The effect of cognitive–behavioral stress management training on improving psychological symptoms and quality of life in nurses

Leila Bahmanzadeh[1], Kobra Haji Alizadeh[1]

1. Department of Psychology, Faculty of Humanities Sciences, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran
Correspondence to: Kobra Haji Alizadeh, Department of Psychology, Faculty of Humanities Sciences, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran
Email: PH_alizadeh@yahoo.com

Abstract

As a stressful profession, nursing deals with different aspects of human health and illness, and stress can threaten nurses' health and performance. As a result, using preventive stress management programs seems necessary. The present study aimed to evaluate the effectiveness of cognitive–behavioral stress management training in improving psychological symptoms (stress, anxiety, and depression) and quality of life in nurses. The design of this study was quasi-experimental with pretest-posttest and a control group. The statistical population comprised all nurses working in Bandar Abbas Shari'ati Hospital. The study sample included all 30 nurses selected through convenience sampling method. They equally and randomly were divided into experiment and control groups. Depression, anxiety, and stress scale and the Farsi version of WHOQOL-BREF were used to collect data. The results showed there was a significant difference between pretest and posttest of experimental group in the mean scores of stress, anxiety, and quality of life; however, there was no significant difference in depression. Control group mean scores did not show a significant difference between pretest and posttest. There was no significant difference between the control and experimental groups before intervention in stress, anxiety, depression, and quality of life. The findings of this study suggest that, as a useful clinical intervention, stress management skill training is an effective way to improve mental distress and quality of life.

Keywords: Anxiety, Depression, Nurse, Quality of Life, Stress

Introduction

Nursing has always been a stressful profession owing to the physical, psychological, and social conditions of the workplace. Factors such as workload, patients' death, problems associated with patients' accompaniment, busy and gloomy environment, relationship with colleagues, work-family balance, and other factors cause stress in nurses [1,2], and extreme levels of stress may harm them and also threaten patients' health and safety [3,4]. Long-term experience of stress in nurses and health workers can lead to adverse consequences such as diminished physical and psychological health, reduced job satisfaction, increased occupational

burnout and reduced efficiency [5-7]. Previous studies have shown that stress has a relationship with mental health and risk of diseases and can lead to psychological disorders [8-11]. Asad Zandi et al. demonstrated that nurses have high levels of stress (23.8%), anxiety (27.9%), and depression (24.9%), and nurses' stress has a relationship with anxiety and depression [12]. Nursing is by nature a stressful profession [13], and in addition to causing psychological disorders, according to previous studies, stress can have destructive effects on the quality of life [14-16]. In the absence of adequate coping resources, stress can cause psychological disorders in the individual and eventually reduce their quality of life [17]. Khaghanizadeh et al. showed that stress affects nurses' quality of life [18]. There are several definitions for quality of life. In a subjective approach, quality of life is considered synonymous with happiness or satisfaction [19]. Owing to the vagueness of the definition of quality of life, much effort has been made in the past three decades to provide a precise and practical definition [20]. The World Health Organization (WHO) defines the quality of life as individuals' understanding of their own standing in relation to goals and value systems acceptable to them with regard to objective conditions in life [21]. Quality of life is poor in all groups employed in hospitals, but these problems are much more pronounced among nurses and pharmacists than other groups [22], and the results of Iranian studies suggest that nurses have unfavorable quality of life [1,23].

Stress stimulates adrenal gland and sympathetic system, and frequency and chronicity of this phenomenon make the individual physically and psychologically sick [24]. Given the effects of stress, it is important to manage and control stress because it is hard to eliminate stress, but people can learn to manage it [25]. Psychological therapies for stress management that have entered medical fields have found that stress inhibition interventions should be conducted with a preventive approach. Such stress-reduction interventions are based on the vital cognitive mediating role in the creation and persistence of stress [26]. Thus, cognitive-behavioral stress-

management training is a multidimensional approach in which, individuals are taught strategies such as relaxation, diaphragm breathing, meditation, identifying negative thoughts, cognitive distortions, and rebuilding them by replacing them with reasonable thoughts, effective coping training, anger management, and assertiveness [27]. People experiencing stress should have the necessary coping skills to be able to reduce its effects. When stress is properly managed and effective coping skills are provided, the individual will be able better to come to terms with his/her needs and challenges in life [28]. Fathi-Ashtiani et al. demonstrated that stress management training improved physical and anxiety symptoms in nurses [29]. In studying the effect of stress management on occupational stress in nurses, Husseini et al. showed that stress management training improved occupational stress in nurses [30]. Mazlom et al. showed that stress immunization training improves the quality of life of nurses [31]. In studying the effectiveness of stress management in symptoms of functional dyspepsia and quality of life of patients with dyspepsia, Zargar et al. showed that stress management training improves symptoms of functional dyspepsia and quality of life of patients with dyspepsia [32].

