The Effects of Educational Intervention for Anxiety Reduction on Nursing Staffs based on PRECEDE- PROCEED Model

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ABSTRACT

Aims The aim of this study was to determine the examination of relaxation training based on the PRECEDE-PROCEED model in anxiety reduction on nursing staffs.

Materials and Methods Intervention studies were examined in Alzahra hospital on 64 members of the nursing staffs based on Spielberger anxiety questioner with higher anxiety score in 2016. We used Spielberger (State-Trait Anxiety Inventory) questionnaire for the measurement of the anxiety and for assaying predisposing, enabling and reinforcing factors, a questionnaire designed based on the PRECEDE- PROCEED model. Participants were divided randomly into 2 intervention and control groups. The educational training was carried out in 4 sessions for 45-60 minute in the intervention group. Questionnaire completion was done before, immediately and 4 months after the training. Data were analyzed in SPSS 22 (p<0.05).

Findings The results of this study showed that the mean of anxiety score before of training in two groups did not significantly (p=0.12), but after of training, the anxiety score was decreased significantly in the intervention group (p<0.01). Also, after training, the amount of predisposing factors, enabling factors, and reinforcing factors increased significantly in the intervention group in comparison to control group (p<0.01).

Conclusion Findings of this research confirm the effect of health education based on PRECEDE-PROCEED on taking health behaviors and promote people health. Intervention based on this model improved the quality of life in the nursing staff in our study.

Keywords Anxiety Disorders; Nursing staffs; Education; PRECEDE-PROCEED Model

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[1] Synopsis of psychiatry: Behavioral sciences ... [2] Stress and burnout in forensic mental health ... [3] Investigation intensity of nurses occupational stressors at Babol, Sari [4] Effects of applying progressive muscle relaxation technique on depression ... [5] The effect of therapeutic touch on pain and fatigue of cancer ... [6] The effect of progressive muscle relaxation techniques on anxiety in ... [7] Health program planning: An educational and ... [8] Assessing of relationship between nurse's job stress in Tehran and quality ... [9] Assessing level of job satisfaction, stress and stress management among ... [10] The effects of an educational program based on PRECEDE model on depression levels in ... [11] Effect of educational intervention based on PRECEDE model on level of stress among elderly ... [12] Disparities in women's referral to and enrollment in outpatient cardiac ... [13] Effects of a community-based nutrition education program on the dietary ... [14] Educational diagnosis of self-management behaviors of parents with asthmatic children ... [15] The effect of composed PRECEDE-PROCEED model, social ... [16] Eliminating iodine deficiency disorders in Nepal through PRECEDE ... [17] A PRECEDE-PROCEED based educational intervention ... [18] Poor sleep quality in patients after coronary artery bypass ... [19] Environmental determinants of cardiovascular diseases risk factors ... [20] Effects of educational intervention based on PRECEDE model on ... [21] Application of the PRECEDE model for controlling iron-deficiency anemia among ... [22] The effect of precede model and self regulation theory in control of menstruation ... [23] The effect of stress management training through PRECEDE-PROCEED ... [24] The effect of intervention using the PRECEDE-PROCEED model ...

Introduction

Anxiety is an emotional and physical response to a stressful condition. Symptoms of anxiety include headache, sweating, fast heartbeat, nausea, trembling, chest pain, hot skin, shortness of breath, tense muscles, and weakness in the legs. Anxiety at the normal level aware the person that there is a danger to take action to manage the risk, but when it is over and over again, the disabling condition becomes anxiety disorders [1]. Recently, in studies reported in 16 European countries, the overall level of anxiety has been estimated by 12%. Also, many studies have shown that anxiety disorders produce many problems and high levels of health care services expand by each society and cause a lot of disruption in people's functions. Indeed, some studies have exhibited that the prevalence of anxiety among nurses is higher than the other people [2]. In Iran, 80% of health care workers are nurses, and according to the nursing organization, 75% of them have some degrees of depression and psychological disorders. Some of the stress factors that cause anxiety in nurses are a heavy workload, interpersonal conflicts, ambiguous roles at work, cooperation problems, lack of freedom in decisions, work in the form of shift and facing to death and suicide [3]. Many studies have been reported on the application of relaxation model to reduce anxiety. For example, Ghaffari *et al.* used the relaxation model to reduce depression, anxiety, and stress in patients with multiple sclerosis [4]. Other studies have been carried out by Agebati *et al.* [5] and Jariani *et al.* [6] to control anxiety and depression in patients with cancer and myocardial infarction.

