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Developing and validating of educational-therapeutic package based on psychological flexibility for nurses in the intensive care unit of COVID-19: Application of grounded theory

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Abstract:

BACKGROUND: Caring for COVID-19 patients has caused high stress and burnses. Therefore, the current research aims to develop and validate an educational-therapeutic package based on psychological flexibility for COVID-19 nurses.

MATERIALS AND METHODS: The approach of this research was Exploratory Sequential Mixed Method, which was carried out in 2019 to 2021. In the qualitative phase, to identify the paradigm model of the research, the grounded theory of the Strauss and Corbin model, purposeful sampling, and in-depth semi-structured interviews with 12 nurses were used. Goba and Lincoln's criteria were used to ensure the accuracy and reliability of the data. In the quantitative phase, based on the Paradarim model, a training package according to psychological flexibility was developed with the approval of 10 experts from the fields of medical, psychology and nursing education.

RESULTS: The qualitative analysis of the data obtained from the interviews led to the identification of 29 primary concept codes, 8 subcategories, and 3 categories in the conceptual format of context, process, and consequence. The categories included "psychological insecurity in the workplace," "strategic immunization in facing special conditions," and "safe communication." "Psychologically safe exposure" was identified as the central category. In several stages, based on the findings of the qualitative stage, the educational-therapeutic package was compiled. The validity of the package was confirmed by calculating two relative coefficients of content validity ratio (CVR) and content validity index (CVI) equal to 0.91 and 0.85, respectively.

CONCLUSION: This research led to the development of an educational-therapeutic package of safe psychological exposure for nurses, which can be used by managers and nurse educators through in-service training courses. Therefore, it is suggested to use training and safe coping strategies to improve the quality of life in nurses.

Keywords:

Coping strategies, intensive care units, nurses, psycho-educational program, psychological flexibility

Introduction

Since 2019, intensive care units around the world, including Iran, had been struggling with the emerging crisis of Covid-19 which was considered

an important threat to public health.^[1] Meanwhile nurses, were being experienced more stress and tension. Working in intensive care is stressful because of its complexity and dynamic.^[2] Based on the studies, nurses play an important role in public health and preventing infectious

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diseases.^[3] Nurses sacrifice their lives to take care of the patient. High demand at work, illness, death, interpersonal conflicts, lack of knowledge, and high work pressure cause occupational stress in nurses.^[4,5] Occupational stress affects the health of people and reduces the performance and quality of patient care. It also increases mental illness and job burnout.^[6] Mental health problems are considered one of the real problems of COVID-19 nurses. Anxiety is one of the most common psychological problems of nurses.^[7] In other studies, it has been reported that 9.4% of nurses in China and 8.9% of healthcare workers in Singapore suffer from depressive symptoms.^[8,9] Therefore, it is necessary to maintain the mental health of nursing personnel to control infectious diseases.^[10,11]

This amount of stress in hospital work environments can be considered as a risk factor for developing psychiatric disorders such as depression and anxiety for nurses.^[12] However, in some hospitals, the psychosocial interventions needed for their mental health are not provided.^[13] Therefore, it is necessary to improve psychological flexibility and coping strategies to maintain their physical and psychological health.^[14] Considering that the field of health and treatment directly relates to human health, it requires healthy, cheerful, and motivated nurses. Therefore, managers should provide conditions that not only attract new nurses but also keep the current ones and prevent them from leaving their jobs.

Various psychological interventions have been done to manage the occupational stress of nurses. These interventions are related to third-wave cognitive-behavioral treatments such as the acceptance and commitment approach. These interventions focus on constructs such as accepting beliefs versus challenging them, mindfulness, cognitive dissonance, or describing thoughts and feelings without giving them meaning, values-based life, and personal spirituality. Acquiring psychological flexibility through reducing cognitive confusion and experiential avoidance (avoiding negative internal experiences) and clarifying values is one of the main goals of the acceptance and commitment approach.

