

Original Article

**Physical Environment, Occupational Conflict, and Ambiguity of Roles:
Job Stressors among Nurses**

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Abstract

Background and purpose: Providing health services in health centers is a challenging and risky job. So that, realization of quality, performance, efficiency, and fairness in the provision of such services needs a proper condition to ensure that the stress experienced by the personnel is minimized. The present study is a survey of the factors effective on job stress among the nurses working in the educational hospitals affiliated with Tehran Medical Science University, Iran.

Materials and Methods: The study was conducted as a correlative work with a sample size of 180 nurses. A researcher-designed questionnaire was used as data gathering tool. The validity of which was confirmed by the experts and its reliability was ascertained using Cronbach's alpha ($\alpha = 0.92$). The data were analyzed in SPSS using descriptive statistics such as central indices and inferential statistics including Pearson correlation coefficient.

Results: Mean score of the physical environment (1.96), occupational conflict (1.97), and ambiguity of role (2.20) were less than the average score. In addition, there was a statistically significant relationship between physical environment, occupational conflict, and ambiguity of roles on one hand and the stress experienced by the nurses on the other hand ($P < 0.05$).

Conclusion: Given the significant relationship between physical environment, occupational conflict, and ambiguity of roles on one hand and the nurse's stress, on the other hand, improvement of the environmental problem and assigning tasks that are more specific can be greatly helpful in improvement of the work condition.

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1. Introduction

Stress, nowadays, is a part of our lives and what matters is the intensity of the stress. Experiencing a normal intensity of stress lets the individual to reach their maximum performance while excessive stress stops the normal way of life and doing daily activities (1,2).

Job stress is one of the most common types of stresses, as adults have to spend one-third of their adulthood at work with many stressors. When there is no harmony between capabilities and talents of an employee and the assignments and tasks, we have a case of job stress and unwanted physical and psychological responses (3).

Among features of a healthy organization is taking into account the physical and psychological health of employees. Job stress is one of the key issues in organizational behavior studies, and it has to do with human force management from different aspects. There is a wide range of stressors at work and among many, physical environment, occupational conflict, and ambiguities of tasks are notable. In general, intense stress at work causes damages to the employee and the organization as well so that it threatens employee's health – the most important factor in productivity (4).

This is of dire importance when it comes to health and treatment services as providing health services is too energy/time consuming. In addition, realizing quality, just, and effective health services needs creating a decent environment with low stress for the health providers (5). Exist of stress in staff lead to performance reduction and, more importantly, is facing with dangers such as medical errors. Medical errors are an integral feature of any profession, especially medicine (6). Today, despite the efforts of doctors, dentists, nurses and other medical staff and with advanced and vast facilities, the level of patients is increasing (7). In some cases patients do legal actions against health

workers and treatment due to neglect in the performance of their health care standards (8).

Scholars have a different approach to stress; however, in general, three classifications are notable. (i) Stress as motivation, (ii) stress as response, (iii) and stress as the effective factor in individual and environment interaction or one's perception of the situation. Beer and Newman are proponents of the third viewpoint, which states that people's interaction with their job leads to internal changes and diversion from normal interaction eventually (9,10). The issues of mental pressures and its effects have drawn a great deal of attention in the recent decades so that the 21st century is known as the age of mental pressures. Doubtlessly an organization's movement toward its goals, which leads to the development of the society, requires improvement of performance of its employees. Mental pressure is the main factor in one's performance. When it exceeds a specific threshold, decrease in one's performance is witnessed; while the normal level of stress leads to maximum performance and below that level performance descends (11). There are reports that state 93% of the nurses routinely experience the stressful professional situation. This indicates that nurses suffer great deal of stress at work (12).

For the nurse, there are many stressors at work such as changes work shifts, workload, disagreement among the colleagues, observing the patient's pain or death, lack of enough support, and lack of time to deal with emotional and spiritual needs of the patient and family (13). As the stressors in the nursing profession, Tyson highlighted inaccessibility of physicians during emergency situations, poor staffing, dealing with patients who has no hope for improvement, lack of enough equipment, dealing with patients, working with contaminated tools and secretions, witnessing patients' suffers and pains, poor work-life balance (14).

It is a commonly seen trend that fresh-out-of-college nurses are disciplined and motivated and gradually lose their interest and motivation throughout years and encountering great deal of mental pressures. That is why fatigue and burnout rate among experienced nurses is so high.

Sahraian et al. identified that, compared with nurses working in psychiatric wards, nurses of surgical and internal wards showed significantly higher level of job stress in the most scales of job stress, except a relationship. There was no significant correlation among scales of job stress and age, marital status, work shifts, and experience. However, they found a significant correlation with some scales of job stress and sex and education level (15).

Zhou et al. showed that time pressure was significantly correlated with role conflict and role overload; job anxiety and job stress were significantly and positively correlated with role ambiguity, role conflict and role overload; role ambiguity had a significant and positive effect on job anxiety and job stress; and role conflict and role overload had a significant and positive effect on time stress, job anxiety and job stress (16).

