Assessing the Effect of a Telephone-Supported Need-Based Educational Program on Anxiety and Depression of Families of Patients Admitted to the Intensive Care Unit

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Abstract

Background: Identifying and meeting the psycho-social needs of family members of patients admitted to the intensive care unit (ICU) is an undeniable necessity and priority for nurses.

Objectives: The present study was conducted to determine the effect of a need-based educational program on anxiety and depression of families of patients admitted to the ICU.

Methods: In this quasi-experimental study, a telephone-supported need-based educational program was conducted on 88 family members of patients admitted to the ICU wards of educational hospitals in the city of Zanjan. A demographic information questionnaire, the Hospital Anxiety and Depression Scale (HADS), and the Critical Care Family Needs Inventory (CCFNI) were used to collect data. Data were analyzed using SPSS 26 software and the Wilcoxon statistical test.

Results: The findings indicated that the majority of the investigated patients were male (51.1%) and married (89.8%), with the mean age of 50.3±15 years. Most of the investigated family members were the patients' spouses, with the mean age of 46.2±10.7 years, and had a diploma and university education (71.6%). The needs of family members included the need for assurance (3.24±0.5), the need for proximity (3.22±0.55), the need for information (3.11±0.49), the need for comfort (2.52±0.67), and the need for support (2.16±0.68), respectively. The levels of anxiety and depression significantly reduced after the intervention (P<0.0001).

Conclusion: Based on the study results, it is recommended to use a need-based educational program to reduce anxiety and depression of family members of patients admitted to the ICU.

Keywords: educational program, educational needs, family, anxiety, depression, intensive care unit

Introduction

The intensive care unit (ICU) can be effective in restoring health to critically ill patients by providing medical services correctly, using modern medical equipment optimally, and benefitting from experienced and competent staff [1]. Patients are generally transferred to the ICU because of their special conditions. The hospital admission of one family member can cause psychological problems, including anxiety and depression, in other family members and result in emotional responses such as shock, anxiety, anger, and feelings of guilt, disappointment, and fear [2,3].

In a study conducted in Gorgan, Iran (2016), the prevalence of anxiety, depression, and moderate to very severe stress in family members of patients admitted to the ICU was reported to be 68%, 57.3%, and 46.7%, respectively [4]. The results of a single-center study by Askari et al.

(2017) in Tehran also indicated that 68% of family members of patients admitted to the ICU had anxiety, 53.7% had depression, and 46.7% had moderate to severe stress [5].

If the family is not able to deal with anxiety-inducing factors, it experiences a situational crisis [2]. This crisis and anxiety consequently culminate in the family's chaos and disappointment, leading to adverse effects on the normal process of the family and individuals' lives, including job loss, impaired decision-making, physical diseases, depression, and even the transmission of anxiety to other individuals [6].

The families of patients admitted to the ICU need to gain information, receive support, and acquire skills to cope with problems to reduce their anxiety [7]. One of the ways to reduce anxiety is educational support. Educational support is a variety of systematic interventions based on education and support with emphasis on the patient and family needs, which focuses on enhancing the patient or family knowledge regarding the disease, the mechanisms of their adaptation to the disease, the use of communication skills, and problem solving [8]. In this regard, nurses play a significant role in supporting families of patients admitted to the ICU [9].

Given the patients' unstable conditions, nurses devote most of their working time to monitoring and caring for patients and neglect the patients' families; therefore, families become disinclined or unable to express their needs, leading to adverse effects on patient care [10]. Identifying and meeting family needs in a timely manner mitigate the negative effects of stress on the family, reduce its effects on the medical team and consequently on the patient, and direct the family attention to patient care [11].

The results of Hsiao et al.'s (2017) study indicated that the honesty, up-to-date information, and awareness of the medical team, explaining treatment methods and the expected complications, and providing the best treatment measures were among the factors leading to increasing the families' awareness and reducing their anxiety [12]. According to the results of Liputo et al.'s (2019) study, the supportive role of patients' families, which is played by the medical team, consists of emotional support, inducing satisfaction in medical care provision by presenting information about the patient's status and training the patient's family, engaging the patient's family in medical care, and providing adequate information to the patient's family until making the proper decision based on the patient's status [13]. The results of Khatri Chhetri et al.'s (2018) study suggest that awareness and information regarding the treatment process is the most crucial family need [14]. Almagharbeh et al.'s study in 2019 reveals that assurance and more visits to the patient are the most common family needs [15]. Alsharari et al.'s (2017) study also puts forward assurance, information about the treatment process, proximity to the patient and visiting him/her, comfort, and support, respectively, as the needs of patients' families [16].