Given all the above, nursing profession has mental pressures and stress in abundance, which threaten nurses mental health and quality of life. In addition to causing mental disorders in nurses and reducing their clinical competence, increased stress is likely to threaten patients' health and safety. Therefore, paying attention to stress management methods can be an effective step toward improvement of nurses' mental health and quality of services they provide. Thus, the present study was conducted with the aim of investigating the effectiveness of cognitive-behavioral stress management training in improving psychological symptoms (stress, anxiety, and depression) and quality of life of nurses.

Method
The statistical population in the present quasi-

experimental, pretest-posttest study with a control group consisted of all nurses working in Shari'ati hospital in the city of Bandar-Abbas, of whom, 30 female nurses were selected by convenience sampling method based on a preliminary short interview and inclusion criteria, and they were randomly divided into case (15 nurses) and control (15 nurses) groups. The study inclusion criteria were at least one-year work experience, consent and commitment for attending all training sessions, no use of other psychotherapy services and counseling during training sessions, and no addiction or severe psychological problems (paranoia, epilepsy, and psychotic disorders). To observe ethical considerations, after obtaining necessary permissions, explanations regarding voluntary participation with informed consent were provided. Moreover, stress management brochures were given to participants in the control group following posttest. The case group members received training based on McNamara guidelines [33] (with some modifications) once a week over eight 75-minute sessions; during this period, the control group members received no training. Summary of training is as follows: Session one: An introduction to the importance and necessity of stress control skill training. Session two: Introducing general effects of stress on various body systems and assessment of physical, psychological, and behavioral effects of stress. Session three: Subjective and rational stress coping strategies, introducing problem-oriented and emotion-oriented coping styles, and investigating individuals' coping methods in stressful situations. Session four: Introducing stages of coping with stress, practicing the first step in coping with stress skills: awareness about own feelings and studying skills, preparation for test and time management. Session five: Boosting self-confidence, self-esteem, and coping with depression and anxiety. Session six: Second step in stress control skills, and reminding long and short-term methods and neutralization of stress, introducing relaxation as a therapy and behavior therapy technique using progressive contraction-relaxation of 16 groups of muscles. Session seven: Physical techniques for coping with stress; physical techniques were concerned to have a healthier lifestyle. This part involves directing clients to eat healthily and have sufficient sleep and exercise, which leads to preserving and reinforcing the immune system and raising the energy level of the body. Session eight: Practicing and repeating the progressive relaxation technique to ensure all ambiguities were resolved and this method could be used skillfully and finally, assessing nurses' views. The tools of this study include the following:

Depression, Anxiety, and Stress Scale (DASS): This scale was developed by Loebian & Loebian, that measures severity of psychological problems with three subscales and 21 items based on a Likert scale, with seven items relating to stress, seven relating to anxiety, and seven relating to depression. Participants should grade frequency of symptoms encountered over the past week using a four-point scale (from 0 to 3). In Iran, reliability coefficient of this tool in the general population (400 participants) in the city of Mashhad was found to be 0.7 for depression, 0.66 for anxiety, and 0.76 for stress, and its criterion validity was calculated according to Beck's Depression Inventory, and reported 0.66 for depression, 0.67 for anxiety, and 0.49 for stress [34].

The World Health Organization Quality-of-Life Scale (WHOQOL-BREF): This 26-item questionnaire was prepared by WHO in 1998 to assess four domains, including physical health, psychological health, social relations, and environmental health. Items are answered according to a 5-point Likert scale. Total score ranges from 0 to 100 points, and based on the score obtained, quality of life is considered unfavorable, moderate, or favorable. Issazadegan et al. confirmed the validity of this scale, and reported its reliability in cancer patients using Cronbach's alpha and split-half methods as 0.91 and 0.89, respectively [35]. Data were analyzed in SPSS-22 using descriptive indices of mean and standard deviation, and at inferential level using dependent and independent T-tests.