Avoidance has a positive and significant relationship with burnout and occupational stress in nurses.^[15] Trying to avoid an event can become a vicious cycle, causing more stress than the original event. As a result, using experiential avoidance to prevent the signs of job burnout causes disorders in the physical and psychosocial dimensions of nurses. Therefore, the psychological flexibility of nurses is important as a person who cares for the health and well-being of other people.

It is necessary to hold educational-therapeutic courses based on psychological flexibility for nurses. This educational course is valid when it is based on the

psychological needs of nurses. Therefore, identifying the lived experiences of nurses using direct experiences helps health managers to understand and interpret the problems and needs of nurses from their point of view. As a result, design and implement efficient educational-therapeutic interventions to improve the physical and mental health of nurses. Therefore, the current research aims to develop and validate an educational-therapeutic package based on psychological flexibility for COVID-19 nurses.

Materials and Methods

Study design and setting

This study is part of the research entitled "Preparation of an educational-therapeutic package based on psychological flexibility (based on acceptance) and the evaluation of its impact on the quality of work life, job burnout and work-family conflict and mental health for the care team working in treatment centers for patients with COVID-19. The approach of this research was the Exploratory Sequential Mixed Method. In the qualitative stage, the grounded theory by Strauss and Corbin model was used.

Study participants and sampling

Nurses and nurse managers and instructors working in the intensive care unit of COVID-19 in the hospitals of Isfahan University of Medical Sciences in 2019-2020 formed the statistical population of this study. Data were collected through purposeful sampling and semi-structured interviews with 12 nurses in a safe place at a saturation level. The inclusion criteria for the study included a nurse working in the intensive care unit of COVID-19 for at least 2 months.

Data collection technique

The duration of the interviews was from 20 minutes to 45 minutes. With the permission of the participants, the content of the interviews was first recorded by the interviewer and then completely transcribed for qualitative analysis. For the qualitative analysis of the data in the grounded theory, open coding was done at first. In identifying the primary concepts, a code was chosen for each meaning unit. This code can be a word or quotations. The theory was formed based on these codes. The codes of each interview were compared with each other and with the codes of other interviews. The codes were placed in subcategories based on differences and similarities. The continuous comparative analysis method was also used to determine the categories. Concepts that had a common feature were placed in a category. There was the most homogeneity within the categories and the most heterogeneity among the categories. In this way, axial coding was done and selective coding was performed through refining and

integrating the categories to establish a link between the codes. After the continuous analysis of qualitative data by two authors (S.M.H.M., S.A.) and the approval of the codes in several meetings, other researchers rewrote and finalized the main and secondary codes. In these stages, by using deep and detailed analysis of the data, categories and subcategories were identified in the form of context, process, and consequence. Then, the central concept was identified, and the final pattern was discovered and explained.

Guba and Lincoln's criteria were used to ensure the accuracy and reliability of the data.^[16] The research team examined the credibility of the data by reviewing the text of the interviews with the participants and contacting them for a long time. Conformability was controlled through the impartiality of the researcher, agreement on the codes and themes, and review of the text of the interviews, codes, and classes extracted by two faculty members (peer check). Dependability was achieved by taking notes on time, using the perspective of the project colleagues (Internal check), and studying and matching the codes with the whole data in two stages. In the end, transferability or fittingness through interviews with different participants and providing direct quotes and examples and experts' confirmation led to a rich explanation of the data.

In the following, the components of the educational-therapeutic package were developed based on the central concept of the research and literature review of the approach based on psychological flexibility. The layout of all sessions was selected based on coping strategies or processes, and then using psychological flexibility skills based on the third-wave cognitive-behavioral therapies, the content of the sessions was determined.

In the end, according to the central concept and subcategories, the compiled educational-therapeutic package was validated. The content validity of the compiled package was evaluated using the opinion of 10 experts in the fields of education, psychology, and nursing (7 faculty members of the psychology and counseling department and 3 graduates with doctoral degrees in psychology and psychiatry) regarding the degree of coordination of the content of the educational package and the purpose of the research.