The PRECEDE- PROCEED model is the most appropriate model for planning health education and promotion, which makes it possible to use theories to assess local requirements, priorities, resources, and conditions [7]. To use of this model, a number of steps should be taken; such as social diagnosis, epidemiological diagnosis, behavioral and environmental diagnosis, educational diagnosis (Identifying predisposing factors, enabling and reinforcing healthy behaviors) and ecological, managerial and political recognition, implementation and process evaluation, evaluation of immediate results and evaluation of long-term outcomes [8]. Regarding the key role of nurses in the care system and the relatively high prevalence of anxiety in this group, early diagnosis and timely control of the disorder is very necessary.

It is important to use preventative methods for identifying anxiety and managing in the early stages. Therefore, in order to investigate anxiety disorders among Alzahra hospital staffs, an educational intervention was performed based on the PRECEDE-PROCEED model during 2016 and the effects of relaxation methods on stress management.

Materials and Methods

The present study was an interventional study, and the participants of this research included all nursing staff working in the Alzahra hospital during 2016 in Rasht. Due to the higher level of stress and anxiety in female nurses, we selected the women's hospital [9]. The nurses who had an obvious anxiety score of <43 were selected based on the Spielberg anxiety questionnaire. Based on the sample size formula, 32 individuals were randomly selected in the intervention and control groups.

The inclusion criteria were a work experience of at least 6 months in the Alzahra hospital, no usage of sedative medications in the past 6 months, and without spiritual struggle following the loss. Sample size in this study was obtained 32 people in each group (Intervention and control) based on the below formula with a confidence level of 95% and a power of 80%.

$$n = \frac{(\sigma_1^2 + \sigma_2^2)\left(z_{1\frac{\alpha}{2}} + z_{1-\beta}\right)^2}{(\mu_1 - \mu_2)^2}$$

The data collecting tools were a questionnaire including questions about demographic characteristics, Spielberger's obvious, and hidden anxiety and designed questionnaire based on the structures of the PRECEDE-PROCEED model. The questionnaire in the framework of the PRECEDE-PROCEED model consisted questions about health demographic characteristics (age, work experience, education, marital status, number of children, housing situation, and time for exercise), predisposing factors (knowledge and attitude), enabling factors (use of educational resources), reinforcing factors (encouraging others to perform relaxation and positive experience after relaxation), anti-anxiety behaviors, and relaxation rates.

The designing of the intervention was based on the questionnaire model, in the form of training classes for 4 sessions and each session was for 45-60 minutes. In this study, Jacobson relaxation techniques were used as target behavior.

The training method was a short-term lecture with questions and answers, group discussion and practical presentation. In each session for practicing the trained skills, booklets were given to the participants in the intervention group and requested them to do the trained exercises. After the end of the training sessions, a reminder was given to the participants by texting and in-person. Also, no intervention was performed for the control group. Indeed, the training session was held for reinforcing factors based on the PRECEDE-PROCEED model with head nurses. The collected data were analyzed using SPSS 22. In order to compare the mean scores before and after training in each group, independent t-test and variance and the Chi-square test were used to

compare the mean scores between the two groups. The value (p<0.05) was considered as a significant difference.

Findings

In this study, the mean age of the intervention and control group was 32.66±8.9 and 30.84±4.30, respectively, which was not statistically significant (p=0.326). Marital status, number of children, educational status, employment status, housing, and exercise in this study were analyzed by Chi-square test. There was no significant difference between the groups in the p-value (p=0.503, p=0.682, p=112.0, p=0.478, p=0.270, p=0.06, respectively). Comparison of average occupational experience and exercise was done between the two intervention and control groups using T-test and the analyses showed that no significant difference between the intervention and control groups (p=0.498, p=0.424, respectively). Also, T-test analysis was used to compare the knowledge of two interventional and control groups, before, immediately after intervention and 4 months after the intervention. The results showed that there was a significant difference in both stages. As the knowledge score in the intervention group showed a significant increase in comparison to the control group (Table 1). Indeed, the variance test was used to compare the knowledge between intervention and control groups.

According to the increased significance level in the pre-intervention stage, immediately after the intervention and 4 months after the intervention in the intervention group, that is less than 0.05, it is evident that in these three stages, there is a significant increase in the knowledge rate, while there was no significant difference in knowledge level in the control group.

Indeed, independent t-test was used to compare the attitude between intervention and control groups. According to the results obtained in the pre-intervention stage, the mean of attitude in the two intervention and control groups is the same and in one level. The mean of attitude before, immediately and 4 months after intervention in the intervention group showed a significant difference, indicating an increase in the attitude level in the intervention group (Table 1).