Nadri et al. found that stress status of the employees was acceptable at the time, however, considering the studied dimensions (especially the physical environment); it will not remain desirable in the future. Physical factors in the workplace, such as light, noise, ventilation and chemical agents must be assessed and should be improved in accordance with a regular program (17).

Arbabisarjou et al. showed that job stress, in a variety of physical or mental disability organizations led to the low performance and high costs. The results showed correlation coefficient between performance and components job stress. The results showed that the stress in work environment reduces the intention of employees to perform better in jobs with the increasing level of stress (18).

Given that the nurses' mental and physical health directly influences their performance, regardless of nature of organization, healthy work environment and preservation of mental health prevents the development of depression, anxiety, hopelessness, and burnout, which in turn leads to higher satisfaction of customers with the services. In Iran, health issues about nurses in the workplace are almost neglected. The present study is aimed at determining factors that cause job stress among the nurses.

2. Materials and Methods

Regarding the goals, the study is classified as an applied work and as to the method, it is a correlative work. The study is also classified as cross-sectional work considering time horizon. The study was carried out in 2013 in one of the Tehran-based hospitals. The study population was comprised of all nurses working in the hospital including nurses with lifetime employment, contractual nurses, and nurses with other types of employment. According to the following formula, 180 nurses were selected through simple random sampling as a sample group.

$$n = \frac{(z \left(1 - \frac{\alpha}{2}\right) + z(1 - \beta))^2}{CR^2} + 3 = \frac{(1.96 + 0.84)^2}{\frac{1}{2} \log \frac{(1+r)}{(1-r)}} + 3 = 180$$

$$r = 0.1, 1 - \beta = 0.89, 1 - \frac{\alpha}{2} = 0.95$$

The study was carried out after securing permission from Tehran Medical Science University and making required arrangements with management of the hospital. The participants were briefed about the study and ensured about confidentiality of their information and their unanimity. The participants also undersigned a letter of consent at the briefing session. The participants were ensured that they would

have access to their stress test results if they wanted to. Two-section researcher-designed questionnaire was used for data gathering. First-section of the questionnaire was designed to collect demographical data, and the second section was on job stress.

The validity of the questionnaire was confirmed by 5 university professors and nursing managers. To ascertain reliability of the questionnaire, Cronbach’s alpha was obtained 0.92. The questionnaire was comprised of 10 job stress questions, 3 on physical environment, 4 on occupational conflict, and 3 on role of task of ambiguity. Scores below 25 indicated “no stress,” between 25 and 50 indicated “normal stress,” between 50 and 75 indicated “moderate stress,” and between 75 and 100 indicated “intense stress.” The independent variable was nurses’ stress and the dependent variables were the physical environment, occupational conflict, and ambiguity of roles.

The collected data were analyzed by SPSS software (version 15, Chicago, IL, USA) using descriptive statistics (frequency and

mean) and inferential statistics (The Pearson’s correlation coefficient). A pattern of significant correlations emerged from the data between all nurses’s stress and physical environment, Occupational conflict and ambiguity of task. The multivariate results, however, should be interpreted with caution due to the potential variation in the extent to which Physical environment, Occupational conflict, and Ambiguity of task data are reflected among nurses.

3. Results

Women constituted 58% of the study group; holders of associates’ degree, bachelors’ degree, and Masters’ degree constituted 17, 63, and 20 percent of the sample group. The average age of the participants was 34, and average work record was 10 years. In 51% of the cases (more than half) physical environment was the cause of intense stress, followed by the ambiguity of tasks (25%), and occupational conflict (11%) (Tables 1 and 2).

Table 1. Distribution of nurses’ stress based on cause of stress

| Stress level | No stress | Normal stress | Moderate stress | Intense stress |
|-----------------------|---------------|---------------|-----------------|----------------|
| | Frequency (%) | Frequency (%) | Frequency (%) | Frequency (%) |
| Physical environment | 15 (8) | 49 (27) | 25 (14) | 91 (51) |
| Occupational conflict | 30 (17) | 45 (25) | 85 (47) | 20 (11) |
| Ambiguity of task | 29 (16) | 56 (31) | 42 (23) | 53 (25) |

Table 2. A one-way analysis of variance

| Variable | Sum of squares | df | Mean square | F | P |
|-----------------------|----------------|----|-------------|-------|-------|
| Physical environment | | | | | |
| Between group | 4.929 | 2 | 4.919 | 1.196 | |
| Within group | 152.158 | 15 | 4.112 | | 0.043 |
| Total | 157.077 | 17 | | | |
| Occupational conflict | | | | | |
| Between group | 16.937 | 3 | 16.937 | 3.496 | |
| Within group | 139.371 | 37 | 3.787 | | 0.04 |
| Total | 156.308 | 38 | | | |
| Ambiguity of task | | | | | |
| Between group | 10.533 | 2 | 5.267 | 4.938 | |
| Within group | 12.800 | 12 | 1.067 | | 0.012 |
| Total | 23.333 | 14 | | | |

A one-way analysis of variance was calculated on Stress level of nurses' stress. The results for all the dependent variable were significant ($P < 0.05$).

