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Abstract

Introduction: Due to their professional nature, nurses face many stressful situations, which affect their job performance. Therefore, this study was conducted to determine the effect of resilience training on occupational stress of nurses.

Material and methods: The present study is a quasi-experimental study with pre-test and post-test groups, during which 60 nurses working in emergency department were studied in two (intervention and control) groups of 30 people. Thus, the intervention group received eight 30-minute sessions of resilience training over a period of two months, and no intervention was performed in the control group during this period. Occupational stress was assessed

in both groups before the intervention and 1 month after the end of the intervention by the Gray-Toft & Anderson Nursing Stress Scale. Statistical analysis was performed by SPSS version 22, descriptive statistical indicators, and RM-ANOVA statistical test.

Results: Based on the results, the level of occupational stress had a decrease in both intervention and control groups after the intervention, but this difference was not statistically significant ($p < 0.05$).

Conclusion: The results of this study show that resilience training can be used in the field of nursing occupational stress, but it is recommended that in subsequent studies, confounding variables be moderated or controlled as much as possible.

Key words: work performance, occupational stress, stress, emergency service, nurses

Introduction

Stress is an inevitable part of life that can lead to illness or, conversely, to a positive experience, depending on the mental stress and quality of a person's adaptation [1]. One of the most stressful situations for most people is in their workplace, which is called occupational stressor [2]. Occupational stress occurs when there is an imbalance between demands (expectations) in the workplace and the ability of employees. Based on a recent meta-analysis, more than 90% of nurses are suffering from job stress. Nursing is a stressful and risky occupation. Heavy tasks, excessive workload, insufficient time, staff shortages, excessive working hours, irregular work shifts, conflicts with other colleagues and high job demands are reported as stressors in this profession . Also, the occupational stress of nurses in the emergency department is reported higher than nurses in other departments [3].

The emergency department is one of the busiest departments of hospitals. Providing patient care in most acute conditions of the disease, as well as providing comfort for families and taking care in stressful physical and mental conditions of the department, has made it different from other departments. Working in emergency departments requires skills such as: medical knowledge, high mental ability, patience, as well as management and coordination [4]. The nurse-patient ratio in emergency departments is unlimited because emergency doors are always open to patients and the number of admissions is unpredictable [5]. Nurses experience a lot of stress in caring environments due to the nature of the role and consequences of the environment in which they work [6]. Stress is integrated with nurses due to environmental factors of emergency

department. Understanding the causes of stress and the emotions that lead to stress and empowering people to fight these emotions is an organizational or individual ability to improve resilience [7].

Based on nursing studies on the concept of resilience, it’s defined in association with satisfaction of job and satisfaction of professional position [8]. Resilience may also be the result of individual, organizational, or environmental characteristics in which the nurse works, and includes the individual's action and reaction to fight the complexity of stressful events. Supportive work environments in healthcare organizations can improve resilience [9].

Today, people apply a variety of adaptive mechanisms to deal with stressful situations. The use of different methods to deal with stress will have different physical and psychological consequences [10]. Resilience helps people achieve different strategies and adaptability skills. Resilience shows an individual’s skills to adapt and cope with bad events. Based on a study by Shakerinia et al , nurses were less resilient and more stressed in their work environment [11]. Due to the inevitability of some stressors and the need to prevent the psychological and behavioral effects of stress as well as increasing the expectations of organizations and people to receive services, applying arrangements and measures to reduce occupational stress and teaching coping methods are among the duties of managers of organizations [12,13]. Nurses are also the largest human resources in hospitals, and the lack of adequate productivity of these skilled human resources causes limitation in the provision of services or increases the cost of providing health services [14].

Therefore, based on the presented evidence, this study was conducted with the aim of determining the effect of resilience training on occupational stress of nurses in the emergency department.

Material and methods

The present study is quasi-experimental with pre-test and post-test groups. The statistical population of this study was nurses working in the emergency department of Shahid Mohammadi Hospital in Bandar Abbas in 2017. Inclusion criteria were: satisfaction with participation in the research, having a bachelor's or master's degree in nursing, age range

between 25 and 60, lack of difficulty in communication, lack of contextual illness (diabetes, kidney failure, liver failure, and heart-lung failure, lack of known mental illnesses), work history of at least one year and non-pregnancy of female nurses. Exclusion criteria were reluctance to continue participating in training sessions, impossibility of continuing participation in the research, simultaneous participation in other studies and even one session of absence in training session, hospitalization, migration or death.

