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The Effect of Training Intervention on the Level of Stress Management Skills in Novice Nurses Working at Educational Hospitals in Ilam Province

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ABSTRACT

Background and Objective: The high workload of nurses has increased the risk of anxiety, depression, and job stress among them, thus training on job stress management and improving the self-efficacy of nurses are of particular importance in the promotion of health services. The research aims to determine the effects of training on stress management skills in newly employed nurses in Ilam Province.

Methods: This quasi-experimental study was conducted on 80 nurses with less than two years of work experience at educational hospitals in Ilam Province during 2018. Samples were randomly divided into intervention and control groups each with 40 subjects. Data were collected using demographic information and job stress questionnaires before and after the study. The demographic questionnaire included gender, age, level of education, and marital status. The Job Stress Questionnaire consisted of 35 questions with seven subscales of demand, control, support from officials, support by colleagues, relationships between colleagues, role, and change. The questionnaire was scored based on a 5-point Likert scale of 1 (completely agree) to 5 (completely disagree), in which 1 is optimal and 5 is stressful and undesirable. Intervention for the test group consisted of four 2-hour sessions with topics of negative emotional state and stress outcomes, burnout syndrome, familiarity with the nature, symptoms, response to stress ratio, and stressors in the nursing job, which were usually found in workplace. Data were analyzed by dependent and independent samples t-test and analysis of covariance. A confidence coefficient of 95% and a significance level of 5% were considered in all tests.

Results: Most of the subjects were in the age group of 20-25 years in both the control (87.5%) and intervention (77.5%) groups. Women comprised 80% and 67.5% of the subjects in the intervention and control groups, respectively. Single participants were 45% and 32.5% in the control and intervention groups, respectively. According to the findings no significant differences were found between mean values of job stress variable in the control (3.46 ± 70%) and intervention (3.64 ± 81%) groups before the intervention ($p = 0.82$). After the intervention, the control (3.52 ± 82%) and intervention (3.10 ± 86%) groups were significantly different in mean values of job stress variable ($p = 0.03$). A significant difference was observed between mean job stress levels in the intervention group before (3.54 ± 0.81) and after (3.10 ± 0.88) the intervention ($p = 0.04$). In the control group, there were no significant differences between mean values of job stress variable before (3.46 ± 0.70) and after (3.46 ± 0.70) ($p = 0.77$) the intervention.

Conclusion: Based on the findings, it can be concluded that stress management training is effective in the mitigation of nurses' stress. It is, therefore, recommended that managers and relevant officials to present applied stress management courses at hospitals with the presence of specialists in this field, and pave the ground for the participation of novice nurses in stress management courses with the necessary and sufficient support. As such, job stress can be reduced in novice nurses in order to effectively improve and promote their job performance.

Keywords: training, stress management, nurse

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INTRODUCTION

In recent decades, the gradual progression of societies towards modern life has involved human societies in one of the main problems, that is, the phenomenon of stress (1). Stress has become particularly important with the industrialization of the world, and has greatly affected the health of employees in the workplace (2). Psychological factors along with physical, chemical, ergonomic, and biological hazards of the work environment are among the main risk factors at workplaces. Among psychological factors, job stress is of particular importance, so that the United Nations (1992) considered job stress as the disease of the 20th century. Also, the World Health Organization (WHO) has concluded that mental illnesses, in particular stress, will be the second cause of disability by 2020 (3). According to definitions, job stress is the harmful physical and emotional responses of individuals that occurs when the job needs do not match the abilities, resources, or needs of employees (4). Decreased performance, early turnover, and reduced job satisfaction are the consequences of job stress (5). In case of failure to well identify and control job stress sources, people will have sense of loneliness, angry, and insomnia, and many will suffer from depression (6).