For this purpose, two qualitative and quantitative methods have been considered. In the qualitative review of the content, the researcher requested the experts to provide the necessary feedback related to the model and process components and the structure and content of the training package, based on which the items were modified. Two relative coefficients of content validity Ratio (CVR) and content validity index (CVI) have

been used to check content validity quantitatively. CVI was calculated by summing the agreement scores for each item that scored "relevant but needs revision" and "completely relevant" divided by the total number of experts. To determine CVR, experts have been asked to check each item based on the three-part spectrum of "necessary," "useful but not necessary," and "not necessary."

Ethical consideration

This research is the final report of a research project approved by Isfahan University of Medical Sciences with code of ethics committee number IR.MUI.MED.REC.1399.026. All procedures performed were in accordance with the ethical standards of the research committee. While making the participants aware of the interview process, a voice recorder was used with their permission. All participants signed the informed consent form to participate in the research.

Results

Participants in the qualitative part to identify the paradigm model of the research were 9 female and 3 male nurses, aged between 26 and 49 years old, working in the COVID-19 intensive care unit. Their demographic information is presented in Table 1.

129 primary concept codes and 8 subcategories were extracted from the interviews, which were classified under the 3 main categories. The main concern and Contextual factor affecting the safe exposure of nurses in this study was "psychological insecurity in the workplace." The process of "strategic immunity in facing special conditions" included the main strategies adopted by nurses to get rid of psychological insecurity. "Psychological insecurity safe communication" was the main consequence of the adopted strategies. The categories and subcategories in the conceptual format of context, process, and consequence led to the formation of the central category of "safe psychological encounter." The results of the qualitative analysis of the interview text with nurses to develop the educational-therapeutic package are reported in Table 2.

In this study, researchers used the main strategies adopted by nurses as the main components of the therapeutic educational package. It should be noted that these strategies are fully described in an article entitled "The Safe Coping Strategy of Nurses Working in the Care Units of Patients with COVID-19: A Qualitative Study" (categories, subcategories, codes, and quotations). In this study, we intend to report the stages of developing and validating a therapeutic training package based on psychological flexibility, and therefore, the obtained theory will be explained in the qualitative stage.

Table 1: Demographic characteristics of nurses participating in the study

Code	Gender	Age	Education	Marital	Work duration	Code	Gender	Age	Education	Marital	Work duration
1	Female	35	B.Sc.	Married	10	7	Female	35	MSc	Married	5
2	Female	33	B.Sc.	Married	8	8	Female	26	B.Sc.	Married	8
3	Female	36	B.Sc.	Married	11	9	Female	47	B.Sc.	Married	28
4	Female	29	B.Sc.	Unmarried	3	10	Male	49	B.Sc.	Married	16
5	Female	30	B.Sc.	Married	4	11	Male	29	B.Sc.	Unmarried	2
6	Female	28	MSc	Unmarried	2	12	Male	34	MSc	Married	6

Table 2: The results of qualitative analysis for the development of the educational-therapeutic package

Central category	Category	Subcategory
Safe psychological exposure	context	psychological insecurity in the workplace
	Process	Strategic safety in facing special conditions
	Consequences	secure communication
		Occupational stress
		Conflict between work and family
		Wise liberation
		Care
		Safe communication with God
		Safe communication with self
		Safe communication with others

In this research, the grounded theory obtained is as follows. In COVID-19, intensive care unit nurses experienced a lot of job stress due to increased workload and changing care instructions. Also, the concern about the transmission of this virus to family members has caused a conflict between the family and work roles of nurses. Commitment and interest in the nursing profession would increase these conflicts and stresses. Nurses used different strategies to deal with these problems. Nurses who used safe coping strategies to deal with this area of problems had safe relationships with themselves, God, and others. However, other nurses used unsafe coping strategies in facing this context, which led to a lack of safe communication with themselves, God, and others.

The central category and the main process of this cycle, i.e. "Strategic Immunization in Facing Special Conditions," was used to develop a special educational-therapeutic package for nurses. "Strategic immunization in the face of special conditions" is the main process of psychologically safe coping, which has two subcategories: "Wise liberation" and "care." Therefore, these two subcategories have formed the main axis of the educational package of safe psychological exposure therapy.