The mean value of physical environment for reducing the participants' nurses was 1.96; this figure for occupational conflict and ambiguity of task was 1.97 and 2.2, respectively, which are less than the mean level (Table 3).

Table 3. Stressful variable

| Dependent variable | Mean | SD |
|-----------------------|------|------|
| Physical environment | 1.96 | 0.28 |
| Occupational conflict | 1.97 | 0.14 |
| Ambiguity of task | 2.20 | 0.45 |

SD: Standard deviation

The Pearson's correlation test showed there was direct relationship between physical environment, occupational conflict, and ambiguity of tasks on one hand and the stress experienced by the participants on the other hand (Table 4).

A correlational analysis was conducted on the relationship between dependent variable and nurses' stress. The analysis was significant ($P < 0.05$).

4. Discussion

The results showed a significant relationship between physical environment, occupational conflicts, and ambiguity of tasks on one hand and stress experienced by the nurses on the other hand. This is consistent with Shakerinia and Mohammadpour study on the stressor effect of work environment on nurses who reported that more than 90% of the nurses regularly experienced stressful environment (19). Moreover, Montano et al. noted infectious diseases, noisy environment, and small work environment as stressors of nurses (9).

In addition, the findings are consistent with Gelsema et al. who showed that occupational conflict had direct effect on job stress of nurses in the Netherlands. It is notable that female nurses experienced lower stress than men did and married nurses' experienced lower stress than unmarried nurses. In addition, they found that other factors such as age and work record were effective on a negative assessment of health and physical health in particular (20).

Table 4. Correlation of the stress variables and nurses stress

| Variable | Physical environment | Occupational conflict | Ambiguity of task | Nurses stress |
|-----------------------|----------------------|-----------------------|-------------------|---------------|
| Physical environment | | | | |
| Pearson correlation | 1.000 | 0.212 | 0.124 | 0.540 |
| P (2-tailed) | 0.000 | 0.000 | 0.034 | 0.043 |
| N | 180 | 180 | 180 | 180 |
| Occupational conflict | | | | |
| Pearson correlation | 0.165 | 1.000 | 0.275 | 0.04 |
| P (2-tailed) | 0.005 | 0.000 | 0.002 | 0.086 |
| N | 180 | 180 | 180 | 180 |
| Ambiguity of task | | | | |
| Pearson correlation | 0.304 | 0.324 | 1.000 | 0.012 |
| P (2-tailed) | 0.000 | 0.093 | 0.000 | 0.150 |
| N | 180 | 180 | 180 | 180 |
| Nurses stress | | | | |
| Pearson correlation | 0.180 | 0.364 | 0.044 | 1.00 |
| P (2-tailed) | 0.045 | 0.085 | 0.007 | 0.000 |
| N | 180 | 180 | 180 | 180 |

Hosseini et al. concluded about job stress of the nurses that professional factor were more effective comparing with other factors such as demographical variables (10). Apparently, paying more attention to different aspects of nursing profession and participating nurses in making decisions pertinent to their job are highly effective in attenuating the stressors. Stress, whether positive or negative, is a part of our daily lives. Problems of the employees and the nurses must be dealt with along each other and by adopting proper strategies while necessity of coordination between individual and organization's needs no further emphasis.

Bagherian Mahmoodabadi et al. showed that patients' claims of medical staff were increased during the past 5 years. In fact, while 62 cases belonged to 2006, 108 cases were reported in 2010. Although medical errors are inconsiderable when the delivered health care services are concerned, identifying their reasons and a proper health care management would lead to higher quality of provided services, this study is consistent with (7).

Molazem et al. conducted a study in Kohkilouie va Boierahmad and reported main stressors of employees and their dissatisfaction including dissatisfaction of the nurses with salary and allowances (72.5%), workload (61.3%), and working during weekends and holidays (52.1%) (21). In addition, a study in 2013 on stressors of work environment of nurses showed that 93% of the respondents regularly experienced stressors at work (22). Greenfield highlighted infectious diseases and noisy environment as the main stressors of nursing (23). Cha et al. conducted a study titled "elements of professional satisfaction of nurses" and stated that the nurses were highly dissatisfied with their salary while they were satisfied with their relationships (24). Given the results of other studies and the effect of occupational conflict on job stress, one may say that people with higher autonomy at work are better in doing their tasks and minimizing

stressors of occupational conflicts. Similar relationship between job specification and job stress was reported by Lambert et al.. Taking the results into account, it is admitted that stress suffered by the nurses lessens the quality and quantity of health services provided by the nurses. In light of this, measures must be taken to reduce the stressors and improve quality of the services (25). Potential capabilities of the employees must be realized and people must be assigned with a proper job in decent environment. Moreover, assigning unbearable responsibilities is not defensible. Indices introduced in the study must be controlled periodically to evaluate and determine effective managerial functions to reduce job stress.

Conflict of Interests

The Authors have no conflict of interest.

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