Nurses are one of the largest groups of healthcare providers that have the most interaction with patients and their psychological state will have a substantial impact on patients (7). The high workload of nurses increases the risk of anxiety, depression, and job stress among them and threatens their health status (8). On the other hand, it is impossible to eliminate stress completely, but people can

learn stress management strategies. Accordingly, more attention has been paid on the need for stress management training (SMT) among nurses, in particular novice ones. Existing studies demonstrate that SMT is associated with many economic and educational benefits (9, 10). By training necessary methods and techniques, nurses can properly overcome their stress and reduce the adverse effects of job stress. SMT is one of the new training methods in management that deals with teaching skills to update creativity, mental relaxation, and sense of belonging in an organization (11).

One of the key methods in SMT to individuals is management training with a cognitive-behavioral approach, during which such techniques as relaxation, diaphragmatic breathing, meditation, identification of negative automatic thoughts, cognitive distortions of individuals and their reconstruction through replacing logical thoughts, effective coping training, anger management, and assertiveness skills are used to increase one's ability to reduce stress and adapt properly to stressful situations (11). According to Nikooian et al. (2011), most nurses experience job stress in their profession, and they concluded that SMT programs could reduce job stress among nurses (12). Moharremi et al. (2017) investigated the effect of stress management group therapy on nurses' job stress, and reported that training programs significantly reduced nurses' job stress in the intervention group (13). Alavi Arjomand et al. (2013) and Vilani et al. (2012) also presented some evidences that SMT programs led reduced levels of job stress among nurses (14, 15).

According to the above-mentioned explanations, the present study was conducted to determine the effect of educational intervention on levels of stress management skills among novice nurses working at educational hospitals in Ilam Province.

METHODS

In this quasi-experimental study, the population consisted of newly recruited nurses with a maximum history of 2 years at educational hospitals of Ilam Province in 2018. Inclusion criteria were having basic eligibility including a work experience of ≤ 2 years, willingness to participate, employment in the hospital, and no use of psyche-affecting drugs according to their self-declaration. Exclusion criteria included unwillingness to continue participation, irregular attendance at the workshop, participation in other workshops on stress management skills, leave or transfer to another hospital, and exposure to a major stress (death of relatives, divorce) during the research implementation.

In this project, a sample size of about 80 people was extracted according to the type of research (quasi-experimental), error reduction, and representation of the population members using Morgan table. Subjects were randomly assigned to test (n= 40) and control (n= 40) groups. Data were collected by demographic information and job stress questionnaires. The demographic included gender, age, level of education, and marital status. The Job Stress Questionnaire consisted of 35 questions with seven subscales of demand (questions 6,9,12,16,18,20, & 22), control (questions 2,10,15,19,25, &30), support from officials (8,23, 29,33, & 35), support by colleagues (7,24,27, & 31), relationships between colleagues (5,14,21, & 34), role (1,4,11, 13, &17) and change (26, 28, & 32). The questionnaire was scored based on a 5-point Likert scale of 1 (completely agree) to 5 (completely disagree). Mean scores of the terms under each scale indicates the measured value of each subscale in the range of 1-5, in which 1 is optimal and 5 is stressful and undesirable. The reliability of this questionnaire were obtained with Cronbach's alpha (0.78) and with split half (0.67) methods by Azad Marzabadi and Gholami Fesharaki (12).

To confirm the face and content validity, the questionnaire was presented to 10 experts (three general practitioners, four nurses with master's degrees, and three university professors in nursing) to declare their expert opinions on writing quality, the number of questions, the content of questionnaires, the relevance of questions to the options, and the coherence of questions with the research objectives. Given that a standard questionnaire used in the present study was previously reported to have acceptable validity and reliability, most experts had favorable views on the questionnaires. Based on the opinions of the experts on the questionnaires, such items as the last university of graduation, or the position and job history (as the statistical population were all novice nurses) were omitted in the demographic characteristics questionnaire. The experts also commented on the writing style of questions in the job stress questionnaire to be equally understandable by the subjects. After reviewing and applying the comments and suggestions, final questionnaires were prepared, approved, and provided to the subjects. Finally, a reliability of 0.94 was calculated for the job stress questionnaire using Cronbach's alpha correlation coefficient. In the next step, the questionnaires were completed by the participants in the two groups one week before the study. In the intervention group, an educational program was then started in four 2-hour sessions, containing the orientation, general goals, and introduction of the members. Next, trainings were presented using techniques on an introduction to nature, signs, and reactions to stress, risks and stressors in nursing profession, stress-related maladaptive behaviors among nurses, negative emotional states and stress consequences, development and teaching methods of adaptive thinking, coping strategies, strategies for reducing physical signs and improving emotional state, teaching various relaxation techniques, and planning for future life. Techniques for risk reduction, emotion identification, observation, and description, positive emotion enhancement, emotion anti-emotion, event distraction to reduce emotions, and letting go of negative emotions were all presented in person at work by a master of general psychology within a total of 3 h (Table 1).