The current study is different from other studies in terms of admission wards, the group under study, patients' conditions and psychological needs of the patients' families [3], cultural conditions, and individual-social variables of patients' families, including gender [17].

Based on the materials mentioned above and given that the health of families of admitted patients receives less attention in providing medical care, in this research, we tried to take a step toward reducing anxiety and depression in family members of patients admitted to the ICU by establishing a proper and reassuring relationship with the patients' families and designing and implementing a need-based educational program.

Methods
The current research is a single-group quasi-experimental study with a pretest-posttest design without a control group. In this study, the research population consisted of families of patients admitted to the ICU ward of Ayatollah Mousavi and Valiasr educational hospitals in the city of Zanjan in 2020-2021. The inclusion criteria included family members with 18-60 years of age, the patient's admission to the ICU for at least 24 hours, having an immediate relationship with the patient (father, mother, sister, brother, wife, child), and individuals' consent and inclination to participate in the study. The family members were not included in the study if they were substance-dependent and took psychoactives, were

employed as medical staff, had a history of mental illness (according to self-reporting), and had an admission history for the patient's or other family members in the ICU. Discharge or death before the fifth day of admission was considered the exclusion criterion. The sample size was estimated 88 people using Cochran's formula and the values of d=0.05, Z=1.96, N=115, q=p=0.5, and the test power of 0.8.

In order to conduct the study, the researcher referred to the research setting according to the pre-determined schedule after obtaining permission from the ethics committee (IR.ZUMS.REC.1399.288) and receiving a written permission to implement the research from the relevant authorities of Zanjan University of Medical Sciences. After obtaining permission from the hospital authorities, introducing herself, and explaining the study objectives, the way of conducting the research, and the way of accessing the investigated samples, the researcher attended the ICU. Due to the coincidence of sampling with the peak of the coronavirus disease 2019 (COVID-19) epidemic, no companion was allowed to visit or attend the ICU; thus, sampling was performed in the form of a telephone interview from January 24, 2020 to April 28, 2021.

In order to start the sampling, the researcher went to the ward and proceeded to study the patients' files, and after identifying the family, wrote down the patient's cell phone number from the file. Sampling was performed using the convenient method. In fact, the method of selecting family members was merely access to the cell phone numbers.

After identifying and selecting family members of patients admitted to the ICU meeting the inclusion criteria, the research objectives and its procedure were explained, and verbal consent was obtained from them to enter the study (80% were family members of patients admitted to the ICU at Mousavi Hospital and 20% were family members of patients admitted to the ICU at Valiasr Hospital).

The educational intervention aimed at meeting the raised needs of families of patients admitted to the ICU and included topics related to the problem and disease and related issues, improving and promoting communication skills of family members with the medical team, providing solutions to reduce anxiety and depression in patients' families, the presence of families and their engagement in the implementation of therapeutic actions, and psychological support for the patients' families. The need-based education of the patients' family members was implemented based on the information obtained from the questionnaire for 3 days as telephone-supported. In order to be aware of the needs of the patients' family members after obtaining their consent to participate in the study and their phone numbers and the required coordination, the items of the Critical Care Family Needs Inventory (CCFNI) was completed by one of the intimate over-18-year-old family members of the patient (father, mother, wife, sister, brother, and children) as a telephone interview 24 hours after the patient's admission to the ICU, and the need-based educational program of these families was determined by examining the raised needs of the patients' family members. The education of patients' family members was administered as remote and one-on-one.

