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The Effect of an Effective Coping Styles Training Program on Coping Strategies for Stress in Nurses Working in Clinical Departments Dealing with COVID-19 in Iran

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Abstract

Background: The prevalence of COVID-19 has caused stress, especially among nurses. On the other hand, the use of effective coping styles during the COVID crisis reduces stress in individuals.

Aim: The present study was conducted with aim to investigate the effect of coping styles training program on coping strategies for stress in nurses.

Method: This experimental study was conducted on nurses working in COVID-19 departments in April 2021. After obtaining informed consent, 80 participants were randomly divided into intervention and control groups. In the intervention group, training sessions were held as webinars for 3 sessions, each lasting 2 hours over three weeks. The Stress Coping Styles Questionnaire designed by Endler and Parker was completed by participants before and after the intervention. Data were analyzed by SPSS software (version 16) and one-way analysis of variance and paired t-test. $p<0.05$ was considered statistically significant.

Results: After implementing the intervention, problem-focused coping styles increased among nurses working in COVID departments, while emotion-focused and avoidance-focused coping styles decreased after training sessions.

Implications for Practice: Training the stress coping methods can lead to effective use of coping styles during crises such as COVID-19 among nurses working in COVID departments.

Keywords: COVID-19, Education, Nurses

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Introduction

In late 2019, coronavirus disease (COVID-19) emerged in China and quickly spread worldwide with new cases reported daily (1). This virus can cause severe acute respiratory syndrome (SARS) in infected individuals (2). According to global statistics, a mortality rate of 4.3% has been reported for this disease. Supportive treatments primarily used in clinics include oxygen therapy, antiviral drug treatment, and corticosteroid therapy; however, there is no definitive and effective treatment for coronavirus (3). The lack of a definitive treatment or prevention for this disease created significant stress and anxiety among communities and individuals (4). Fear and anxiety about the possibility of contracting this disease led to psychological burden, panic, and despair which can result in mental disorders, weakened immune systems, and reduced physical resilience against diseases especially among healthcare workers (5).

Nurses are essential caregivers who contribute more than 75% of healthcare workers and have direct involvement as the first line against COVID-19 (6). They face significant stress due to their job nature including wearing heavy protective clothing, continuous use of N95 masks, fear of getting infected or infecting others. These circumstances can lead to high levels of stress which may result in psychological disorders (7).

Individuals have various thoughts and behaviors when facing stressful situations, which are called coping mechanisms. These mechanisms generally fall into three categories: problem-focused, emotion-focused, and avoidance-focused. In problem-focused coping, the individual under stress seeks to change the external event causing the stress and tries to focus on the problem for better understanding it and finding a suitable solution through logical thinking and conscious awareness. However, in emotion-focused coping, the individual focuses more on the emotions resulting from the stress and helps regulate stressors by changing their internal and external reactions. In avoidance-focused coping, the individual avoids confronting the problem and uses distractions and diversionary thinking to escape from the stressor and tries to redirect their attention away from the problem (8).

In this process, using techniques such as problem-solving, relying on social support, and expressing emotions reduces anxiety and depression while promoting physical and mental health. Effective coping styles reduce the negative effects of stress and increase the ability to manage environmental and internal stressors. Effective coping is an important source for creating a sense of well-being and psychological adaptation in stressful situations, affecting individuals' physical and mental health (9). Good problem-solving skills, sufficient experience, access to appropriate support systems, adequate sleep and personal hygiene, and a balanced lifestyle are the effective factors in using effective coping styles. Individuals who are not able to cope effectively experience more stressors which lead to maladaptation causing psychological disorders. The main cause of many psychological problems is ineffective coping methods. Ineffective coping leads to maladaptation which reduces individuals' quality of life and affects their interpersonal relationships (10).

In recent years, coping styles have received much attention, with some studies showing that employing effective coping styles can play an important role in reducing stress. Additionally, the coping styles use can have an impact on the health of people (11). In the study of Edraki et al., the results showed that coping skills training reduced depression, anxiety, and stress and improved the patients' self-efficacy (12). Maleki et al. (13) found no impact of a three-session stress coping and problem-solving training on quality of life of patients with irritable bowel syndrome (IBS) . Given the mixed findings on stress coping strategies training effects, coupled with the ongoing COVID-19 pandemic straining medical staff, particularly nurses, more research is needed to explore the psychological traits of these individuals and offer interventions to enhance their positive psychological attributes. Therefore, the present study was conducted with aim to investigate the effect of an educational program consisting of effective coping style techniques through a virtual webinar platform on nurses' coping styles.