In the present research, "wise liberation" means that when faced with special and unsafe conditions, a person wisely uses strategy that maintain balance in the rational and emotional aspects of his and others' mental states and get rid of unpleasant thoughts and feelings. By

accepting the existing conditions, while maintaining a state of liberation, these people continue their path in life and face the threats with complete liberation, they create opportunities and enrich their lives in various fields. Also, in this research, "caring" means "understanding the mental states of oneself and others and a mental and practical action under these mental states" and leads to a safe psychological encounter in special situations. It includes the concepts and strategies of "caring for others" and "self-care." The structure and content of the therapy training package sessions are reported in Table 3.

In the validation stage of the developed package, first, the face validity of the educational package was checked and modified with the opinion of the professors. Then, to check the adequacy and organization of the components and processes, the educational package, along with the content validation questionnaire, was sent to the professors and specialists. Two methods were used to check the validity of the educational package. Based on the CVR and CVI, the components of the educational package were evaluated. According to the table of Lawshe *et al.*,^[17] if the score of the components of the model is higher than 0.56, the component is recognized as essential. According to the CVR calculated for each of the components of the educational package and its significance at the level of 0.5, all components were recognized as necessary. To ensure that the components of the educational package are designed in the best possible way, the CVI was calculated for each of the components of the template. In this way, the components of the educational package were judged by the judges based on the criteria of simplicity, clarity, and relevance using a four-part Likert scale. According to the results obtained from the calculation of the CVI and based on the Waltz and Basel index, the components with a score higher than 0.79 were suitable and accepted. Two relative coefficients of content validity (CVR) and CVI were obtained as 0.91 and 0.85, respectively. Therefore, it can be concluded that the experts have evaluated this educational package as a suitable educational-therapeutic package based on psychological flexibility for COVID-19 nurses.

Discussion

This research is designed to develop and validate the

Table 3: The content of the sessions of the therapeutic training package based on psychological flexibility

Title	Content
1 Introduction and conceptualization	Implementation of the first stage of questionnaires. Obtaining ethical consent to participate in the research from references. Introduction of psychological safety exposure.
2 Self-care	Focusing on suffering to heal it.
3 Acceptance	Explaining how to communicate with the mind to reach the observer's self.
4 Caring for others	Introducing emotion regulation systems and creating integration between them.
5 Live in the moment	Balancing emotion regulation systems and achieving here-and-now experience through mindfulness.
6 opportunity creation	Identifying values and how to move in their path.
7 Enriching life	By moving in the direction of values through identifying the desires of the heart, freeing oneself from expectations, and acquiring skills that lead to a full and wise life.
8 Summarizing	Summarizing and getting feedback and answering questions

educational-therapeutic package based on psychological flexibility for nurses in the intensive care unit of COVID-19. In this package, "wise release" and "care" are considered as components of the educational-therapeutic package.

"Wise liberation" creates a psychological state of flexibility in nurses, which makes nurses receptive to internal and external experiences and determines the type of nurse's response to new experiences.^[18] "Wise liberation" is designed in the form of four concepts of "living in the moment," "accepting the inner and outer world," "enriching life," and "creating opportunities" in the educational-therapeutic package. In this way, through the strategy of "living in the moment," the ability to establish a connection with the present moment and through the strategy of "accepting the inner and outer world" facilitates the ability to differentiate oneself from thoughts and experiences within the psyche, which causes a state of psychological flexibility.^[19] In this regard, it has been reported that acceptance shows self-awareness/mindfulness and separating oneself from a situation.^[20] Therefore, nurses who use the strategies of "living in the moment" and "accepting the inner and outer world" can experience high flexibility. That is, they live in the present moment and are mentally aware of personal experiences (thoughts, feelings, memories, etc.). In accordance with our findings, in the research of O'Brien WH *et al.*^[21] one of the strategies of living in the moment was "mindfulness," which was associated with lower levels of psychological harm for nurses. They do not spend their energy fighting and avoiding unwanted

events; they seek new experiences and have better mental health. This finding is by other evidence that considers psychological flexibility to be important in promoting mental health.^[19,22]