Based on the designed educational program, education was provided to the families of patients admitted to the ICU as follows: In the first session, education was performed in the area of assurance (education and discussion regarding the principle of honesty in carrying out the professional duties of medical personnel in the ICU, assuring patients' family members of providing honest and compassionate medical and healthcare services by the ICU personnel to the admitted patients, confidentiality of the ICU personnel, and hope) and information (training to contact the family when occurring a problem for the patient, knowing about the measures taken for the patient, assurance of providing adequate care for the patient, discharge and post-discharge education, and information about the disease treatment process) for 30 minutes; in the second session, education was performed in the area of comfort (access to the waiting room, telephone, restroom, and good food for patients' companions, the family need for comfort, and grief relief), proximity (education about how to visit the patient, how to receive regular information about the patient, how to ask and answer questions, and how to provide information to the patient's companions regarding the changes in the patient's condition by the telephone and the

plan to transfer the patient to other wards) for 30 minutes; in the third session, education was performed in the area of support (the need for guidance and talking about negative feelings, and feelings of guilt and anger) for 20 minutes. Moreover, the topics educated in the previous two educational sessions were also discussed and summarized.

In order to collect data from the demographic information form for patients admitted to the ICU and their families, the Hospital Anxiety and Depression Scale (HADS) and the adapted questionnaire of the psych-osocial needs of families of patients admitted to the ICU (the Critical Care Family Needs Inventory [CCFNI]) were used.

The demographic information form of patients' families included gender, age, family relationship with the patient (wife, daughter or son, mother, father, sister, and brother), educational level (under diploma and above diploma), marital status (single and married), employment status, and economic status completed by the patients' families as self-reporting before starting the intervention.

The HADS was used to assess anxiety and depression of family members of patients admitted to the ICU. This questionnaire contains 14 questions and two parts, 7 of which measure the anxiety factor and the other 7 measure the depression factor. In this scale, there are seven questions regarding anxiety symptoms (questions 11, 9, 7, 5, 3, 1, and 13) and seven questions regarding depression symptoms (questions 12, 10, 8, 6, 4, 2, and 14). Each part of the scale is rated on a four-point scale from zero to three (0-3). Therefore, the scores of the HADS depression and anxiety subscales range from 0 to 21. For both subscales, scores in the 0-7 range are considered normal, 8-10 mild, 11-14 moderate, and 15-21 severe. The mentioned questionnaire was completed before the intervention and 3 days after the need-based educational intervention by self-reporting method and through telephone interviews with fathers, mothers, spouses, sisters, brothers, and children, while managing the patient-related affairs, also had the decision-making power. The validity and reliability of the HADS were evaluated in Kaviani et al.'s (2019) study on 261 depressed and anxious patients. They report that this questionnaire possesses the required validity to be applied in the Iranian clinical population (Cronbach's alphas of 0.70 in the depression dimension and 0.85 in the anxiety dimension) [18]. The universal validity of the translated version of this scale in Montazeri et al.'s (2003) study to investigate 167 Iranian adults using the Pearson's correlation coefficient was obtained 0.47-0.83 for anxiety (P<0.0001) and 0.48-0.86 for depression (P<0.0001), showing the validity of this questionnaire [19]. In order to assess the reliability of the HADS in 20 samples, the Cronbach's alpha of 0.318 was obtained in the current study, showing that the questionnaire did not have a high level of reliability, though this error rate was probable considering the telephone interviews and individuals' lack of mastery and concentration on the questions.

The CCFNI was designed by Leske. The original questionnaire involves 45 needs of the families of patients admitted to the ward categorized in five ICU dimensions, including assurance, information, comfort, proximity, and support [2]. However, in the current study, some items of this questionnaire were deleted because of the coronavirus disease 2019 (COVID-19) pandemic and not allowing the family members of patients admitted to the ICU to be present in the ward. The questionnaire consisted of 29 questions in five dimensions, including assurance, information, comfort, proximity, and support. After translating and obtaining the Persian literature experts' opinions, the face validity and content validity of the questionnaire were qualitatively determined by Bandari et al. (2012). In order to determine the construct validity, the comparison of known groups (patients admitted for non-surgical and surgical reasons), and in order to specify differential validity, general wards were compared with the ICU. The reliability of the scale was determined by internal consistency analysis in patients admitted to the ICU. To do this, 150 families of patients admitted to the ICU and 150 families of patients admitted to the general ward participated in the study. The results indicated Cronbach's alpha coefficients of 0.926 for the total scale, higher than 0.7 for the three dimensions of support, comfort, and proximity, and 0.6 to 0.7 for the two dimensions of information and assurance. The findings of this research reveal the face validity, construct

validity, differential validity, and the internal consistency of the instrument [2].