Methods

This experimental study was conducted in April 2021 on nurses working in clinical departments facing COVID-19. The sample size was determined based on statistical consultation and using the formula for determining sample size at a confidence level of 95% and a test power of 80%, assuming that the least effect size of implementing the educational program on coping strategies with stress in nurses compared to the control group (s=0.7). Therefore, the sample size was calculated as 32

individuals in each group, considering a 20% drop in samples, a total of 40 individuals were calculated for each group. There was no sample dropout in this study. The research environment included COVID-19 departments at Khorshid and Amin hospitals affiliated with Isfahan University of Medical Sciences. The inclusion criteria were working in COVID-19 departments for at least two months and no history of psychiatric disorders. The exclusion criterion was not attending more than one session in the educational sessions.

Two questionnaires were used in this study. The first questionnaire included demographic information such as age, gender, marital status, education level, work experience, type of employment, COVID-19 vaccination status, and history of COVID-19 infection. The second questionnaire included Endler and Parker's Stress Coping Styles Questionnaire developed by Parker and Endler in 1990 to measure individuals' coping styles with stress in stressful and crisis situations. This questionnaire consists of forty-eight items that measure problem-focused coping, emotion-focused coping, and avoidance coping sequentially with each set containing five options scored on a five-point Likert scale ranging from never (one) to most of the time (five) (14). The reliability of the Persian version of this questionnaire has been confirmed (Cronbach's alpha coefficient = 0.83) (8). In this study, Cronbach's alpha coefficient for the entire questionnaire was 0.85, problem-focused section was 0.86, emotion-focused section was 0.83, and avoidance section was 0.82.
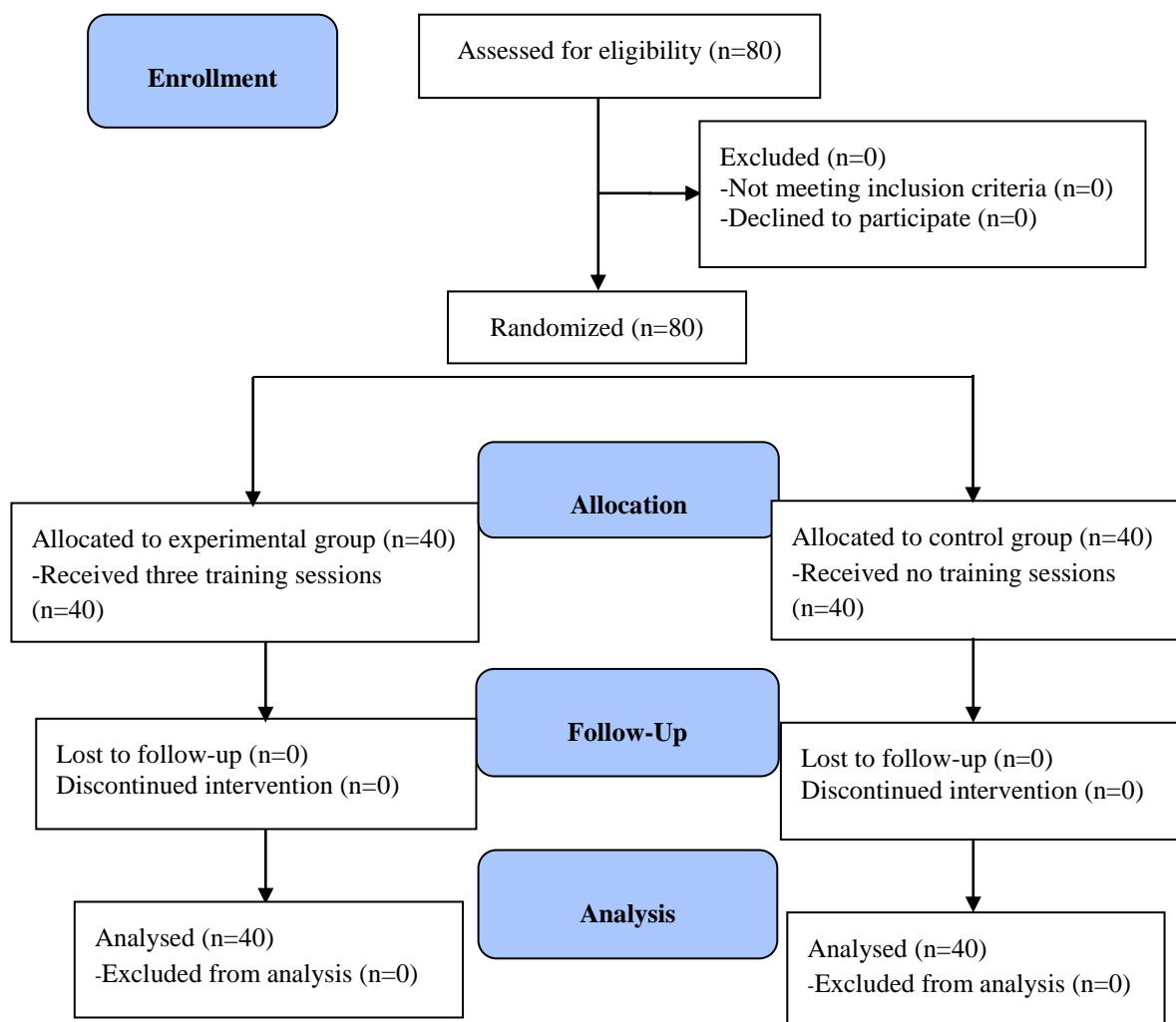
Figure 1. CONSORT Flow diagram of the study process