Results

In the descriptive part, mean and standard deviation of age were 26 and ±6.47, respectively, in the case group, and 27.2 and 10, respectively, in control group. Other results obtained were as follows:

Table 1 *Mean and standard deviation of scores of psychological symptoms and quality of life in case and control groups*

Variable	Stage	Group			
		Case		Control	
		Mean	Standard deviation	Mean	Standard deviation
Stress	Pretest	11.28	1.77	11.64	2.20
	Posttest	8.67	1.45	12	1.92
Anxiety	Pretest	9.86	1.84	9.43	2.56
	Posttest	7.40	0.63	9.71	2.58
Depression	Pretest	9.46	3	8.84	1.57
	Posttest	8	1.10	8.92	1.60
Quality of life	Pretest	96.07	10.32	90.67	14.08
	Posttest	102.27	7.52	90.20	13.40

Table 1 shows mean and standard deviation of psychological symptoms and quality of life in the control and case groups. According to the results obtained for the case group in the posttest, mean and standard deviation were 8.67 ± 1.45 for stress, 7.4 ± 0.63 for anxiety, and 8 ± 1.1 for depression, indicating a significant decrease compared to pretest, and an increase in quality of life (102.27 ± 7.52), while these variables did not much change in the control group (Table 1). The significance (or otherwise) of these differences was assessed using dependent and independent t-test, and the results are shown in the following.

Table 2 *The results of dependent T-test, comparing the study variables before and after intervention in case and control groups*

Variable	Case			Control		
	Mean difference	t	Significance level	Mean difference	t	Significance level
Stress	2.57	6.87	0.001	-0.35	-2.11	0.055
Anxiety	2.46	5.98	0.001	-0.28	-1.74	0.104
Depression	1.40	1.88	0.080	-0.07	-0.18	0.856
Quality of life	-6.20	-3.14	0.007	0.46	1.33	0.204

Table 2 shows the results of dependent t-test for comparing the study variables before and after intervention in the case and control groups. The results obtained show significant differences in the mean scores of stress, anxiety, and quality of life before and after intervention in the case group (p<0.05), but no significant difference in the mean score of depression between pretest and posttest (p>0.05). The results also showed no significant difference was observed between pretest and posttest scores of stress, anxiety, depression, and quality of life in the control group (p>0.05).

Table 3 shows the results of independent t-test for comparing mean scores of variables before and after intervention in case and control groups. The results obtained showed no significant difference between case and control groups in terms of stress, anxiety, depression, and quality of life before intervention (p>0.05). However, significant differences were found between the two groups in stress, anxiety, and quality of life after intervention (p<0.05), while no such a difference was observed in terms of depression (p>0.05). Thus, the study hypothesis is confirmed, and it can be concluded that cognitive-behavioral stress management training reduced anxiety, and stress and increased quality of life of nurses.

Table 3 *The results of independent T-test for comparing the study variables before and after intervention in case and control groups*

Variable	Before intervention			After intervention		
	Mean difference	t	Significance level	Mean difference	t	Significance level
Stress	-0.35	-0.47	0.641	-3.33	-5.30	0.001
Anxiety	0.43	0.53	0.600	-2.31	-3.26	0.005
Depression	0.62	0.65	0.519	-0.85	-1.66	0.120
Quality of life	5.40	1.19	0.241	12.06	3.04	0.006