In this questionnaire, the assurance dimension included 5 items concerning honesty, confidentiality, and hope (questions 43,35,17,5,1). The information dimension consisted of 6 items dealing with the family need to obtain information about the patient care and contact with the staff; this dimension revealed the family need to obtain actual information about their critically ill patient (questions 19, 16, 15, 13, 4, 3). The comfort dimension encompasses 3 items dealing with the personal comfort of the supportive family and involving access to the waiting room, telephone, restroom, and good food, comfort, and grief relief (questions 21, 20, 6). The proximity dimension contains 3 items related to frequent visits, receiving regular information, providing information to the patient's companions regarding the changes in the patient's condition by telephone, and the plan to transfer the patient to other wards, indicating the family need for personal contact and staying with critically ill patient physically and emotionally (questions 41, 40, 39). The support dimension involved 12 items addressing the family need for supportive structures during the illness of a family member

(questions 42,34,33,30,29,27,26,25,24,18,9,7). For scoring, all items of the questionnaire were categorized and scored based on the Likert scale (not important = 1, slightly important = 2, important = 3, and very important = 4). The adjusted mean was used to assess the statistical results, and based on Table 3, the score range of the assurance dimension was 2-4, the proximity dimension was 1.7-4, the information dimension was 2-4, the comfort dimension was 1.3-4, and the support dimension was 1.2-3.6.

Considering the coincidence of sampling with the peak of the COVID-19 pandemic, the impossibility of visit and presence of the patient's companion in the ICU, and performing the sampling as a telephone interview, the research team modified the questionnaire and reduced the number of its questions from 44 items to 29 items. After a pilot sampling with 20 samples and the validity and reliability confirmation, sampling of this study was carried out.

In the current study, this questionnaire was investigated for 20 samples, and given the reported results, the Cronbach's alpha of the CCFNI was obtained equal to 0.929, which had very high reliability (Table 1).

Table 1: Determining the Educational Needs of Families of Patients Admitted to the ICU at Educational and Medical Centers in the City of Zanjan, 2020

	Assurance	Information	Comfort	Support	Proximity
N	20	20	20	20	**20**
Mean	3.32	3.16	2.29	2.15	3.28
Std. Deviation	.64	.62	.81	.71	.71
Minimum	2.0	2.2	1.3	1.2	1.7
Maximum	4.0	4.0	4.0	3.6	4.0

The collected data were then analyzed by SPSS software version 26 using descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential statistics. First, the normality of the data was examined with the Kolmogorov-Smirnov test. Because of the non-normal distribution of the data, the Wilcoxon test was used to compare the levels of anxiety and depression before and after the intervention. The significance level of less than 0.05 was considered.

Results

Most of the patients admitted to the ICU were male (51.1%), over 50 years old (54.6%), married (81.7%), and city residents (67%).

The majority of family members of the patients admitted to the ICU participating in the study are female (73.9%), in the age range of 50-60 years (42%), married (89.8%), with university education (39.8%), with the family relationship of spouse (58%). Demographic information of family members is presented in Table 2.

Table 2: The Frequency Distribution of Individual-Social Factors of Family Members of Patients Admitted to the ICU at Educational and Medical Centers in the City of Zanjan

Individual-Social Factors of Family Members		Frequency	Percentage
Gender	Male	23	26.1
	Female	65	73.9
Age	Less than 30 years old	6	6.8
	30 to 39 years old	17	19.4
	40 to 49 years old	28	31.8
	50 to 60 years old	37	42
Relationship with patient	Spouse	51	58
	Parents	12	13.6
	Children	17	19.3
	Sister/brother	8	9.1
Economic status	Poor	10	11/4
	Moderate	74	84/1
	Good	4	4.5
Marital status	Married	79	89.8
	Single	9	10.2
Educational level	Under diploma	25	28.4
	Diploma	28	31.8
	University education	35	39.8
Employment status	Housewife	60	68.2
	Self-employed	9	10.2
	Employee	11	12.5
	Retired or unemployed	8	9.1

According to the findings, the highest mean score of psych-osocial needs was related to the assurance dimension (3.24±0.5) and the lowest was related to the support dimension (2.16±0.68) (Table 3).

