Psychological reactions of family members of patients in critical care units in Zahedan

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Abstract

When patients are at high risk of dying, their families experience burdens such as decision making on treatment choices and concern about the patient's condition that can cause the families' psychological symptoms. The aim of this study was to assess the main psychological reaction of the patients' family members in intensive care units. This analytical study was conducted by using Depression, Anxiety and Stress questionnaire (DASS 42) on 244 family members of patients hospitalized in intensive care units in Zahedan hospitals. The data were analyzed by descriptive statistics, statistical t-test, Kruskal-Wallis, and regression using the statistical software SPSS-16. Overall, 68%, 57.3% and 46.7 percent of the patients' family members had moderate to very severe anxiety, depression and stress, respectively. The mean score of depression, anxiety and stress in the ICU wards were significantly higher than that in CCU wards (P=0.001). The results of multivariate regression also showed that the only type of ward (ICU, CCU) can be a good predictor of psychological reactions of the family members of patients. Considering the fact that the admission of family members in hospitals, especially in the intensive care units, causes overwhelming psychological tension, the factors related to stress, anxiety and depression in the family members must be identified. To reduce the psychological reactions of family members, communication and psychological support through the use of family-centered care is necessary.

Keywords: Anxiety, Critical care, Depression, Family, Stress

Introduction

Intensive care includes all critical cares related to patient's life. More accurately, it involves care for patients with acute, life threatening diseases by the most skilled personnel and the most advanced equipment [1]. Acute illness and patient's hospitalization in the ICU (Intensive Care Units) and CCU (Critical Care Unite) affects not just the patient, but his/her family members, friends and relatives as well. When a patient is admitted to the ICU, family members will be shocked since they do not know what has happened or when their patient will be discharged. In addition, most of them may know very little about ICU and CCU [2], and often they are asked to partake in difficult and vitally important decisions in relation to their patient in ICU AND CCU. The existing statistics reveal that as many as 50% of family members of these patients do not grasp the doctors' explanations about prognosis, diagnosis, or treatment of their patient's disease [3]. These are stressful situations that may lead to confusion and chaos in the family [4]. Studies have shown that family members

could exhibit psychological reactions to these conditions such as denial, anger, despair, guilt, stress, anxiety, and depression [5,6].
Research conducted on family members of patient in ICU and CCU indicates high levels of depression, anxiety, and stress among them [3, 5, 7, 8, 9, 10].
In a study by Puchardet al. in 2001 in France on families of patients in ICU, over two thirds of family members were suffering signs and symptoms of anxiety (69%) and depression (35%) [3]. Poparigoliuset al. in 2006 reported that families under study had shown high levels of depression and anxiety (97%) and stress (81%) [8]. In an investigation by Mc Adam et al., the levels of stress (57%), anxiety (80%), and depression (70%) were reported among family members [9]. In a study in U.S. on 50 members of families with patients in ICU, 42% were affected by anxiety and 16% by depression [5]. In a study in 2010 in Australia on families of patients in ICU, it was shown that 37% had mild stress, 3% had severe stress, 34% mild depression, 3% severe depression, and 71% moderate anxiety and 17% had severe anxiety [10].
Report of a study by Siahkaliet al. in 2010 on this subject showed that anxiety level reached 71% in family members [11]. Considering all the above, examination of psychological reactions of family members of patients in ICU and CCU seems very important because a person's behavior is influenced by the family, and vice versa [12]. Also, stresses imposed on a family member influence the whole family, and disease as a stressor factor could create a crisis in the family [13]. Myron believes knowledge of psychological reactions of members of these families is especially important [14]. Kentish Barns et al. states that in a family-oriented care, considerable attention has been paid to distresses suffered by the family members over the past three decades, and family members are not just regarded as the visitors of the patient, and themselves should be recipients of interventions and special cares with the aim to reduce psychological pressures that they have to endure during hospitalization of the patient and beyond, after the patient's discharge from ICU [15]. Family-oriented care is not a new concept, and most clinical and treatment groups have been engaged in this type of care for a long time, with great success. Family-oriented care is a philosophical method that provides family members with care, with the main assumption that the patient is a small part of a larger unit, and if we mean to provide the best care, the larger unit must also be taken into consideration [16].
In relation to the integration of family-oriented care, recent advice is to assess psychological reactions, such as stress and anxiety in these families. Potential benefits of this type of care include increased satisfaction of families with treatment and reduced psychological symptoms among the members. However, before these recommendations on clinical integration of family-oriented care can be put into practice, a great deal of research is required that would show what psychological reactions are experienced by the family members of patients in ICU and CCU, and then, with effective interventions, results can be considered [17].
Considering the cultural, social, and religious structure in Iran, and lack of comprehensive studies on stress, anxiety, and depression among family members with patients in ICU, and also, the importance of the family members in providing care and support for these patients, and given that, to maintain this type of care, a healthy family is needed, therefore, this study was conducted with the aim to determine levels of stress, anxiety, and depression in members of families of patients in ICU.

