

The impact of workplace organization technique on job satisfaction among nurses

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ABSTRACT

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Background: Physical characteristics of the workplace are among factors affecting job satisfaction in nurses, who work in crowded and hectic environments. Therefore, the purpose of this study was to examine the effect of 5S workplace organization technique on nurses' job satisfaction.

Methods: In this semi-experimental study, 70 nurses, selected from medical and surgical units of two therapeutic-educational centers in Gorgan, Iran, were studied in 2015. The subjects were selected through census sampling and were assigned into intervention and control groups (n=35 per group). The intervention group was exposed to an organized work environment for six weeks. A visual workplace audit checklist was used in order to assess the need for workplace organization in the units before and one month after the intervention. Also, nurses' job satisfaction was measured using the questionnaire designed by Kohli and Jaworski before and after the intervention in both groups. For statistical analysis, Fisher's exact test, Chi-square, independent t-test, and paired t-test were performed, using SPSS version 20.

Results: The nurses' mean score of job satisfaction changed after the intervention from 14.94 ± 2.66 to 18.48 ± 2.03 in the intervention group ($P < 0.001$) and from 15.31 ± 1.54 to 14.80 ± 1.47 in the control group. The difference between the groups was significant after the intervention ($P < 0.001$).

Conclusion: The present results showed that implementation of 5S workplace organization technique could improve nurses' job satisfaction. Considering the simplicity of this technique, nursing managers can use it as an effective strategy to improve nurses' job satisfaction.

1. Introduction

Job satisfaction refers to the positive emotional disposition of an individual towards his/her job. It is recognized as a vital phenomenon for all organizations and healthcare systems,¹ as it is linked to human resources, as the most important asset in realizing organizational goals.² Since nurses are among the most valuable human resources and important members of healthcare organizations,^{1, 2} low job satisfaction among them could result in their reduced commitment and ultimately increased patient dissatisfaction.^{3, 4} This important issue not only disturbs the quality of patient care, but also promotes emotional disruption, depression, inadequacy, and ultimately resignation among nurses.^{5, 6}

Based on the available information, various individual, organizational, and economic factors are

associated with job satisfaction among nurses.⁷⁻⁹ However, the number of studies on the association between physical factors in the workplace and nurses' job satisfaction is limited,^{10, 11} and only some objective variables in the work space, such as sound, light, airflow,^{11, 12} and the surrounding area (with respect to the number of employees),¹³ have been evaluated.

Most units in healthcare settings are crowded and disorganized, and in many cases, nurses are obliged to spend a considerable amount of time searching for the required devices and materials.¹⁴ These issues can increase the time at work and lead to loss of energy, exhaustion, and ultimately reduced satisfaction among the staff.¹⁵ Nevertheless, through organizing the physical work space, we can reduce nurses' working time and exhaustion and improve their accuracy, safety, management, and productivity in the workplace. With these measures,

we can indirectly boost the quality of healthcare systems and increase patient satisfaction.¹⁵⁻¹⁷ Considering the scarcity of information in this area, further studies are required to investigate the effects of different interventional methods in the workplace environment.¹⁸

One of the techniques for improving the quality of physical environment is 5S workplace organization method. This method sets standards for the work space in hospitals and improves multiple processes in the setting.¹⁵ This Japanese technique incorporates five major principles: 1) Seiri (tidiness), defined as detecting and separating necessary and unnecessary items and disposing of the latter; 2) Seiton (orderliness), defined as neatly arranging the required materials for easy access; 3) Seiso (cleanliness), defined as discarding unwanted items and cleaning the objects; 4) Seiketsu (standardization), defined as controlling and correcting the three previous steps at frequent intervals; and 5) Shitsuke (discipline), defined as forming the habit of following the first four steps.¹⁸ The main objective of this method is to provide the best and most effective patient care method.¹⁶

Various studies have been performed to evaluate the impact of 5S workplace organization method. Based on the findings, successful implementation of this method can boost staff productivity,¹⁶ improve the efficiency of healthcare services,¹⁵ and reduce the time at work. Long-term application of this method is also effective in reducing the expenses.^{15, 19} So far, no studies have examined the effect of the workplace organization technique on job satisfaction among nurses. Therefore, in this study, we aimed to investigate the impact of this organization technique on job satisfaction among nurses.

2. Methods

2.1. Design

In this semi-experimental study, a two-group pre-test, post-test design was applied. The study population consisted of the nursing staff of medical and surgical units in two therapeutic-educational centers in Gorgan, Iran in 2015.

2.2. Participants and setting

In this study, Sample size was calculated at 32 based on a study by Nouri *et al.* (2014)¹⁶ ($\alpha=0.05$, $\beta=0.8$, $\mu_1=19.79$, $\mu_2=24.04$, $\delta_1=4.26$, and $\delta_2=3.45$). Given the possibility of sample loss, 35 nurses were considered for each group. Subsequently, a total of 70 nurses were selected via census sampling and were randomly divided into the intervention and control groups (one center

serving as the control and the other as the intervention group).