Table 3: The Mean and Standard Deviation of the Dimension Scores of the Critical Care Family Needs Inventory (CCFNI) in Families of Patients Admitted to the ICU at Educational and Medical Centers in the City of Zanjan

Dimensions of the CCFNI[*]	Number of Questions	Adjusted Mean Score (Standard Deviation)	Maximum- Minimum
Assurance	5	3.24 (0.5)	4-2
Proximity	3	3.22 (0.55)	1.7-4
Information	6	3.11 (0.49)	4-2
Comfort	3	2.52 (0.67)	1.3-4
Support	12	2.16 (0.68)	1.2-3.6

[*]**Critical Care Family Needs Inventory**

The findings indicated that the majority of family members of patients admitted to the ICU had moderate and severe anxiety (95.5%) before the need-based educational program, which significantly reduced after the implementation of the educational program (45.5%). The result of the Wilcoxon test revealed a statistically significant difference in the mean score of anxiety before and after the intervention in the patients' families (P < 0.0001) (Table 4).

Table 4: Leveling, mean, and Standard Deviation of Anxiety in Family Members of Patients Admitted to the ICU at Educational and Medical Centers in the City of Zanjan Before and After the Intervention

Level of Anxiety		Frequency (Percentage)	Mean (Standard Deviation)	Test Result
Before the intervention	Normal	0	14.6 (2.46)	**Wilcoxon** Z= -8.080 P<0.001
	Mild or borderline	4 (4.5)		
	Moderate and severe	84 (95.5)		
After the intervention	Normal	18 (20.5)	10.03 (2.91)	
	Mild or borderline	30 (34)		
	Moderate and severe	40 (45.5)		

According to the findings, the majority of family members of patients admitted to the ICU had moderate and severe depression (68.2%) before the need-based educational program, which significantly reduced after the implementation of the educational program (53.4%). The result of the Wilcoxon test revealed a statistically significant difference in the mean score of depression before and after the intervention in the patients' families (P <0.0001) (Table 5).

Table 5: Leveling, mean, and Standard Deviation of Depression in Family Members of Patients Admitted to the ICU at Educational and Medical Centers in the City of Zanjan Before and After the Intervention

Level of Depression		Frequency (Percentage)	Mean (Standard Deviation)	Test Result
Before the intervention	Normal	6 (6.8)	11.8 (2.94)	Wilcoxon Z= -8.135 P<0.001
	Mild or borderline	22 (25)		
	Moderate and severe	60 (68.2)		
After the intervention	Normal	47 (53.4)	7.13 (2.00)	
	Mild or borderline	33 (37.5)		
	Moderate and severe	8 (9.1)		

Discussion

The current study was conducted to determine the effect of a need-based educational program on anxiety and depression of families of patients admitted to the ICU in educational hospitals of the city of Zanjan.

Based on the results of the current research, the most significant needs of families of patients admitted to the ICU were related to the dimensions of assurance, proximity, information, comfort, and support, respectively.

According to the results of Rabie Siahkali et al.'s (2019) study, the psycho-social needs of families of patients admitted to the emergency ward were the need for communication, the need for partnership, the need for support, and the need for comfort, respectively [3], which was not consistent with the results of our study. Some of the reasons for the discrepancy between the results include the difference between the wards of patients' admission, the patients' conditions, and the psycho-social needs of the families in the ICU ward compared to the emergency ward. Since admission to the ICU often occurs without prior warning and some families are not able to adapt themselves to the situation, they often experience emotional and psychological crises caused by this issue, and the family structure may even be compromised in terms of personal, social, and professional life. Given that the conditions of the patients admitted to the ICU are critical and visiting the patients is not even possible, the psycho-social needs of families of these patients are expected to be different compared to the patients admitted to the emergency ward, who have more favorable conditions and it is possible for family members in this ward to visit their patients and be present there.