The sample size was calculated to be 26 for each group by considering 0.05 of the first type error and the test power of 80%. Considering the 10% drop in sample size, it increased to 30 people in each group. Sampling was performed by convenience method and then, in order to make the groups uniform and prevent the samples from contacting each other, the research units were randomly assigned to the two groups of test and control by a drawing.

The primary outcome examined in this study was nurse's stress, which was assessed by the Gray-Toft Nursing Stress Scale [15]. Also, to examine the demographic characteristics of the participants, a personal profile questionnaire was used with 5 questions including age, sex, marital status, level of education and years of service. Toft & Anderson Nursing Stress Scale is a 34-item scale on 7 dimensions of patient suffering and death, workload, uncertainty about treatment, conflicts with physicians, conflicts with other nurses, lack of adequate preparedness and lack of support, the answer to each of the questions are scored as a four-point Likert scale from Never (0), Occasionally (1), Very (2), and Very much (3). The highest score a person can get with this scale is 102 and the lowest score they can get is 34. The high score in this scale indicates high stress and the low score indicates low stress. The reliability of the test of this scale was reported by Lee et al. as 0.81 [16]. The reliability of the subscales of this scale is also reported in the range between 0.67 and 0.79. In the present study, the researcher studied 10 people and obtained the Cronbach's alpha for the Gray-Toft & Anderson Nursing Stress Scale as 0.89, which indicates the appropriate reliability of this scale.

In the intervention group, resilience training (Table 1) was performed weekly in eight 30-minute sessions. The training content used was prepared using valid scientific sources and approved by ten faculty members of the Faculty of Nursing and Midwifery. No intervention was performed in the control group during this period. Again, one month after the intervention [14], the Gray-Toft

& Anderson Nursing Stress Scale was completed by members of the two (intervention and control) groups.

Ethical principles of research, written informed consent to participate in the research, confidentiality of information, freedom of participation or non-participation in the study, as well as permission to leave the study at any time in this study was done.

For quantitative variables the data were reported with mean and standard deviation and for qualitative variables with frequency and percentage. Chi-square test was used to compare the qualitative demographic variables in the two groups, and independent t-test for quantitative demographic variables. Repeated measures ANOVA was used to compare the stress scores of the two groups, and then the data were analyzed using SPSS version 22 software at a significant level of 0.05.

Table 1. The content of resilience training sessions

Session number	The content of resilience training sessions
First session	To get familiar with the general framework of the discussion: ● Definition of resilience ● Introducing the characteristics of resilient people: 1 – Happiness; 2 – Wisdom and insight; 3 – Humor; 4 – Empathy; 5 – Rational adequacy; 6 – Purposefulness in life; 7 – Steadfastness Solution: Recognizing unpleasant life situations and increasing adaptation and tolerance in personal domain
Second session	Objective: To get familiar with the internal support factors ● The concept of optimism ● Locus of control ● To get familiar with stress and ways to cope with stress Solution: Recognizing talents and interests and emphasizing them and the desire to use them
Third sessions	Objective: To get familiar with external support factors ● Social support system ● Individual responsibility and acceptance of meaningful roles ● Cognitive reconstruction and creating a model of constructive thinking (expressing the role of beliefs and thoughts in behavior and emotions and getting familiar with cognitive errors) Solution: Feelings of belonging and being worth, and willingness to participate
Fourth session	Objectives: To get familiar with ways to create resilience

	● Establishing and maintaining relationships with others ● Emphasizing on the importance of positive relationships with others and attitudes towards them ● Accepting change ● To get familiar with individual differences in perception, emphasizing the importance of the role of thoughts and self-talk
Fifth session	Objectives: To continue the ways of creating resilience ● Purposefulness and hope for the future ● To act ● To get familiar with thinking styles and emphasizing the optimistic role in resilience
Sixth session	Objective: To continue the ways of creating resilience ● Self-awareness ● Self-esteem ● Develop self-confidence
Seventh session	Objectives: To continue the ways of creating resilience ● Self-care ● Framing stresses
Eighth session	Objective: To continue the ways of creating resilience ● Searching for meaning and seeking meaning ● Introducing the meaning of therapeutic approach and getting familiar with Frankl's experiences ● Emphasizing the importance of giving meaning to unchangeable problems

Results

60 nurses with a mean age of 26 years participated in this study. Based on the findings, 60% of the members of the intervention group and 53.3% of the members of the control group were women. Also, 80% of the intervention group and 73.3% of the control group were single and based on K_2 test, there was no significant statistical difference between the two groups in terms of gender and marital status ($p = 0.32$). In terms of age, the mean age in the intervention group was 28.67 and the control group was 25.87. Also, the mean work experience in the intervention group and control group was similar and according to the independent T test, there was no significant statistical difference between the two groups in terms of age and work experience ($p = 0.12$).