A total of 80 nurses working in the COVID-19 department of Khorshid and Amin hospitals were selected using a convenience sampling. A webinar training session was held with the aim of informing the hospital's educational supervisor, and nurses working in the COVID-19 departments

volunteered to participate in the webinar. The researchers then contacted the registered individuals by phone, introduced themselves, explained the purpose of the research, and if they expressed interest to participate in the study, an electronic informed consent form was emailed to them for completion. The random sampling was used to randomly select individuals who have been admitted to the study, so that from all the individuals who meet the inclusion criteria according to the random numbers table, a selection was made based on the specified sample size. There were 2 cards with the letters A, B and placed in sealed envelopes and the individuals choose one at random and were assigned to one of the intervention or control groups.

The intervention group received three training sessions held virtually over a period of three weeks, each lasting two hours and conducted by a member of the psychiatric nursing group at Isfahan University of Medical Sciences. The first session included an introduction and justification for the study, crisis management during COVID-19, psychological effects of COVID-19, definition of stress and its types, and the effects of stress on physical and mental health. The second session covered stress management techniques, definition of coping styles and their types. The third session focused on effective coping styles in clinical settings. The control group didn't receive any training program ; however, at the end of the study, considering the effectiveness of training on coping styles used by participants, training materials were provided to them including lecture notes and content from training sessions. A link of the demographic information questionnaire and stress coping strategies was sent electronically to all participants before and after the intervention for completion.

Data were analyzed by SPSS software (version 16). The paired t-test was used for comparing mean scores of stress coping styles before and after intervention within each group, chi-square test for comparing nominal variables between groups, and independent t-test for comparing correlations between groups. $p < 0.05$ was considered statistically significant.

Ethical Consideration

To ensure ethical considerations in research, the researcher obtained research permission from the School of Nursing and Midwifery and the Research Deputy Office at Isfahan University of Medical Sciences. Introduction letters were also provided to hospital officials to conduct research. The study had received ethical approval from the Ethics Committee at Isfahan University of Medical Sciences (IR.MUI.NUREMA.REC.1400.192).

Results

A total of 80 participants included in this study (Figure 1). There was no significant difference between the study groups in terms of demographic characteristics (Table 1). According to independent t-test results, there was no statistically significant difference between the two groups in the mean scores of stress coping styles before the intervention; however, after the intervention, the problem-focused coping style scores decreased from 48.5±7.06 to 60.3±9.76 in the intervention group; while emotion-focused coping style scores decreased from 63.17±4.18 to 47.95±5.93, and avoidance-focused coping style scores decreased from 61.52±4.5 to 50.47±5.37. Paired t-test results also showed these differences to be statistically significant ($p < 0.001$). In the control group, the mean scores for problem-focused coping style decreased from 47.15±4.89 (before) to 46.8±5 (after), emotion-focused coping style decreased from 68.5±3.25 to 65.5±3.71, and avoidance-focused coping style increased from 61.32±2.56to 59.82±4.81. However, these changes were not statistically significant ($p > 0.05$) (Table 2). No correlation was found in the two groups between demographic characteristics and stress coping style scores.

Discussion

The purpose of the present study was to determine the impact of an educational program on the use of effective coping styles on coping strategies for stress among nurses working in clinical departments facing COVID-19. The study results showed that the educational program led to the use of problem-focused coping styles and a decrease in emotion-focused and avoidance-focused coping styles after the training sessions.

