

Depression, Posttraumatic Stress and Correlates Among the Relatives of the Patients in the Intensive Care Unit

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ABSTRACT:

Depression, posttraumatic stress and correlates among the relatives of the patients in the intensive care unit

Objective: In this study, it was aimed to determine depression, anxiety, posttraumatic stress, and related factors among relatives of patients admitted to the intensive care unit.

Methods: A total of 67 patient relatives, 31 (46.3%) male and 36 (53.7%) female were included in the study. Acute Physiologic and Chronic Health Evaluation II (APACHE II) scores were calculated in order to determine patients' disease severity. Impact of Event Scale Revised (IES-R) was used to assess the severity of posttraumatic stress and Hospital Anxiety and Depression Scale (HADS) was used to determine the level of anxiety and depression.

Results: The mean age of the patients was 65.7±16.1 years ranging from 18 to 90. The number of males among these were 31 (46.3%) and females were 36 (53.7%). The mean IES-R score for all of the patients' relatives was 36.6±17. The mean score for females was 46±15.7 and the mean score for males was 36.3± 6.8. The difference between the genders was found statistically significant (p<0.05). The ratio of individuals with high risk was 64.2% (n=43) with 59.1% (n=26) for males and 73.9% (n=17). The difference between the genders was not statistically significant (p>0.05). The mean HADS depression score for all the patients' relatives was 10.4±4.7; the mean score for females was 12.6±4.1 and the mean score for males was 9.2±4.7 (p<0.05). The rate of individuals with a high risk for depression was calculated as 50.7% (n=34) among all, 40.9% (n=18) for males and 69.6% (n=16) for females (p<0.05). The average HADS anxiety score was 10.5±4.7; 13±4.5 for females and 9.2±4.3 (p<0.05). The rate of individuals with a high risk for anxiety was calculated as 41.8% (n=28) among all, 29.3% (n=13) for males and 65.2% (n=15) for females (p<0.05).

Conclusion: High severity of posttraumatic stress, depression, and anxiety levels was observed in individuals included in this study. It seems that evaluation of relatives of patients admitted to intensive care unit in terms of depression, anxiety, and posttraumatic stress is an important issue.

Keywords: Depression, posttraumatic stress, anxiety, intensive care

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INTRODUCTION

Intensive care units (ICU) are services in which patients, who require intense and careful medical follow-up, whose conditions may change momentarily and who carry a high risk of mortality, getting inpatient treatment and care. As well as the patient, getting inpatient treatment in the ICU may affect the patient's family members and relatives negatively (1). A family member's hospital stay may trigger highly stressful problems such as degradation of family

integrity (2,3), change of roles in the family, disturbance of routine family life (3), fear of losing the loved, and distrust (4). Having no information about the prognosis, not being sure about the patient whether getting the most appropriate treatment or not, and not clearly understanding what is exactly being done to the patient, are factors which may increase the stress on the patient's relatives (5). On the other hand, it may sometimes be necessary for the relative to take responsibility to undertake being a legal guardian for the patient and/ or to give consent for the treatment to

be applied (6). Family members may not have the opportunity to get support from someone else when somebody from the family is admitted to the ICU. Nevertheless, when the family members face difficulties while trying to help the patients, the patients may be affected from this resulting in a difficulty to adapt themselves to their illness physically and psychologically. All of these factors may deteriorate the psychological and physical health of the patients' relatives.

Family-centered care concept was created to help satisfy the physical and emotional requirements of the patients' relatives (7). One of the aims of this concept is to reduce the intensity of stress that the patients' relatives face due to this traumatic experience. Although there have been studies in the literature regarding psychological needs of the patients in the ICU, they are quite rare. Previous studies have shown that, there have been signs of anxiety, depression, and posttraumatic stress disorder at a high rate in relatives of the patients in the ICU (1,8).