The results of Shahrokhi et al.'s (2020) study indicated that from the perspective of families of

patients admitted to the ICU, the most crucial psycho-social needs were the dimensions of assurance, access to information, support, proximity, and comfort [17], respectively, which is not consistent with the results of our study. Factors such as cultural differences, differences in the individual-social variables of the patients' families, including the different gender of the patients' families (in our study, the majority were female, while in the mentioned study, the majority were male) between the two studies seem to be among the most important reasons for the inconsistency between the results. Furthermore, the different rules between ICU wards and the different reasons for patients' admission in these wards are among other reasons for the inconsistency of the results because different conditions and reasons for patients' admission directly affect the determination of the needs of the patients' families. In Shahrokhi et al.'s study, no information was provided concerning the individual-social variables of the patients' families, except for age and gender. However, since some factors such as the educational level, the relationship with the patient, the economic status, and even the occupation of the patients' families directly affect the determination of the patients' psycho-social needs, there may be some differences in these items between Shahrokhi et al.'s study and our study.

The results of Amany Lotfy et al.'s (2017) study also showed that the families of patients admitted to the ICU reported higher mean scores of psycho-social needs in the dimensions of information, proximity, and assurance than the mean scores of support and comfort [20]. The results of Amany Lotfy et al.'s study were consistent with the results of our study regarding obtaining lower scores in the dimensions of support and comfort but not regarding ranking other dimensions of the psycho-social needs of patients' families. The inconsistency in the results of the two mentioned studies seems to be related to the fact that the patients' families were not able to identify their needs accurately at the time of admitting their patients to the ICU, if the examination was repeated 48 to 72 hours after the patients' admission, the results of both studies would be more consistent. However, given the similarity of the results concerning lower scores in the dimensions of support and comfort, it

seems that nurses in these two areas should pay special attention and also this issue shows the necessity of paying special attention by the hospital management, particularly the ICU, to the needs of the patients' families.

The results of Mitchell et al.'s (2019) study indicated the priority of psycho-social needs in the dimensions of information, proximity, assurance, support, and comfort, respectively [21], which is not consistent with the results of our study. The patients admitted to the ICU in Mitchell et al.'s study were exclusively patients with physical traumas, including head, spine, and abdomen traumas, which were different from our study in terms of the patients' type and the reason for their admission in the ICU. Although the reason for patients' admission in the ICU was not investigated in the current study, definitely, the patients admitted to the ICU in our study were not only trauma patients but also included other cases such as post-surgery care and cancer patients. In the current situation of the COVID-19 pandemic, the majority of patients admitted to the wards are most likely related to this group of patients, which due to the level lethality and also the lack of treatment outcomes, the patients' families experience more unfavorable psychological and emotional conditions, and given the facilities and conditions of the ICU, these needs will definitely change, too. Therefore, different results of the two studies are expectable.

The results of Liew et al.'s (2018) study also suggested that their important needs were the need for assurance, the need for proximity, the need for information, the need for comfort, and the need for support [22], which was consistent with the results of our study.

The findings of the study supporting the research hypothesis indicated that the need-based educational program was effective in reducing anxiety and depression of families of patients admitted to the ICU.

In line with the findings of the current research, the results of Navidian et al.'s (2016) study to assess the effect of the supportive educational intervention on the psychological reactions of family members of patients admitted to the ICU revealed a significant reduction in the levels of depression and anxiety among family members of patients during 5 days of the intervention [6]. Moreover, in Lautrette et al.'s (2007) study,

presenting educational brochures and family group discussion sessions based on the needs of families of patients admitted to the ICU led to a significant reduction in their depression and anxiety symptoms [7]. In Bolosi et al.'s (2018) study, education regarding the needs of families of patients admitted to the ICU during 48 hours after admission was also effective in reducing their anxiety and depression [8]. The results of Carson et al.'s (2016) study also indicated the effect of implementing an educational intervention according to the psycho-social needs of families of patients admitted to the ICU in significantly improving their levels of anxiety and depression [9].

However, the results of Lai et al. (2021) and Kynoch et al.'s (2019) studies were inconsistent with the results of the current study [10,11]. One of the reasons for the inconsistency of the results of these two studies with the results of the present study is the levels of anxiety and depression before the intervention among the patients' families between the two studies so that in these two studies, the samples' levels of anxiety and depression were severe in more than 85%. Similarly, in both studies, the educational intervention began based on the needs of the families after 48 hours of patients' admission, while in our study, the educational intervention started 24 hours after the patients' admission.