Also, T-test was used to compare the mean of the use of educational resources in both intervention and control groups. In the pre-intervention phase, the use of educational resources including radio, television, books, journals, pamphlets, educational films, relatives, friends, medical and hygiene teams, and face-to-face training at the workplace (Enabling factors) did not have a significant effect on the intervention and control group. Indeed, this test showed that there was a significant difference between the intervention and control groups in the usage of a book (p<0.001) and the job training (p<0.001) immediately and 4 months after the intervention.

To compare of the mean of behavior score in the intervention and control groups, we used Chi-square and Fischer test and the results showed that the differences in the immediate and 4 months after the intervention, by using the relaxation techniques was significant.

Also, we used T-test to compare the mean of reinforcing factors between intervention and control groups. The analysis showed that there was no significant difference in the use of reinforcing factors between intervention and control groups before the intervention, but after the intervention, we observed a reduction of anxiety in the intervention group in comparison to the control group.

In this study, we assayed the obvious and hidden anxiety in the intervention and control groups in the before, immediately and 4 months after intervention. Independent t-test showed that before the intervention, there was no significant difference between the two groups in the mean of anxiety scores. However, there was a significant difference between the two groups after and also after 4 months after intervention (Table 2).

Table 1) T-test analysis was used for measurement of mean scores of knowledge, attitude, behavior, enabling factors in case and control group in before and 4 months after the intervention

Variable	Before education			4 months after education		
	Intervention	Control		intervention	Control	
	Mean	Mean	p-value	Mean	Mean	p-value
Knowledge	7	7.53	0.851	9.25	7.22	<0.001
Attitude	10.97	9.81	0.105	13.31	9.19	<0.001
Behavioral Factors	9.37	3.12	0.25	53.12	3.24	<0.001
Reinforcing Factors	9.37	6.25	0.64	81.25	3.12	<0.001

Table 2) Table 2, Independent T-test analysis for the measurement of means scores of obvious and hidden anxiety in case and control group in before and after the intervention

Variable	Before education			4 months after education		
	Intervention	Control		intervention	Control	
	Mean	Mean	p-value	Mean	Mean	p-value
Obvious anxiety	57.7±8.0	55.2±4.0	0.125	42.0±4.0	55.8±4.0	<0.001
Hidden anxiety	56.4±6.0	55.2±4.0	0.367	45.5±6.0	56.1±4.0	<0.001

Discussion

The findings of our study showed that after intervention, the intervention group achieved higher scores in predisposing factors (knowledge and attitude), enabling factors, reinforcing factors, and stress managing behaviors compared to the control group, which indicated the effect of training on the mentioned variables.

The knowledge of the participants in both intervention and control groups before the educational intervention was no significant, but after the intervention, the difference was significant. High level of knowledge about anxiety and the necessity to manage it in nurses can be due to their education and scientific information, as well as with their occupational nature, which is constantly exposed to stress and anxiety. Our results Consistent with the studies of Moeini et al., in the impact of cognitive behavioral stress management training program on job stress in hospital nurses based PRECEDE-PROCEED Model, Hazaveh et al., in patients with coronary artery bypass graft surgery [10], Ghaffari et al., in reduction of stress in elderly [11].

In this study, the encouragement of participants and positive feelings after relaxation were considered as reinforcing factors and increased after the intervention in the intervention group. Our study also showed that the amount of reinforcing factors significantly increased in the intervention group compared to the control group. These findings are consistent with the results of Allen et al., [12], Sun et al. [13], Chiang et al. [14], Sanaenasab et al. [15] and Jimbo et al. [16], Solhi et al. [17], Ranjbaran et al. [18], Sabzmakan et al. [19] and Dizaj et al. [20] indicating that implementing intervention using the PRECEDE-PROCEED Model could increase reinforcing factors. Also, after the intervention, the mean anxiety score decreased in the intervention group, which was significantly different from the before intervention in the same group and control group.

The findings of our study confirmed the results of several studies in which the PRECEDE-PROCEED Model has been used in different health areas, including Hazavehie et al. [21] on maternal nutritional behaviors in terms of iron deficiency anemia in children and the study of Taghizadeh [22] in increasing the use of self-help behaviors after intervention in order to control the premenstrual syndrome, Didehvar et al., in controlling of job stress in nurses and midwives [23] and Ebadifard Azar et al., on quality of life in diabetic patients [24].

Conclusion

The findings of this study can be useful for planning to reduce and control anxiety in health care workers and promote their health. The physical and psychological problems in this group reduce the quality of care for patients, increase the cost of treatment and increased absenteeism. Considering the training ways to manage anxiety can be reduced anxiety of health care workers, nursing managers and nursing staff can take anxiety control training courses and thereby improve the quality of nursing care and satisfaction of patients. Our findings indicate that the PRECEDE-PROCEED Model led to stress reduction in the intervention group.

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