In addition to the work of professional medical staff, support from the patients' relatives is also important in conduction of medical services for the patients in the ICU. Therefore, regarding integrative medical management, satisfaction of the requirements of the patients' relatives is essential for the patients' health. In literature, it has been reported that, knowing and supplying the needs of the patient's family members and relatives improved the patient's healing process. A study showed that, among the individuals showing signs of Posttraumatic Stress Disorder (PTSD) whose relative was in the ICU, only 25% of them had a psychological support (9,10). Therefore, it can be understood that knowing and supplying the psychological requirements of the relatives of the ICU patients is still an important issue. In this study, we aimed to determine depression, anxiety, posttraumatic stress and related factors among relatives of patients admitted to the intensive care unit.

METHOD

Participants

The sample of this study included the first degree relatives of the patients staying in the ICU of a teaching and research hospital. Mother, father, spouse, siblings and children were meant by first degree relatives. Information

about the study was given to the patients' relatives on the second day of the patients' admission to hospital and their permission to be included was requested. Patients' relatives who accepted to be included in the study were evaluated by inclusion and exclusion criteria and the eligible ones were included in the study. In conditions where there was more than one volunteer, an individual with the name former in alphabetical order was chosen. Inclusion criteria were being more than 18 years old and being literate for filling in the survey forms. Exclusion criteria were having a first degree relative who stayed at the ICU before, former alcohol use, having a history of psychiatric disorder, still using or having used before an antidepressant and having a chronic medical illness. Approval from the Ethical Committee of Kocaeli University and informed consent from all of the patients were obtained.

Instruments

Acute physiologic and chronic health status score (APACHE II): APACHE II was determined according to the evaluation of the patients on the first day of their admission to intensive care unit. APACHE II values were obtained by the sum of acute physiology score, age score, and chronic disease score (11). Acute physiology score was obtained by scoring the levels of body temperature, mean arterial pressure, pulse, alveoloarterial oxygen gradient (A-a PO₂) (if FIO₂ is higher than 50%) or partial arterial oxygen pressure (PaO₂) (if FIO₂ is lower than 50%), arterial pH, serum Na⁺ and K⁺ levels, serum creatinine level, hematocrit and blood leucocyte level, and Glasgow Coma Score (GCS).

Impact Event Scale-Revised (IES-R): IES-R was created by Horowitz (1979) and has two dimensions such as re-experiencing and avoidance which assess the severity of PTSD (12). Weiss and Marmar (1997) revised the original scale including the dimension of hyperarousal (13). IES-R consists of a total of 22 items. Subscales of both avoidance and re-experiencing include 8 items each, while over-stimulation subscale includes 6 items. Each symptom in the scale is marked with a likert type score of 1 to 5 ranging between "none" and "extremely" regarding its frequency in the final week. The lowest and highest possible points to obtain from the scale vary from 0 to 88. IES-R was adapted to Turkish by Çorapçioğlu (14). IES-R

has a high level of internal consistency and its Cronbach alpha value is 0.94. Horowitz suggest that a score higher than 19 on the IES demonstrates a level of PTSD-related symptoms that are a cause for concern (15). However, we accepted individuals with a score higher than 30 on the IES-R in high risk group for PTSD, since the cut-off level for this score was decided as 30 in a similar previous study (16).

Hospital Anxiety-Depression Scale (HADS): HADS was developed by Zigmond and Snaith (17). Validity and reliability study of Turkish language was performed by Aydemir (18). The scale is used to find out the risk and measure the level of risk and its change of severity for anxiety and depression in a patient. The scale is applied to patients with physical diseases who were admitted to primary health care services. The scale is consisted of 14 questions. Seven of these (odd numbers) measure anxiety and the rest (even numbers) measure depression. The cut-off score was determined as 10 for both subscales; therefore the ones who had higher scores were evaluated as high risk individuals for anxiety and depression.

Procedure

Following evaluation of inclusion and exclusion criteria for this study, relatives of 182 patients were reduced to 74 and 67 of them accepted to be included in the study. After obtaining informed consent, these relatives were informed about the patient and were requested to fill in the survey forms used in this study on the second day of the patients' admission to intensive care unit.

Statistical Analysis

The statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) Version 13.0 for Windows. For comparison of definitive data (percentages, averages) and averages between the groups Student's t-test was used for variables which displayed normal distribution and Mann-Whitney U-test was used for variables which did not. For calculation of correlation coefficients, Pearson's correlation test was used for variables which displayed normal distribution and Spearman's correlation test was used for variables which did not. Statistical significance was accepted as $p < 0.05$.