The control group received no educational. Statistical analysis, including independent and dependent t-tests analyses were performed using SPSS software (version 22). A confidence coefficient of 95% and a significance level of 5% were considered in all tests.

Table 1: A summary of the training sessions

1) Welcoming, introduction, familiarity with group members, explaining group rules and norms, and an introduction to stress management program.
2) Familiarity with the nature, signs, and response to stress, and an introduction to the consequences of stress, the importance and necessity of stress control skills, and addressing the differences between individuals in dealing with stress and the causes of differences.
3) An introduction to the general effects of stress on various systems of the body, and the physical, psychological, and behavioral effects of participants in the face of stress.
4) An introduction to stressful risks and factors in the nursing job, stress-induced destructive maladaptive behaviors among nurses, strengthening self-confidence and self-esteem, and dealing with depression and anxiety.
5) Developing and teaching adaptive thinking methods, coping strategies, and approaches for reduction of physical signs and improvement of emotional state, training skills and relaxation techniques to cope with stress, and planning for future life.
6) Review of previous sessions, preparing participants to complete group sessions, and focusing on generalization of the results of sessions to the environment out of the group.

FINDINGS

In both intervention and control groups, most subjects were in the age group of 20-25 years (Table 2).

Table 2: Characteristics of subjects in the control and intervention groups by age and gender

Variable		Control group		Intervention group	
		Frequency	Frequency (%)	Frequency	Frequency (%)
Age (years)	20-25	35	87·5	31	77·5
	26-30	5	12·5	9	22·5
Gender	Male	13	32·5	8	20
	Female	27	67·5	32	80
Marital status	Single	18	45	13	32·5
	Married	22	55	27	67·5
Educational degree	Bachelor	36	90	33	82·5
	Master	4	10	8	17·5

The normality of data distribution was determined by the Kolmogorov-Smirnov test, with values of 0.23 and 0.60 for the control and intervention groups, indicating normal distribution of data (Table 3).

Table 3: Job stress levels in the intervention and control groups before and after the intervention

Variable	Control group	Intervention group	Independent t-test
	Mean ± SD	Mean ± SD	
		Job stress level	
Pretest	3·46±0·70	3·54±0·81	P = 0·82 T = -0·221
Posttest	2·52±0·86	3·10±0·88	P = 0·03 T = -2·14

Job stress was not different significantly between the control and intervention groups in the pretest ($p \geq 0.05$); after the intervention, however, the two groups were different significantly in the job stress variable ($p \leq 0.05$).

Table 4: A comparison of novice nurses' stress in the intervention and control groups before and after the intervention

Variable	Group		Mean ± SD	df	Mean of squares	F
Job stress	Intervention	Pretest	3·54±87	2·130	39	0·04
		Posttest	3·10±86			
	Control	Pretest	3·46±70	-0·292	39	0·77
		Posttest	3·52±88			

A significant difference was observed between the mean job stress in the intervention group before and after the intervention ($P \leq 0.05$), but no significant difference was found between the mean job stress in the control group before and after the test ($P \geq 0.05$) (Table 4).

