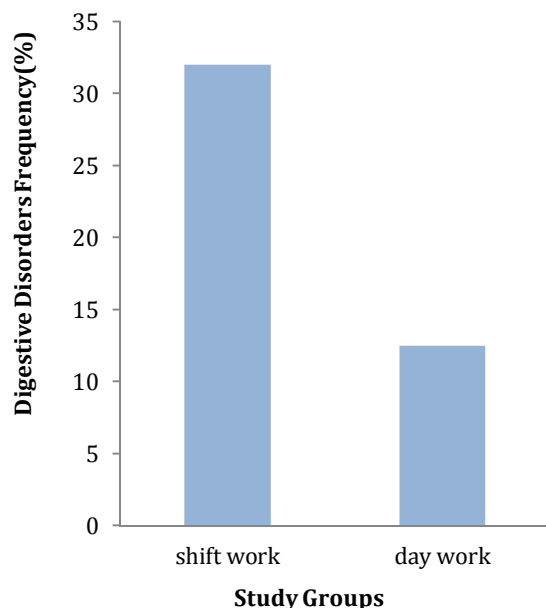


Diagram 1) Digestive disorders in shift workers and daytime workers

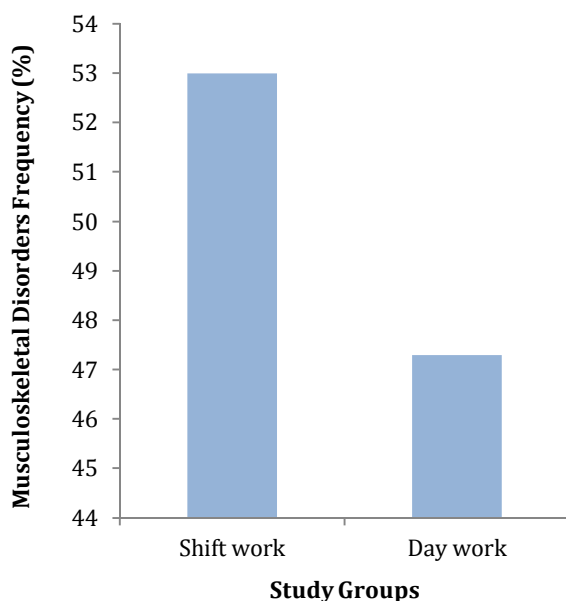


Diagram 2) Musculoskeletal disorders in shift workers and daytime workers

Discussion

This study is of the few studies assessing problems of 24-hours shift workers in Iran. Unusual shifts are often 8-hours afternoon or night shifts, whereas this study focused on 24-hours shift workers. The results of this study showed that 78.35% of the shift workers were satisfied with their shift work system; the main reason expressed with them was having

more opportunity in holidays to handle personal and family life affairs. Most of the shift workers suggested that it is important for them to have enough time to spend with their families. Some of this workers said that the 24-hours work-48 hours rest cycle provides efficient time to rest and to do their social and familial activities.

The job burnout scores for shift work group in depersonalization and personal accomplishment dimensions showed that many of these workers had high exhaustion and that is higher than day work people, but the results were different in emotional exhaustion.

Vidaček *et al.* [39] found that burnout rate is higher in the shift workers compared to daytime workers, which is consistent with the results of the present study. The study conducted by Habibi *et al.* [30] is consistent with present study, too. This is, however, inconsistent with Mahmoodi *et al.*'s [25] study, in which there was no significant relationship between job burnout and shift work among nurses. The reason of these inconsistent findings may be due to their different studied jobs and the kind of the shift work systems.

The independent samples t-test was indicative of a significant difference in sleep hours between the two groups, so that mean sleep hours was higher in the daytime workers rather than shift workers. This finding is consistent with the results of a study carried out by Balghanabadi *et al.* [40] on the workers in a sugar factory, where there were more symptoms of fatigue and insomnia among shift workers than daytime workers and this difference was statistically significant. In a study on the workers of a tire factory, Golabadi *et al.* [41] found significantly higher mean values of systolic and diastolic blood pressure among shift workers than daytime workers. This is also consistent with the result of the present study, in which the shift workers suffered more from cardiovascular disease rather than the daytime workers.

It should suggested that this study had some limitations; for example, not using medical tools to assess bodily disorders of subjects and not using physiological indices.

Conclusion

The findings of this study showed no significant difference in the values of job burnout dimensions in both groups (shift work and day work). It was also revealed that the most of the shift workers were satisfied with their shift work system. However, with regard to some problems of the shift workers that were revealed, such as sleep problems, it is recommended that the employers adopt a series of control measures with the aim of improving the economic, environmental, and managerial conditions of their employees.

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