The results of Frivold et al.'s (2018) study assessing the effect of the needs assessment educational intervention in improving the anxiety and depression of families of patients admitted to the cardiac ICU (CICU) indicated the lack of effect of this intervention during the 72 hours after the patients' admission [23]. The inconsistency between the results of Frivold et al.'s study and our research is due to the difference in families of the invetigated patients so that in our study, the evaluated samples were the families of patients admitted to the ICU, while in Falivold et al.'s study, they were exclusively patients with cardiovascular problems. Thus, it can be said that the 3-day educational intervention of families of patients admitted to the CICU, considering their psycho-social needs, is ineffective in reducing anxiety and depression.

Given the contradictory results of the studies, conducting more studies in this regard is necessary so that by increasing research-based evidence, the factors contributing to the lack of effect of this intervention on the levels of anxiety and depression of families of patients admitted to the ICU are determined.

Some of the limitations of this study include the lack of a control group, non-random sampling, conducting the study in two educational hospitals in the city of Zanjan, the absence of the researcher in the field, collecting data only as telephone-supported and self-reporting method, and reducing the number of questions in the adjusted questionnaire.

Conclusion

The findings obtained from the current study indicated that from the families' perspective, the most important educational needs were the need for assurance, the need for proximity, the need for information, the need for comfort, and the need for support, respectively. In the present research, the process of reducing the levels of anxiety and depression in the patients' families denoted the effect of the need-based educational intervention on them. Based on the results of this study and since nurses often ignore the feelings and needs of family members of patients admitted to the ICU unintentionally, supporting the patients' families by nurses via establishing proper therapeutic communication and education based on the needs of families of patients admitted to the ICU creates hope in families and reduces their levels of anxiety and depression. Therefore, providing need-based education in families of patients admitted to the ICU by nurses is recommended. By designing and implementing a need-based educational intervention, it can be used as an intervention with features such as cost-effective, understandable for any age group and any socio-economic level, and simple to implement to reduce the levels of anxiety and depression among the families of patients admitted to the ICU.

Acknowledgments

of the Faculty of Nursing and Midwifery, the Director and Nursing Office of Valiasr and Ayatollah Mousavi Hospitals in Zanjan, and all those who involved in the research.

Conflict of interest

The authors declare no conflict of interest.

References

1.Fathani M, Afzal Aghaee M. Tadayyon Far M. Effectiveness of education based on self-care needs on quality of life of patients with Heart failure. Experimental study. JSUMS. 2015; 22(5): 893-902. [In Persian]

2. Bandari R, Rejeh N, Heravi-Karimooi M, Zayeri F, Mirmihammadkhani M, Montazeri A. Translation and validation of the critical care family needs inventory .Validation-type cognitive methodology. Journal of the Iranian Institute for Health Sciences Research. 2013;1(12). [In Persian]

3. Adineh Menbar S, Hanifi N, Rabie Siahkali S. Analysis of the Needs of Relatives of Patients in Emergency Section of Zanjan Education-Medication Centers in 2019. descriptive correlationstudy. Preventive Care in Nursing & Midwifery Journal. 2019;9(3):50-6. [In Persian]

4 .Fallahi Khoshknab M, Farzadmehr M, Hosseini MA, Khankeh HR, NoorAbadi Z. Nursing consultation on anxiety of patient's family in cardiac surgery intensive care unit. clinical trial. Journal of Research Development in Nursing and Midwifery. 2016; 12(3):1-8. [In Persian]

5.Askari H, Forozi M, Navidian A, Haghdost A. Psychological reactions of family members of patients in critical care unitsinZahedan descriptive-analytical study. J Research Health. 2013;3(1): 317-24. [In Persian]

6. Navidian A, Rezaei J, Payan H. Efficacy of supportive-educational intervention on psychological reactions of family members of intensive care unit patients. Quasi-Experimental study.Journal of Nursing Education. 2016; 5(4): 51-8. [In Persian].