Table 1: Demographics characteristics of the study participants

Variables	Mean ± SD or No. (%)		p-value
	Intervention	Control	
Age (years)	32.02 ± 7.96	33.45 ± 4.68	0.383[*]
Work Experience (years)	8.68 ±7.67	10.87 ± 6.54	0.173[*]
Gender			
Male	7 (17.5)	3 (7.5)	0.181[**]
Female	33 (82.5)	37 (92.5)	
Marital Status			
Single	9 (22.5)	14 (35)	0.516[**]
Married	31 (77.5)	26 (65)	
Education level			
Bachelor	37 (92.5)	39 (97.5)	0.311[**]
Master	3 (7.5)	1 (2.5)	
Vaccination			
Yes	37 (92.5)	39 (97.5)	0.311[**]
No	3 (7.5)	1 (2.5)	
Vaccination doses			
Two doses	7 (18.5)	5 (12.8)	0.473[**]
Three doses	30 (81.1)	34 (87.2)	
Contracting COVID-19			
Infected	34 (85)	36 (90)	0.448[**]
Not infected	6 (15)	4 (10)	
Frequency of COVID-19 infection			
1	6 (15)	3 (7.5)	
2	14 (35)	18 (45)	0.321[**]
3	10 (25)	10 (25)	
4	4 (10)	5 (12.5)	

*t-test; **Chi-square test

Table 2: Mean score of stress coping style before and after intervention

Variable/Groups		Control	Intervention	Intergroup comparison[*]
Problem-focused coping style	Before	47.15 ± 4.89	48.5 ± 7.06	**0.347**
	After	46.8 ± 5	60.3 ± 9.76	<0.001
Intragroup comparison [**]		<0.001		
Emotion-focused coping style	Before	65.8 ± 3.25	63.17 ± 4.18	**0.638**
	After	65.5 ± 3.71	47.95 ± 5.93	<0.001
Intragroup comparison [**]		<0.001		
Avoidance-focused coping style	Before	61.32 ± 2.56	61.52 ± 4.5	**0.017**
	After	59.82 ±4.81	50.47 ± 5.37	<0.001
Intragroup comparison [**]		<0.001		

*t-test; **Analysis of variance

Various studies indicate high levels of stress and anxiety among nurses during the COVID-19 pandemic (15,16). Viana and Delira in 2020 examined emotional responses and coping styles of nursing students during the COVID-19 outbreak. They reported that nurses working in COVID-19 departments used emotion-focused coping styles more than problem-focused coping styles, which is consistent with the findings of the current research (17). Hemati et al. in 2013 concluded that emotional intelligence training has a significant impact on problem-focused and avoidance coping strategies but has a lower impact on emotion-focused coping strategies (18). Habibof and Cheong (2007) found a positive relationship between higher education and active use of coping strategies during crises (19). Although different types of studies have different participants and training methods, they all demonstrate the impact of education on effective use of coping strategies.

Shokoohi et al. in 2022 showed that adolescents with type 1 diabetes who received coping skills training demonstrated higher self-efficacy, indicating effective use of stress-coping styles (20). Onieva-Zafra et al. (2020) suggested providing effective stress-coping style training due to the prevalence of stress among nursing students during COVID-19 (21). Hamadi et al. in 2021 stated that there is a need for introducing stress management programs to help foster healthy coping skills. Students are important resources for our healthcare system and society. Currently, nursing educators and healthcare managers must identify and implement necessary improvements in education because they are essential for reducing stress even in future pandemics (22). Individuals under stressful conditions should learn effective coping skills to reduce their stress levels. They can better deal with their needs and life challenges if stress is controlled and effective coping skills are employed (23). All these studies emphasize the important role of education in using effective coping styles. Effective coping strategies are crucial during stressful situations, as they can help avoid experiences that may result in stress-related psychiatric disorders. Effective coping styles are linked to reduced levels of stress, psychological distress, anxiety, and depression (24).

One of the main limitations of this research was the collection of information during the sixth peak of the Corona virus; although the stress of contracting the Corona virus was high among worshippers, it had decreased compared to the earlier peaks. Moreover, only certain demographic variables were analyzed in this study. To fully comprehend coping strategies in healthcare workers, it is essential to evaluate other related factors like personality type and workload. Therefore, it is recommended to conduct studies with a larger sample size and a more thorough investigation into personality traits, workload, etc.

Implications for practice
Clinical environments, especially during a pandemic, are very stressful for nurses that can affect people's performance. Therefore, training methods of compliance with these conditions should be included in the training programs of nurses. Training the stress coping methods can lead to effective use of coping styles during crises such as COVID-19 among nurses working in COVID departments.

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Conflicts of interest
The authors declared no conflict of interest.

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Authors' Contributions
Sima Ghezelbash: conceptualization, data curation, project administration, validation and compiling resources. Soheila Bakhtiari: methodology, compiling resources, validation and writing of the original draft. Saeid Amini Rarani: conceptualization, formal analysis, investigation, methodology, validation and writing – review & editing of the manuscript. All authors read and approved the final manuscript.

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