Also, by using the strategies of "enriching life" and "creating opportunities," they remain committed to valuable goals.^[23] "Opportunity building" in this research means active adaptation in facing special and unsafe conditions. Using this strategy, a person tries to identify threats and opportunities. By using opportunities, he creates opportunities in the path of his values and goals, which causes a safe psychological exposure of a person in unsafe conditions. In this regard, Shirley Siu Yin Ching *et al.*^[20] reported that nurses who focused on their deficiencies (i.e. problems) used avoidance strategies.

Also, "enrichment of life" means that a person creates opportunities in all the different areas of his life with timely planning and wise action. It uses a strategy that the tension in one area of life does not affect all other areas. And in this way, he enriches all areas of his life with heart desires and valuable goals. By examining other research and their results, it can be concluded that the strategy of "wise liberation" by increasing the psychological flexibility of nurses can effectively improve psychological functions and treatment results in patients.^[24] Also, increasing the amount of patience, acceptance, and nonjudgment, can help the nurse cope effectively with the ambiguity of her role and the pressure of her job.^[25] William H. *et al.* (2019)^[25] reported that participants in the ACT group reported significantly fewer days due to injury and a significant reduction in mental health symptoms compared to the control group. As a result, ACT intervention can improve the well-being of nurses and nursing assistants.^[26]

"Care" is a safe strategy identified by nurses in the present study, and the main component of the therapeutic, educational package is based on psychological flexibility, which is planned in the form of two concepts, "caring for others" and "self-care" in the educational-therapeutic package. In this research, "caring for others" also means "a safety strategy in understanding the mental states of others and a mental and practical action under the mental states of others."^[27] Nurses should establish a close relationship with patients through compassionate behaviors to respond to their pain and suffering. Using the strategy of caring for others and meeting the needs of patients by nurses in the present study is consistent with the results obtained in other studies.^[20,28] Also, health professionals psychologically require a compassionate attitude to care for patients.^[29] Care is considered a compassionate act, and compassion for others, in any form, requires compassion for oneself.^[30] Also, "self-care" means "a safety strategy in understanding one's mental

states and a mental and practical action according to one's mental states."^[27] According to the results of this study, in the study of Shirley Siu Yin Ching *et al.* (2020)^[20] "self-supporting strategies" have been discovered as coping strategies for nurses with low job burnout and high resilience. Compared to our findings, receiving emotional and instrumental social support^[31,32] as well as resting^[32] have been reported as self-care strategies in nurses. Also, in some research, physical care has been mentioned. Houghton *et al.*,^[33] have stated that early detection and proper use of PPE should be applied as preventive strategies.

Limitation and recommendation

Nevertheless, the choice of a qualitative approach can be considered as a limitation because it does not allow the generalization of the findings. The researchers were aware of these limitations while conducting this study in collecting and generalizing the findings. However, the qualitative approach enabled the exploratory nature of the study. One of the limitations of this research is the impossibility of an exact comparison of research results due to the lack of related research and its cross-sectional nature. The participants in this study were nurses of the intensive care unit of COVID-19 in three hospitals in Isfahan City, and the generalizations for other departments and medical staff who are not nurses or working in other units and medical centers should be done with caution. Although the purpose of qualitative studies is not to generalize the data, it is hoped that this limitation will be reduced in future studies by expanding the scope of sampling to other units.

Conclusion

The innovative aspect of this research was the use of the qualitative analysis method of the grounded theory to formulate the educational-therapeutic package of psychologically safe exposure based on psychological flexibility. The internal and external validity of the developed package was confirmed. It is suggested to use this package to empower nurses to promote safe coping strategies. Also, managers should consider it in health policies and programs to improve the quality of nurses' work life by empowering nurses to adopt safe strategies. In general, to evaluate the findings of this research, it is suggested that this educational-therapeutic package be implemented in other intensive care units and other units, and its results will be examined.

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Conflicts of interest

There are no conflicts of interest.

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