7. Lautrette A, Darmon M, Megarbane B, Joly LM, Chevret S, Adrie C, et al. A communication strategy and brochure for relatives of patients dying in the ICU. New England Journal of Medicine. 2007; 356(5): 469-78.

8. Bolosi M, Peritogiannis V, Tzimas P, Margaritis A, Milios K, Rizos DV. Depressive and anxiety symptoms in relatives of intensive care unit patients and the perceived need for support. prospective, randomized, controlled trialJournal of neurosciences in rural practice. 2018;9(04):522-8.

9.Carson SS, Cox CE, Wallenstein S, Hanson LC, Danis M, Tulsky JA, et al. Effect of palliative care–led meetings for families of patients with chronic critical illness: a randomized clinical trial. Jama. 2016; 316(1): 51-62.

10. Lai VKW, Ho KM, Wong WT, Leung P, Gomersall CD, Underwood MJ, et al. Effect of preoperative education and ICU tour on patient and family satisfaction and anxiety in the intensive care unit after elective cardiac surgery: a randomised controlled trial. BMJ quality & safety. 2021;30(3):228-35.

11. Kynoch K, Chang A, Coyer F, McArdle A. Developing a model of factors that influence meeting the needs of family with a relative in ICU. International journal of nursing practice. 2019; 25(1): e12693.

12. Hsiao P-R, Redley B, Hsiao Y-C, Lin C-C, Han C-Y, Lin H-R. Family needs of critically ill patients in the emergency department. prospective cross-sectional International emergency nursing. 2017; 30: 3-8.

13. Liputo GP, Sila NA, PU ZE, Abidin Z, Revai A, Yusuf A. Stress Management in The Family of Intensive Care Patients. A Literature Review Jurnal INJEC. 2018; 3(1): 44-51.

14. Khatri Chhetri I, Thulung B. Perception of nurses on needs of family members of patient admitted to critical care units of teaching hospital, Chitwan Nepal: a cross-sectional institutional based study. Nursing Research and Practice. 2018; 2018.

15. Almagharbeh WT, Alhassan MA, Al Motlaq M, Taher RE. Family Needs of Critically Ill Patients in Central Jordan: A Family Perspective. hospitals. clinical trial study. American Journal of Biomedical Science and Research 2019; 12(16): 18-9.

16. Alsharari AF. The needs of family members of patients admitted to the intensive care unit . cross-sectional study.Patient preference and adherence. 2019; 13: 465.

17. Shahrokhi A, Ranjbaran M, Zarei S. Comparing the Perceptions of Nurses and Patients' Families About the Expectations of Patients' Families in Intensive Care Unit. descriptive-analytical study Journal of Inflammatory Disease. 2020; 24. [In Persian]

18. Kaviani H, Seyfourian H, Sharifi V, Ebrahimkhani N. Reliability and validity of anxiety and depression hospital scales (HADS): Iranian patients with anxiety and depression disorders. Tehran University Medical Journal. 2009;67(5): 379-85. [In Persian]

19. Montazeri A, Vahdaninia M, Ebrahimi M, Jarvandi S. The Hospital Anxiety and Depression Scale (HADS): translation and validation study of the Iranian version. Health and quality of life outcomes. 2003;1(1):1-5. [In Persian]

20. Abdel-Aziz AL, Ahmed S, Younis G. Family needs of critically ill patients admitted to the intensive care unit, comparison of nurses and family perception. Semi-experimental studies. Am J Nurs Sci. 2017; 6(4): 333-46.

21. Mitchell M, Dwan T, Takashima M, Beard K, Birgan S, Wetzig K, et al. The needs of families of trauma intensive care patients: a mixed methods study. Intensive and Critical Care Nursing. 2019; 50:11-20.

22. Liew S, Dharmalingam T, Ganapathy G, Muniandy R, Johnny N, Lily N. Need domains of family members of critically-ill patients: A Borneo perspective. descriptive and cross-sectional study. Borneo J Med Sci. 2018; 12(2): 27-33.

23. Frivold G, Slettebø Å, Heyland DK, Dale B. Family members' satisfaction with care and decision-making in intensive care units and post-stay follow-up needs—a cross-sectional survey study. Nursing open. 2018; 5(1): 6-14.