Method

In this descriptive-analytical study, the statistical population consisted of immediate family members of patients admitted to the ICUs and CCUsin Zahedan city hospitals (social services hospital and university hospitals). Considering the alpha coefficient

of 0.05 and test power of 0.9, and also, with standard deviation of 0.1 (for minimum difference between depression, anxiety, and stress levels families with patients in both ward), sample size of 94 was determined. Given the likelihood of comparison of these two indicators with non-parametric equivalents, and statistical power of non-parametric tests of 90% of pooled t test in finding differences, minimum sample size for each group was calculated at 103. To ensure access to this sample size after exclusion of incomplete cases or lost data, it was decided to enlarge the sample size to a minimum of 120 for each group.

Study inclusion criteria were immediate family members of patients (parents, spouses, children, siblings) with minimum age of 18 years, and minimum literacy, with their patient in ICU or CCU for a minimum of 7 days and maximum of 28 (the highest level of psychological reactions occurs on the 6^{th} day of admission [11]). A known history of psychiatric disorder, psychotropic drug use (with or without prescription), history of hospitalization in psychiatric wards, and severe physical disorders were exclusion criteria.

Having obtained the permission of the Dean of Faculty of Nursing and Midwifery of Razi-Kerman, and teaching and treatment centers in Zahedan city, we collected samples from the end of March to early October 2010 from four hospitals across the city including Khatam-Alanbia (S), Boali, Ali-ebn-Abitaleb (A), and the social services hospitals. Immediate family members of patients in ICUs in these hospitals were included in the study (121 family members of patients in ICU and 123 in CCU). Having been familiarized with the objectives of the study and having received assurances with regards to confidentiality of information, these family members consented to take part in the study. A maximum of three persons per family were included, and in cases of presence of more than three family members, priority was with spouses, parents, children, and siblings.

The data collection tool was a questionnaire in two parts; patient and family demographic details, and the 42-item DASS questionnaire (Depression, Anxiety, Stress, and Scale 42). After assessing inclusion and exclusion criteria, and extracting demographic details from the records, patient's questionnaire was completed. Then, family members from ICU and CCU groups completed their DASS-42 questionnaires in privacy (to exclude influence of others). The criterion for assessment of depression, anxiety, and stress is a self-reporting questionnaire, designed and constructed by Levy Bend in 1995 [18]. This questionnaire has been used in many studies before [19, 20, and 21], and considers three psychological conditions of depression, anxiety, and stress with 14 items for each of these conditions, and is completed by the patient's family members. There are four options for each item from; never (0), rarely (to some extent) (1), often (to a large extent) (2), and always (3), and the total score indicates depression, anxiety, and stress levels imposed on families from normal, mild, moderate, severe and very severe as shown in the Table 1.

Table 1*- Scores of depression, anxiety and stress, according to the DASS-42 questionnaire*

	Normal	Mild	Moderate	Severe	Very severe
Depression	0-9	10-13	14-20	21-27	28-42
Anxiety	0-7	8-9	10-14	15-19	20-42
Stress	0-14	15-18	19-25	26-33	34-42

The psychometric properties of this questionnaire were assessed by Levy Bend and internal consistency coefficient (Cronbach's alpha) for the three sub-scales of depression, anxiety, and stress were found 0.91, 0.81, and 0.89, respectively [18]. The psychometric properties of this questionnaire in Iran were assessed and confirmed by Afzaliet al. 2007. They reported correlation between depression scales in this questionnaire with Beck's depression inventory was 0.849, with Zong anxiety test 0.0831, and with student stress test 0.757. The

alpha coefficient reported for depression scale was 0.94, for anxiety 0.85, and for stress 0.87 [20]. The internal consistency coefficients were calculated for depression and anxiety 0.9 and for stress 0.89. Data were analyzed using SPSS-16 software with descriptive statistics, t test, Kruskal-Wallace and regression analysis.