The inclusion criteria in this study were as follows: 1) an associate degree (or higher) in nursing; 2) minimum of one-year nursing experience; and 3) full-time employment over the past two months and during the study. On the other hand, the exclusion criteria were as follows: 1) replacement of nurses during the execution of the study, and 2) failure to complete the post-test. Data were collected, using a demographic questionnaire, job satisfaction questionnaire by Jaworski and Kohli, and visual audit checklist. The demographic questionnaire included information such as age, sex, education, work experience, marital status, employment status, and overtime work.

2.3. Instruments

In order to assess job satisfaction, we employed the job satisfaction questionnaire, developed by Jaworski and Kohli (1993).

This self-report scale includes five statements, evaluating job satisfaction within an organization. The respondent expresses his/her opinion about each statement, using a five-point Likert scale, ranging from completely incorrect (score 1) to completely correct (score 5). The scores range between 5 and 25 on this questionnaire, with higher scores indicating greater job satisfaction.²⁰ A study conducted by Hessam (2010) among nurses and hospital staff confirmed the validity of this scale, and Cronbach's alpha coefficient was estimated at 0.71.²¹ In the present study, the reliability of the scale was approved by Cronbach's alpha coefficient (0.76).

For the visual evaluation of workplace environment, we used the visual workplace audit, designed by Nouri (2012), according to regulations on workplace organization.¹⁶ This checklist consists of five items, each corresponding to a component of 5S method, rated on a five-point Likert scale (0-5); the minimum and maximum scores are 0 and 25, respectively. In the study by Nouri *et al.*, the content validity of the scale was estimated at 79%. In addition, Cohen's kappa coefficient was measured to be 0.68. This checklist was completed by the researcher before the start of the intervention in order to assess the requirements for the implementation of the workplace organization method.

2.4. Data Collection

The intervention group participated in the educational workshop on the technical principles of workplace organization in four sessions (four hours). In this workshop, the basic principles of 5S method,

its objectives, and implementation process were taught to the intervention group. The workshop was held for the intervention group via lectures by the researcher (MSCN in nursing management). Afterwards, the researcher in collaboration with nurses implemented the workplace organization technique in the intervention unit.

In order to implement the Seiri stage of 5S technique, necessary items were separated from the unnecessary ones by using a red tape. In the Seiton stage, all the equipments, including the medicine cabinets, drug trolleys, and stock items, were marked, or the labels were renewed. In the Seiso stage, all the contaminants were removed from the environment. Also, dust or dirt on surfaces such as computers, tables, chairs, doors, windows, and walls was cleaned. Daily cleaning was performed before the nurses' work shift, during work, and after the end of the shift. This stage was performed following each procedure over the last five minutes of the nurses' shift. In the Seiketsu stage (standardization), methods for maintaining the first three steps were implemented. For this purpose, item packaging and removal techniques were incorporated. In the final stage, the right habits were encouraged and developed. This step was accomplished through teaching proper methods and necessary tasks to the participants. Preparations were made to institutionalize these habits in nurses; also, various posters related to this technique were displayed in the ward.

One month after implementing the workplace organization technique (for six weeks), an audit of workplace environment was performed to determine the success of 5S technique and resolve any possible problems in workplace organization. After obtaining the acceptable score (score > 15) on the audit checklist, the post-test questionnaire on job satisfaction was completed by the nurses in the two groups. After the end of the intervention and post-test, the control group attended the workshop of workplace organization; implementation of this

technique in the ward was assigned to the managers.

2.5. Ethical considerations

The researcher, after making the necessary coordination with the involved sectors and selecting the participants, introduced herself to the participants and explained the aims of the study. After obtaining informed consents, the participants were assured about the confidentiality of the information and were allowed to leave the study at any time. Afterwards, the questionnaires were presented to the nurses in both intervention and control groups, and their questions were answered.

2.6. Statistical analysis

characteristics such as gender, education, marital status, and overtime work in the intervention and control groups), Chi-square test (for the assessment of the employment status between the participants in the intervention and control groups), paired t-test (for the comparison of the mean score of job satisfaction before and after the intervention), and independent t-test (for the evaluation of the difference between the two groups in terms of the mean score of job satisfaction) were performed, using SPSS version 20.

3. Results

The demographic characteristics of the participants are presented in Table 1. According to this table, there was no significant difference in demographic characteristics of the participants between the two groups before the intervention. Following the intervention, the job satisfaction scores changed from 14.94 ± 2.66 to 18.48 ± 2.03 in the intervention group ($P < 0.001$) and from 15.31 ± 1.54 to 14.80 ± 1.47 in the control group. The paired t-test results showed a significant rise in job satisfaction among nurses after the intervention; the difference between the groups was statistically significant (Table 2).