RESULTS

A total of 67 patient relatives were included in the study. The mean age of the patients was 65.7 ± 16.1 years ranging from 18 to 90. The number of males among these were 31 (46.3%) and females were 36 (57.3%). The mean age of the patients' relatives was 47.5 ± 14.6 years ranging from 18 to 78. The number of males among these were 44 (65.7%).

Severity of Signs of Posttraumatic Stress

The mean IES-R score for all of the patients' relatives was 36.6 ± 17 points ranging from 10 to 76. The mean score for females was 46 ± 15.7 points ranging from 16 to 70 and the mean score for males was 36.3 ± 16.8 ranging from 10 to 76. The difference between the genders were found statistically significant (Mann-Whitney U:334; $p < 0.05$). Using Spearman's correlation analysis, a statistically significant correlation was found between IES-R and APACHEII scores (Rho: 333; $p < 0.01$). With Spearman's correlation analysis, no statistically significant correlations were found between the ages of patients, patients' relatives, and IES-R scores ($p > 0.05$).

Evaluation of Risk for Posttraumatic Stress

The ratio of individuals with high risk was 64.2% ($n=43$) with 59.1% ($n=26$) for males and 73.9% ($n=17$) for females if IES-R scores over 30 were accepted as high risk. The difference between the genders was not statistically significant ($\chi^2: 1.443$ df:1 $p > 0.05$). No correlations were found between the patients' gender and the risk for posttraumatic stress ($\chi^2: 0.003$ df:1 $p > 0.05$). There was no significant difference between the groups with Student's t-test where groups with high and low risk of PTSD were compared regarding the patients' and their relatives' ages, and APACHE II scores ($p > 0.05$).

Severity of Signs of Depression

The mean HAD depression score for all the patients' relatives was 10.4 ± 4.7 ranging from 1 to 21; the mean score for females was 12.6 ± 4.1 ranging from 6 to 21 and the mean score for males was 9.2 ± 4.7 ranging from 1 to 21. The difference between the genders was found statistically significant ($p < 0.05$). Using Pearson's correlation analysis, a

Table 1: The correlations between the measurement tools for psychopathology

	IES-R Mean Score	HAD-Anxiety	HAD-Depression
Apache II	0.31**	0.16	0.25*
IES-R Mean Score		0.70**	0.64**
HAD-Anxiety			0.73

*p<0.05 (two tailed), **p<0.001 (two-tailed), IES-R: Impact Event Scale- Revised, HAD: Hospital anxiety-depression scale

statistically significant correlation was found between HAD depression and APACHE II scores ($r=0.257$; $p<0.05$). There were no statistically significant differences between the patients' and their relatives' ages and HAD depression scores with Pearson's correlation analysis ($p>0.05$).

Evaluation of Risk of Depression

The rate of individuals with a high risk for depression was calculated as 50.7% ($n=34$) among all, 40.9% ($n=18$) for males and 69.6% ($n=16$) for females if HAD depression scores over 10 were accepted as high risk. The difference between the genders was statistically significant ($\chi^2:4.962$; $df:1$; $p<0.05$). No significant correlations were found between the patients' gender and the risk of depression ($\chi^2: 0,128$ $df:1$ $p>0.05$). When the groups of high and low risk of depression were compared regarding patients' ages, patient relatives' ages and APACHE II scores, the average APACHE II score was significantly higher in the group of patients with a high risk of depression (24.8 ± 9.5 for high risk and 18.9 ± 10 for low risk; $p<0.05$). There were no significant differences between the high and low risk groups regarding the ages of patients and patient relatives.

Severity of signs of Anxiety

The average HADS anxiety score was 10.5 ± 4.7 ranging from 2 to 21 among all, 13.0 ± 4.5 ranging from 5 to 21 for females and 9.2 ± 4.3 ranging from 2 to 21 for males. The difference between the genders was statistically significant ($p<0.05$). Using Pearson's correlation analysis, no statistically significant correlation was found between APACHE II scores, patients' and patient relatives' ages and HADS anxiety scores ($p>0.05$).