Results

At the time of data collection, in terms of relationship with patient, 54.9% were patients' children (with highest frequency), and brothers (18.4%), spouse (8.2%), father (7.8%), sister (5.7%), and mother (4.9%). Of the family members 59.3% were female, and 66.7% were married. In terms of education, 16% were at elementary school level, 21.7% were high school dropout, 33.6% had high school diplomas, 10.2% had associate diploma, and 18.4 had university degrees and higher. The age ranged from 18 to 75 years with mean±SD of 34.19±12.3. Majority of patients with family members participating in this study were male (63.5%), of whom 84.4% were married. Patients' age ranged from 1 to 90 years with mean 49.29 and standard deviation ±21.43.

After classification of scores according to the test guidelines, results showed that, of the family members, 68% had anxiety, 57.3% had depression, and 46.7% had stress and 28.7%, 25.8%, and 39.3% were without symptoms of depression, anxiety, and stress, respectively (Table 2).

Table 2- *Depression, anxiety, and stress levels in family members of patients in CCU and ICU*

Ward		ICU		CCU		Total		χ^2
Variables		Number	Percent	Number	Percent	Number	Percent	
Depression	No depression	21	17.4	49	39.8	70	28.7	P=0.001
	Mild	16	13.2	18	14.6	34	13.9	
	Moderate	26	21.5	28	22.8	54	22.1	
	Severe	32	26.4	21	17.1	53	21.7	
	Very severe	26	21.5	7	5.1	33	13.5	
Anxiety	No anxiety	22	18.2	41	33.3	63	25.8	P=0.001
	Mild	3	2.5	12	9.8	15	6.1	
	Moderate	18	14.9	23	18.7	41	16.8	
	Severe	23	19	21	17.1	44	18	
	Very severe	55	45.5	26	21.1	81	33.2	
Stress	No stress	36	29.8	60	48.8	96	39.3	P=0.001
	Mild	16	13.2	18	14.6	34	13.9	
	Moderate	25	20.7	36	29.3	61	25	
	Severe	32	26.4	8	2.15	40	16.4	
	Very severe	12	9.9	1	0.8	13	5.3	
Total		121	100	123	100	244	100	

Also, when comparing ICU and CCU wards, mean and standard deviation of depression, anxiety and stress among family members were, in ICU, 19.82±10.4, 18.73±10.5, and 21.23±9.7, respectively more than those in CCU with 13.43±8.4, 12.67±8, and 14.65±8.3, respectively (Table3).

To determine depression, anxiety and stress predictor parameters, each family member and patients' characteristics as the independent variable (predictor) and each psychological condition as dependent variable were analyzed by two-variable regression test (only cases with $P \leq 0.05$). The results are presented in Table 4. Accordingly, in case of depression, the three variables of ward, patient's age, and number of days in the ward were depression score predictors, and in multivariate regression only the ward variable was a predictor, and mean score of depression

Table 3- *Comparison between mean scores of psychological reactions (depression, anxiety, and stress) in family members of patients in CCU and ICU in Zahedan city hospitals in 2011.*

	ICU		CCU		T test	Total	
Psychological reaction	Mean	SD	Mean	SD		Mean	SD
Depression	19.82	10.4	13.43	8.4	P=0.001	16.60	9.9
Anxiety	18.73	10.5	12.67	8.0	P=0.001	15.68	9.8
Stress	21.23	9.7	14.65	8.3	P=0.001	17.91	9.58

for family members of patients in CCU was 5.49 marks less than those with patients in ICU. In terms of anxiety, according to two-variable regression test, patient's age and family member gender were the predicting factors, and in multivariate regression test, ward and patient's gender were predicting factors. Mean anxiety score of family members with patients in CCU was 6.02 marks less than those with patients in ICU, and mean anxiety score among women was 3.33 higher than that in men. In terms of stress, in the two-variable regression test, four variables of ward, patient's age, number of days in the ward, and marital status of patient were significant, and mean score of stress in family members of patients in CCU was 5.85 marks less than those with patients in ICU.

Table 4- *Regression analysis of predictor parameters of depression, anxiety, and stress in family members of patients in CCU and ICU.*

		Raw		Modified	
		Regression coefficient	P-value	Regression coefficient	P-value
Depression	Ward (CCU:ICU)	-6.38	0.001	-5.49	0.001
	Patient's age (year)	-0.09	0.002	-0.055	0.06
	Hospitalization days	0.18	0.01	0.11	0.1
Anxiety	Ward (CCU:ICU)	-6.05	0.001	-6.02	0.001
	Patient's age (year)	-0.09	0.002	-0.05	0.11
	Family member gender (female:male)	2.68	0.04	3.33	0.008
Stress	Ward (CCU:ICU)	-6.58	0.001	5.85	0.001
	Patient's age (year)	-0.08	0.005	-0.04	0.25
	Hospitalization days	0.17	0.013	0.01	0.13
	Patient's marital status (married:single)	3.37	0.046	0.51	0.78