Table 1. Demographic characteristics of patients

Variables	Groups	Intervention	Control	P-value
		N (%)	N (%)	
Gender	Male	4 (22.5)	2(30.0)	*0.33
	Female	31 (27.5)	33 (20.0)	
Education	Associate or bachelor's degree	33 (48.6)	31 (44.3)	*0.32
	Master's degree	1 (1.4)	4 (5.7)	
Marital status	Single	11 (15.7)	9 (12.9)	*0.39
	Married	24 (34.3)	26 (37.1)	
Employment status	Official	11 (15.7)	13 (18.6)	**0.21
	Contractual	4 (5.7)	11 (15.7)	
	Others	20 (28.8)	11 (15.6)	
Overtime work	Yes	31 (44.3)	33 (47.1)	*0.33
	No	4 (5.7)	2 (2.9)	
Age (years)	M±SD	29.53±5.61	31.05±6.43	***0.29
Work experience (years)	M±SD	5.07±4.74	6.17±5.37	***0.37

Fisher's exact test; **Chi-square test, *t-test

Table 2. Comparison of nurses' job satisfaction scores before and after the intervention

Variables	Groups	Before the intervention	After the intervention	*P-value
		M±SD	M±SD	
Job satisfaction	Intervention	14.94±2.66	18.48±2.03	<0.001
	Control	15.31±1.54	14.80±1.47	0.47
	**P-value	0.13	<0.001	

*Paired t-test, **Independent t-test

4. Discussion

The present results showed that the workplace organization technique could have a positive impact on job satisfaction in nurses. Workplace organization is based on cleanliness, organization, and visual order in the workplace. Ultimately, the implementation of this technique changes people's attitudes towards the workplace and improves the workplace environment by the involvement of all employees.^{22,23} Several studies have been performed on the impact of order and balance in the physical environment on job satisfaction. In a study by Karami et al. (2010) on the impact of workplace organization technique (for two months) on hospital services, job satisfaction was shown to be improved.²³ This might be due to the fact that plenty of time is spent on looking for different tools and devices in hectic workplaces; consequently, the services might be delivered with delay.¹⁴ These factors may result in the loss of energy, fatigue, and ultimately reduced satisfaction among the staff.¹⁹

In a previous study, Berry et al. (2008) showed that a hectic work environment and insufficient work space could have a negative impact on job satisfaction.²⁴ In addition, Parish et al. (2008) confirmed the impact of various factors such as adequate work space, proper decoration, and orderly arrangement of the workplace on job satisfaction.²⁵ On the other hand, several studies have assessed the nurses' overall perception of

physical features in the workplace. In extensive studies by Djukic et al. (2010 & 2014), the direct and indirect effects of physical environment on job satisfaction among nurses were evaluated.^{26, 27} In addition, the workplace organization technique could promote orderliness through improving work processes, reducing the duration of tasks, promoting the efficient use of work space, increasing safety, reducing workplace pollution and errors, and improving interpersonal relations.²⁸ Monjamed et al. (1384) also introduced inappropriate workplace environment as one of the reasons for job dissatisfaction among nurses.²⁹ Based on the results, it can be concluded that management and improvement of the physical environment can effectively improve the indicators of human resources. Therefore, the results of this study regarding the implementation of workplace organization technique in surgical wards for the improvement of nurses' job satisfaction are confirmed.

Factors affecting job satisfaction are variable, and execution of organization techniques can be effective in improving job satisfaction in many different ways. In this regard, Dhindsa Singh (2009) showed that organization methods could reduce the musculoskeletal workload.³⁰ Given the fact that physical fatigue caused by activities in the workplace is an effective factor for job satisfaction, reduced physical activity, following workplace organization,

can have a positive impact on job satisfaction. Several studies have noted that workplace organization, especially in the work space of nurses in hospitals, is of utmost importance. This feature results in a decline in the consumed amount of time on tasks, increased accuracy, improved safety and sense of control over the work environment, increased productivity, reduced exhaustion, and finally, increased quality of the provided customer services.^{31, 32} Withanachchi and colleagues (2004) demonstrated the efficacy of 5S method in public hospitals. The application of this technique could enhance the quality of services and increase the sense of participation and cooperation among employees;³³ in addition, this could be effective in boosting job satisfaction.³¹ In this regard, Bjork *et al.* (2007) also stated that increased participation in programs and changing the work environment could result in increased tendency to stay in the nursing position and improve job satisfaction.³⁴

One of the limitations of this study was the non-random assignment of participants into the intervention and control groups, considering the design of the study. In addition, given the sample size and location of the study, the generalizability of the findings is controversial.

5. Conclusion

Based on the findings, workplace organization technique has a positive impact on job satisfaction in nurses. Considering the importance of job

satisfaction among the nursing staff in healthcare organizations, managers should attempt to improve the work environment to meet the staff satisfaction. As a result, human resources are developed, along with improving other determinants of job satisfaction. Accordingly, similar studies in other healthcare organizations are highly recommended.

Conflicts of interest

The authors declare no conflicts of interest.

Authors' contributions

Mohammad Ali Hosseini: Monitoring study implementation, study design, drafting of the manuscript, and critical revision. Hanieh Asadi Nejad: Study implementation, drafting of the manuscript, and data collection. Asghar Dalvandi: Analysis and interpretation of data and drafting of the manuscript.

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