According to the statistical analysis of RM-ANOVA, there was no significant statistical difference in terms of occupational stress between the intervention group and post-intervention control group (p = 0.4) (Table 2).

Table 2. Comparison of occupational stress index before and after the intervention between the two groups

Variable		Intervention group	Control group	Significance level
Occupational stress	Before the intervention	13.23 ± 80.56	70.21 ± 46.60	424.0 659.0 = F
	After the intervention	75.22 ± 86.39	24.23 ± 46.60	

Discussion

In this study, we proposed an intervention method to improve the resilience of emergency department nurses. But the results of our study showed that the resilience training program in reducing the occupational stress of emergency nurses was almost the same in the two groups of intervention and control. And there was no statistically significant difference between the two groups, which was consistent with Miller's results. In Miller's study, resilience training in ICU nurses significantly reduced depression symptoms in the intervention group. However, a reduction in post-traumatic stress disorder symptoms and improved resilience scores in both the intervention group and the control group was significant, probably due to long-term examination of the symptoms after the intervention [17].

Other studies on resilience have shown positive results on the performance and stress of nurses and health workers in various departments.

A study by varker et al. on emergency department staff indicated that people who received training in resilience techniques had less negative feelings and had lower levels of stress and depression [18]. Resilience training also reduces stress and increases self-confidence and the ability to deal with problems in nurses and healthcare professionals [19]. Other studies in this field also confirmed a reduction in nurses' occupational stress [20].

The most important source of stress in nurses is workplace stress, which is related to the lack of adequate support from the organization, and on the other hand, adaptation and matching with the work environment reduces stress [21]. Walsh suggested that if nurses are not supported in

managing the emotional needs of their work, their emotional stress and suffering could have negative effects on their resilience [22]. Therefore, some studies have pointed to therapeutic and beneficial aspects of resilience, for example, some nurses were able to moderate or suppress their behavior and feelings in caring for their patients. This is related to the therapeutic aspects of emotional stress and suffering [23-25]. Kernaber et al. described an example of the useful aspects of resilience: Nurses were able to suppress their emotions after using resilience techniques while dressing a burn patient so that their behavior with the patient's feelings was only as a result of the patient's physical pain. This can be a great help in controlling and reducing the stress of nurses when faced with such procedures[26].

The results of Glas et al. interviews in a qualitative study also showed that nurses and midwives stated that resilience was an essential requirement for their daily work activities and that in their view, behavioral balance through resilience made them perform better in providing health and mental care [27]. Foureur's study also showed that stress-reducing interventions, based on changes in the mind, had a positive effect on the general health of nurses and midwives, and led to a reduction in stress levels and a positive outlook on life [28]. In a study aimed at evaluating the resilience program for oncology nurses, Putter stated that nurses evaluated the program positively and stated that resilience techniques were useful so that they decided to apply these techniques in their activities [29].

Some studies have specifically designed interventions to create resilience in nurses: All of these studies focused on building and strengthening nursing capacity to reduce the negative effects of work stress and strengthening self-care. Since emotions and the effect of negative emotions were an aspect of nursing work, it was addressed in most interventions, while clearly wasn’t considered within the framework of intervention theory [30].

Some of the reasons for the inconsistency between similar studies and the present study are related to the differences between work environment and organizational culture and managerial approach that can affect the results of the study. Also, the method of lecturing and the duration of the intervention time can be effective factors because most studies provided resilience training through group teaching and discussion.

One of the limitations of this study is that nurses participating in the study responded in a hospital setting during a few minutes of rest; where a lack of space and a quietness and appropriate environment for responding could be considered as a limitation.

Conclusion

In the field of occupational nursing stress, resilience can be considered so effective that with capacity and empowering, it can enable nurses to cope with the risk of emotional abnormalities in nursing work. Further researches are recommended to focus more on the effect of resilience on cooperative aspects of nurses with each other.

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