Evaluation of Risk of Anxiety

The rate of individuals with a high risk for depression was calculated as 41.8% ($n=28$) among all, 29.3% ($n=13$) for

males and 65.2% ($n=15$) for females if HADS anxiety scores over 10 were accepted as high risk. The difference between the genders was statistically significant ($\chi^2: 7.901$; $df:1$; $p<0.01$). No significant correlation between the patients' gender and the risk of anxiety was found ($\chi^2: 0$ $df:1$ $p>0.05$). When the groups of high and low risk of anxiety were compared regarding patients' ages, patient relatives' ages and APACHE II scores, there were no statistically significant differences between the groups. The correlations between the measurement tools for psychopathology were evaluated and the results were shown in Table 1.

DISCUSSION

The levels of posttraumatic stress, anxiety, and depression among relatives of patients who were admitted to the intensive care unit was aimed to be determined in this study

Posttraumatic stress

There are a few studies in literature which sought for signs of posttraumatic stress among relatives of patients who were admitted to intensive care unit. In a study by Azoulay 284 patient relatives from 21 intensive care units were evaluated with IES (16). They found the number of medium and high risk individuals for PTSD as 94 (33.1%) if they accepted 19 as the cutoff value for IES. The rates of posttraumatic stress were higher in individuals who found the information given insufficient (48.4%), who shared in decision making (47.8%), whose patients died (50%), whose relatives died after end-of-life decisions (60%) and who shared in end of-life decisions (81.8%). Furthermore, accompanying high anxiety and depression was shown in individuals with severe posttraumatic stress reactions. Likewise, the ratio of individuals with a high risk for PTSD was high for both males and females in our study. Nonetheless, the difference between genders were not statistically significant; interestingly, females had

statistically significantly higher scores regarding the severity of symptoms with IES-R. The difference between the categorical and dimensional evaluations were thought to be related to the number of samples and the cut-off value chosen. Epidemiologic studies had shown a four times higher risk in women than man for development of PTSD following experiencing a traumatic event. Likewise, a higher rate of developing PTSD following the loss of a relative had been also shown in women. This was also similar in our study that women had a higher posttraumatic stress response than men. In our study, a statistically significant correlation was found between the severity of signs for PTSD and the severity of disease evaluated with APACHE II scoring. This result may be interpreted as the patient having a worse clinical condition or the patient's relative perceiving the threat of losing the beloved much more. Similar to the study performed by Azoulay, we found a statistically significant relationship between posttraumatic stress scores and anxiety and depression scores (16).

Depression and Anxiety

Similar to PTSD, studies about prevalence of depression and anxiety among the relatives of patients in the intensive care units had reported high rates. In a study in which the relatives of 39 patients staying in the intensive care unit were evaluated with anxiety and depression scale, the ratio of possible case (HADS anxiety score was defined as 8-10) was found 28.2% for anxiety and the ratio of probable case

(HADS anxiety score was defined as higher than 10) was found 43.6% (5). Likewise, the ratio of possible case (HADS depression score was defined as 8-10) was found 35.9% for depression and the ratio of probable case (HADS depression score was defined as higher than 10) was found 17.9% for depression.

In another study with a big sample size, 920 patients had been evaluated and the prevalence of anxiety and depression had been found 69.1% and 35.4% respectively. Higher rates of depression and anxiety had been shown in spouses and females (1). Likewise, high rates of anxiety and depression were found in our study. Consistent with the literature, women were found to be under greater risk of both anxiety and depression than men. Our study being cross-sectional, not including follow-up, having a relatively smaller sample size, the samples including only volunteers and the lack of using diagnostic measurement devices were the limitations of our study.

In this study, it was aimed to determine the posttraumatic stress, anxiety and depression rates among relatives of patients admitted to the intensive care unit. The results revealed high incidences of signs for posttraumatic stress, anxiety, and depression among the individuals included. Female gender was detected to be a risk factor for all the three clinical situations, where APACHE II scores only showed the risk for posttraumatic stress and depression. It seems that evaluation of relatives of patients admitted to the intensive care unit in terms of depression, anxiety and posttraumatic stress is an important issue.

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