Discussion

The results obtained showed that stress management skill training was effective in improving stress and anxiety components, but it had no effect on depression. In other words, with the exception of depression, stress management skills training reduced stress and anxiety in nurses. These results concur with those obtained by Shirbim et al, who investigated the effect of stress management skill training on improving mental health in students of Gachsaran School of Nursing and Midwifery. Their results showed that stress management skill training improves mental health and reduces physical symptoms, anxiety, social dysfunction, and depression [36]. In total agreement with the present study results, Fathi-Ashtiani et al showed that stress management training of nurses and hospital workers improves their stress and anxiety, but it has no significant effect on their depression [29]. In investigating the effectiveness of cognitive-behavioral stress management skill training in improving women's depression, Abbasian et al concluded that learning stress management skills could lead to the improvement of depression, stress, and social compatibility through correction of inappropriate cognitive and behavioral patterns [37]. Thus, given the above studies, it is possible that stress management training leads to greater control on stressful situations and turmoil by providing strategies for maintaining calm and reducing mental pressure as well as by teaching how to challenge stressful situations and think properly [24]. The results obtained by Jabbari et al. [24] and Habibi et al. [38] in investigating the effect of cognitive-behavioral stress management strategies on improving stress, anxiety, and depression as empirical evidence show that in stress management program, relaxation, diaphragm breathing, muscle relaxation, identifying negative thoughts, cognitive distortions, anger management, and assertiveness can increase a sense of control, self-efficacy, self-esteem, and social adaptation and support, and combination of these factors paves the way for reducing stress and anxiety. A study conducted by Hirokawa et al. showed that even a short-term stress management program (a 3-hour session) improves stress and anxiety and increases adaptive coping strategies [5]; thus it can be assumed that skills learnt first may lead to relaxation, followed by rational thinking and adaptive behavior and finally, reduced negative moods and stress hormones and improved immune system performance [38]. In agreement with Fathi-Ashtiani et al. [29], lack of a significant reduction in depression can be explained by the fact that compared to depression, significant reductions in stress and anxiety are possible in shorter periods, while greater number of sessions are required to achieve a significant reduction in depression than that implemented in the current study through a program that mainly focused on stress and anxiety, and not much on depression. Jabbari et al. argue that to increase the efficacy of intervention, in addition to considering ineffective thoughts, special attention should be paid to people core beliefs and underlying assumptions [24]. Accordingly, it can be assumed that if stress management intervention program was performed over a longer period with emphasis on identifying and changing fundamental thoughts and beliefs about oneself, the world and the future, then its efficacy in reducing depression might be observed.

Another objective of the program was to investigate the effectiveness of stress management skill training in improving nurses' quality of life. The results obtained showed the improved quality of life of nurses following stress management skill training. In agreement with this result, a study conducted by Mazlom et al showed that stress immunization training leads to improved quality of life in nurses working in the psychiatric ward. In their study, in the follow-up period a month after completion of intervention, quality of life of nurses showed a significant improvement from before intervention to after intervention. This was considered by researchers due to frequent and optimal use of stress management program by nurses in their daily functions, which changed their quality of life over time [31]. Behzadipour et al studied the effect of intervention based on stress management on the quality of life of other groups, and showed that stress management can lead to better quality of life in women with breast cancer [39]. In a randomized clinical trial, Penedo et al investigated the effect of cognitive-behavioral stress management on the quality of life of men with prostate cancer. Their results showed a significant improvement in the quality of life of the study subjects [40]. Therefore, given the above studies, cognitive-behavioral stress management strategies can lead to effective coping with stressors that reduce quality of life [31]. Physical health and psychological health are the components of quality of life. As stated above, training included in the program such as relaxation and diaphragm breathing may reduce physical tensions and physiological symptoms as well as synthesis of adrenal hormones and noradrenaline, and strengthen the immune system in parallel. Strengthening the immune system can lead to better health and subsequent improvement in the perception of quality of life [38,39]. Stress management skills may lead to improvement in interpersonal as well as intrapersonal dimensions by reducing tension and creating relaxation as well as inducing constructive beliefs. These skills enable the individual to reduce tension in his/her communications by applying appropriate strategies and establish positive and effective relationships with others. Satisfying relationships leads to improvement in the individual's perception of quality of life [41]. In fact, skills learnt by participating nurses led to the improved psychical, psychological, social, and environmental status as indicators of quality of life, and the individual's perception of quality of life improves with improving these indicators.

Conclusion

Generally, it can be concluded that teaching stress management skills according to cognitive-behavioral approach leads to effective coping with stressors in work and life by providing nurses with strategies and knowledge, and thus psychological disorders and perception of quality of life will improve. Care should be taken in the generalization of the present study results. Follow-up was not possible due to certain limitations, including time constraints. Given the frequency os stressors and severity of stress in the nursing profession and the effect of stress on all aspects of nurses' life, and even on patients, authorities are recommended to pay attention to this important matter. Thus, identifying sources of stress and psychological disorders in nurses and early interventions such as stress management skill training can be a key step toward providing psychological health and quality of life for nurses. Therefore, it is recommended for policy-makers and planners as well as doctors, counselors, psychologists, and other health professionals, with the knowledge of the present study results, to use this training course to be able to reduce nurses' psychological problems, improve their quality of life and as a result, promote their happiness and quality of services.

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