Table 5: A comparison of mean job stress according to demographic characteristics in the intervention group

Variable	Groups	Mean ± SD	t	df	Results of intergroup comparisons
Demographic characteristics					
Gender	Male	3·32±0·70	2·044	38	0·04
	Female	2·89±0·47			
Age (years)	20-25	3·12±0·41	3·466	38	0·01
	26-30	2·48±0·67			
Marital status	Single	2·98±0·53	0·265	38	0·79
	Married	2·97±0·56			
Educational degree	Bachelor	2·99±0·56	0·022	38	0·98
	Master	2·92±0·47			

As shown in (Table 5), the stress variable was significantly different between the male and female subjects in the intervention group, with higher stress levels in men than in women. Also, stress levels were significantly different between the two age groups in the intervention group, with lower levels in the age group of 26-30 years ($P \leq 0.05$). However, there were no significant differences between bachelor's and master's degrees and the marital status (single or married) in the intervention group regarding these two demographic characteristics ($p \geq 0.05$).

Table 6: A comparison of average job stress according to demographic characteristics in the control group

Variable	Groups	Mean ± SD	t	df	Results of intergroup comparisons
Demographic characteristics					
Gender	Male	3±0·31	-0·137	38	0·89
	Female	3·01±0·24			
Age (years)	20-25	3·02±0·28	0·337	38	0·73
	26-30	2·97±0·08			
Marital status	Single	3·03±0·25	0·493	38	0·62
	Married	2·99±0·27			
Educational degree	Bachelor	3±0·23	-0·614	38	0·54
	Master				

According to (Table 6), job stress levels were not significantly different between male and female groups, two age groups, single and married subjects, and those with bachelor's and master's degrees in the control group.

DISCUSSION AND CONCLUSION

The present study sought to determine the effect of training on the stress management skills of novice nurses. The present study suffered from limitations, such as the inaccuracy of nurses in completing questionnaires due to high assigned tasks, the lack of equal conditions for all subjects when completing the questionnaire, possible different understanding of subjects due to such factors as different levels of attitude and perception, lack of attention and accuracy, and a small research population. On the other hand, the strengths of our study include the use of standard questionnaires and the completion of both demographic information and job stress questionnaires by all the subjects, as well as the type of statistical population selected among novice nurses. This is because nursing is a very sensitive profession as it provides health services, and on the other hand, novice nurses have higher job stress at the beginning of their work according to various researches. Such nurses, therefore, have a greater need for job stress management skills in order to be able to present high performance. The mean stress among our nurses showed that stress levels were higher than the average in both the control and intervention groups in the pretest stage. It was reported that job stress among nurses led to burnout, job dissatisfaction, and job change (16). In a study on emergency nurses, Pflanz and Sonnek (2002) reported high levels of tension and job stress for nurses (17). Rahmani et al. (2010) also found high levels of job stress among nurses working at special wards of educational hospitals affiliated to Tabriz University of Medical Sciences (18). In a study by Khodavisi et al. (2005), a job stress level of 70.4% (above average) was reported among nurses at the operating room of a hospital in Hamedan (19). Fakhr and Asadi (2016) also investigated on stressors in nurses and observed that 62.3% of their population had stress levels higher than the average level (20).

Therefore, due to the fact that the nursing profession has special sensitivities and high levels of the job stress affects the performances of nurses, it is recommended to provide trainings and courses with appropriate quantity and quality, necessary and sufficient support, establishing necessary conditions for nurses to achieve job satisfaction, and so on to help manage stress among nurses and pave the ground for their better services. Similarly, Golubic et al. (2009) also concluded in their study on nurses that hospital managers should adopt strategies that improve nurses' working conditions and help reduce stress and empower them by meeting job expectations (21). Our results demonstrated that stress levels in the control and intervention groups did not differ significantly before the intervention. This finding is in line with that of Arjomand et al. (2012) (22) who

investigated the effect of stress management on work stress and work-life conflict in nurses, as well as with Moeini et al. (2012) (23) who examined the effect of SMT of job stress among nurses in two hospitals in Hamadan based on the PRECEDE model. They also found no significant differences in mean scores of nurses' job stress before the intervention in the control and intervention groups.