Discussion

Attention to psychological reactions of family members of patients in ICU and CCU is very important because it affects the patient's psychological health as well as the quality of life of all the family members. In terms of psychological reactions of family members, the results showed that over two thirds of had severe stress, 34% had mild depression, 3% had severe depression, 71% had moderate anxiety, and 17% had severe anxiety [10]. Siahkaliet al. in 2010 reported 71.1% anxiety in the family members [11]. Cal Carniet al. in 2011 reported their results of a study in France, Greece, and U.S. that showed depression, anxiety and stress as prevalent symptoms in patients' relatives [23]. In Mc family members were affected by anxiety, depression and stress from mild to very severe. Puchard in his study in 2005 also found that two thirds of family members showed symptoms of anxiety and depression [22]. In a study in Australia in 2010 on family members of patients in ICU, results showed that 37% had mild stress, 3% Adam et al. study on family members, stress level was 57%, anxiety was 80%, and depression 70% [9], and these results are very similar to those obtained in the present study.

It seems that a collection of factors are involved in creating psychological reactions in family members of these patients. Patients admitted to these wards are in critical conditions. Most of patients in ICU are

unconscious and connected to respiratory ventilators or vital signs monitor, and all these connections together with high rates of mortality in these units could cause increased psychological reactions in the families. Also, due to the structure and philosophy of these wards, the presence of family members is strictly prohibited, and visits are highly restricted. Currently, these restrictions are imposed in nearly all teaching hospitals in Iran, and lack of information about the patient's condition in these wards could lead to increased levels of depression, anxiety and stress among family members. In addition, most ICU nurses do not take the effect of connection with family members seriously or are unaware of its importance and spend the least amount of time with families, talking as few as two or three sentences [13] with them, which may further provoke stress and anxiety in family members.

Comparison of psychological reactions between families with patients in ICU and CCU in all three cases showed a significant difference in the two groups, and in all three reactions, percentage of "lack of psychological reactions" or "mild and moderate levels" in ICU was less than that in CCU, but severe and very severe levels of these reactions were higher in ICU compared to CCU. Clearly, patients in ICU are in a more critical state than those in CCU, and families tolerate these psychological pressures proportionately. In 2009, Davidson wrote about ICU: families of these patients witness life threatening crisis that disrupts normal life functions [24] and their response to these crises is displayed in the form of dissatisfaction, anxiety, depression, stress and fear [25, 26, and 27]. Azolai (2005) believes admission of a family member to ICU can cause huge stress and distress [28]. Results showed that gender is also a predicting factor in the incidence of anxiety, and anxiety level in female members was higher than in male members. Davidson (2009) reported that anxiety level in females was more than that in males in his study [25]. Given that females are more emotional and normally have higher levels of stress and anxiety compared to men, in majority of cases, the resulting stress from crisis affects the female rather than the male, and elevates their anxiety levels as well. Considering the results obtained, it is highly likely for the healthcare system to attend the patient, while family members may equally be in need of care. Considering the importance of implementation of family-oriented (center) care, from the moment the patient is admitted to the ICU, a care plan should be in place that would care for the family as well as the patient.

There were some limitations in conducting this study.

a. Lack of family members' interest to participate in the study, and special attention had to be paid to the families of patients in ICU and CCU to ensure their optimum mental, physical and psychological readiness at the time of data collection, and to evoke their interest to partake.

b. The levels of stress and anxiety in some family members may have already been too high, despite the attempts made to eliminate such cases from the study at the time of collection of data. This could not have been controlled.

c. Since questions such as history of psychiatric disorders, serious physical illness, use of psychotropic drugs and addiction were answered in a self-report format, for some reasons, some participants may have been economical with the truth, and again this could not have been controlled. Note should also be taken that assessment of the psychological reactions of family members of patients in ICU requires research in other health centers across the country as well.

Conclusion

It can be concluded that admission of a family member to ICU and CCU causes depression, anxiety, and stress among other family members. Given the results obtained, it appears that most of the attention of health care system is directed towards the patient at

the expense of neglecting the family members need for care. Thus, a program of care should be planned to include family members as well as the patient from the moment a patient is admitted to ICU and CCU. It seems that nurses working in ICU and CCU could play an important role in educating families in relation to these wards, and also by providing psychological support for these families and lower levels of these psychological reactions. This may be possible with utilization of family-oriented (center) care.

Contributions

Study design: H A, M AF
Data collection and analysis: AA H, A N
Manuscript preparation: AA H

Conflict of interest

"The authors declare that they have no competing interests."

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