The present results also showed that stress levels were significantly different in the control and intervention groups after the interventions. After the intervention, stress levels decreased in the intervention group both relative to those in the intervention group in the pretest stage and compared with those in the control group. In their study, Kravits et al. (2010) observed that SMT could effectively and helpfully influence nurses' emotional exhaustion (24). In their research, Mac et al. (2014) concluded that cognitive-behavioral interventions was effective in reduction of nurses' stress levels (25). Yazdani et al. (2014) reported that stress management skills improved depression, anxiety, and stress among nursing students (26). They concluded that stress management skills significantly reduced average stress in the trained intervention group. Stress management with a cognitive-behavioral approach is a multifaceted approach in which such techniques as relaxation training, diaphragmatic breathing, meditation, identifying negative automatic thoughts and cognitive distortions and reconstructing those thoughts by replacing logical thoughts, effective coping, anger management, and assertiveness skills are used to increase one's ability to reduce stress and adapt to stressful situations (27). Therefore, it is recommended to pay special attention to this issue and take permanent provision of such training courses into consideration.

The results showed that stress levels were different before and after the intervention in the intervention group, with lower post-intervention than pre-intervention levels. Moreover, stress levels were not significantly different in the control group before and after the test, with even a slight increased levels in the control group after the test. The effect of stress management group therapy on nurses' job stress can be explained by the views of Anthoni et al. (2009). Accordingly, stress management group therapy increases participants' awareness of job stress, its development, signs and reduction methods of job stress through the effects of stress, recognizing and reorganizing automatic thoughts, and teaching assertiveness in group sessions. Also, stress management methods can be effective on nurses' job stress by teaching participants about support resources in the face of stress and using social media to reduce stress (28). The results correspond to those of Alavi Arjmand et al. (2012), Vilani et al. (2012), and Moeini et al. (2012) (22,23,29).

The relationship between job stress and demographic characteristics was examined in a part of this research. The results revealed that male and female subjects were significantly different in the job stress variable in the intervention group, with higher stress in men than that in women. This finding is in agreement with those of Bahrami et al. (2009) and Lee (2015), who observed higher stress levels in male nurses than in female ones. They also found that men used stress coping strategies more than women. (30,31). On the other hand, this finding is inconsistent with those of Lian and Tam (2014) (32) and Lambert (2007) (33), who reported that job stress of female nurses was higher than that of men. Molazem (2005) noticed no significant relationship between gender and job stress among nurses (34). According to these findings, therefore, it is recommended to consider the role of gender in stress management programs.

In the intervention group, stress levels were significantly different between the two age groups, with a lower stress in the age group of 26-30 years. To explain this finding, it can be argued that nurses with higher ages were more self-confident with higher experiences in the living environment and greater preparedness to deal with problems than those with relatively lower ages. However, there were no significant differences in the two demographic characteristics of education (bachelor's and master's degrees) and marital status (single or married) in the intervention group. The results also showed that there was no significant relationship between stress levels and demographic characteristics in the control group. Likewise, Bahrami et al. (2009) found no significant relationships between demographic characteristics of educational degrees and marital status with job stress (31). Our findings also revealed that the clinical competence level of nurses was lower than average in this study. In this regard, Yekta et al. (2007) reported that nursing students had an average overall assessment of their competence in terms of achieving clinical competence (36). Altogether, job stress generally reduces the quality of nursing care, raises staff treatment costs, and increases absenteeism, and considering. Besides, stress management strategies reduces job stress and stress reduction have positive effects on other aspects such as self-confidence, providing better services, etc. Accordingly, nursing managers and officials should pay special attention to the issue of nurses' job stress and also to their job stress management. Accordingly, it is recommended that nurses be employed in adequate numbers at hospitals to reduce their exhaustion and workload, experience less stress, and be able to provide health and wellness services to the society with a high level of performance. It is also suggested to provide adequate and necessary support to the nursing community and to provide better medical services by nurses through creating a suitable organizational atmosphere and reducing stress and conflict in the workplace, so that they can perform their duties without any concern. It is recommended to increase the level of self-confidence among nurses by providing training courses, and to reduce their job stress levels by training stress management skills. Finally, future researchers are recommended to conduct similar studies over longer periods and no merely a cross-sectional study. Additionally, job stress and its effects on nurses' performance should be compared among novice and experienced nurses.

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CONFLICT OF INTEREST

None

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