

## ORIGINAL RESEARCH



# Should we screen patients' relatives for psychological status, signs and symptoms in the emergency department? A cross-sectional survey using the Symptom Check List (SCL-90)

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**Abstract**

**Objectives:** The objectives were to investigate psychological symptoms in patients' relatives (PR), coming into the ED with their patient and to evaluate the relationship between sociodemographic characteristics and psychological symptom scores.

**Methods:** PR in the ED of Cerrahpasa Faculty of Medicine aged 18 years and older were included into the study. Symptom Check List- Revised (SCL-90-R) was administered to 120 PR and sociodemographic characteristics of all were recorded.

**Results:** The majority of the PR were female (n = 66, 55%), graduate of high school (n = 46, 38.3%) and self-employed (n = 22, 18.3%). The highest mean score on SCL-90-R was found on obsessive-compulsive disorder and the lowest scores were found on phobic anxiety. The mean score was higher than 1.0 on obsessive-compulsive disorder, somatization, interpersonal sensitivity, depression and paranoid ideation. There was no correlation between education level, duration of hospitalization and SCL-90 scores. Mean general, somatization, obsessive-compulsive and depression scores of females were found to be significantly higher than of males.

**Conclusion:** High scores in psychological symptoms were observed in PR in the ED. Therefore, besides assessment of the psychological status of patients; it is recommended that PR should be evaluated carefully in this regard and given necessary psychosocial support in the emergency setting.

**Keywords**

Patients' relatives; Psychological symptoms; Symptom Check List; SCL-90; Emergency department

## 1. Introduction

The delivery of emergency health services is primarily focused on providing the best possible care to patients. As a result, emergency health services may overlook or neglect the needs and preferences of patients' relatives (PRs) for a variety of reasons including the prioritization of life-threatening situations, complex cooperation and communication between health care professionals, and the overcrowdedness of emergency departments (EDs) [1–3]. However, PRs are integral components of patient's treatment plan in the ED because they can improve patient acceptance of treatment, which ultimately may improve patient outcomes [4, 5].

Since emergency referrals primarily occur after an unexpected injury or accident, PRs are emotionally and psychologically unprepared, and experience uncertainty regarding the health of their loved-one, both of which may contribute to intense physical and psychological distress. These factors may impair PRs ability to cope with the intensity of emergency

situations. If health care professionals do not identify and address the needs and preferences of PRs in the ED, then a number of adverse cognitive outcomes may result such as anxiety, depression, confusion, irritability, fear, anger, and even violence [4–8]. Furthermore, these cognitive outcomes may reduce the clarity or comprehensiveness of communication between PRs and health care providers, which may hinder the effective provision of emergency health services [5].

Health care providers must increase their awareness of the needs and preferences of PRs by identifying their psychological symptoms during an ED visit. Higher awareness of psychological symptoms of an ED visit may lead to better support by health care providers, which may improve communication and the quality of care provided to patients. However, previous empirical research has primarily evaluated the psychological status of PRs in the context of cancer care. There is a need for research on the psychological symptoms of PRs in during the provision of emergency health services. This study identifies

the prevalence of psychological symptoms in PRs in the ED using the Symptom Checklist (SCL-90) and evaluates the relationship between sociodemographic characteristics (age, biological sex, and education) and psychological symptom scores.

## 2. Material and methods

This study was a cross-sectional survey of psychological symptoms in 120 relatives of patients older than 18 years of age who were admitted to the ED of Cerrahpasa Faculty of Medicine between May 7 and 14, 2017.

**Inclusion/exclusion criteria:** All consecutive patients' next of kin who accompanied the patient to the ED were asked to participate in the study. Those with communicative problems and those explicitly rejected participation were excluded from the study. Likewise, PRs with resuscitative problems, or those who required emergency health care themselves were also excluded from this study.

**Procedures:** PRs were asked to participate in the study immediately after the patient who they accompanied were evaluated by the responsible physician. After providing consent, data regarding the age, biological sex, educational status, and occupation of the PR were collected using a structured survey interview conducted in a private location away from where patient care was provided. Furthermore, the Symptom Check List- Revised (SCL-90-R) questionnaire was also administered to measure the psychological status of PRs.

**TABLE 1. Sociodemographic characteristics of patients' relatives.**

	N	%
Sex		
Male	54	45.0
Female	66	55.0
Education status		
Primary	11	9.2
Secondary	11	9.2
High school	46	38.3
Licence	43	35.8
Doctorate	9	7.5
Profession		
Self-employed	22	18.3
Civil servant	18	15.0
Housewife	14	11.7
Retired	9	7.5
Healthcare (physician/nurse)	4	3.3
Student	3	2.5
Others	50	41.7

### 2.1 Symptom Check List (SCL-90) test

SCL-90 measures the psychological status of apparently normal people to determine the presence of a variety of psychological symptoms [10]. This questionnaire is useful because it is succinct and clear about what it is measuring, useful for conducting numerical comparisons of psychological variables, this questionnaire presents results that can be easily conveyed using graphical and statistical methods, and the questionnaire

provides findings that are applicable to a wide range of people [9]. The questionnaire detects psychological status in apparently normal people, including the presence of psychological symptoms, for the purpose of assisting clinical evaluations and facilitating the allocation of DSM-V diagnostic groups [10]. Derogatis *et al.* [11] launched SCL-90 in 1974, and it was revised in 1977 by Derogatis and Cleary [12]. Validity and reliability studies in our country were performed by Kılıç *et al.* [9] and Dağ *et al.* [13] who reported that the questionnaire was accurate and suitable for use in the Turkish population.

The questionnaire is a self-report instrument that consists of 90 items answered in a five-point Likert scale: "None" is scored as 0, "Very low" 1, "Moderate" 2, "High" 3 and "Advanced" 4. SCL-90 measures one general and nine subtests (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid thought and psychosis). When the total score determined for each subtest is divided by the number of items in that subtest, a score is obtained for that dimension. The General Symptom Index (GSI) identifies symptom distribution by dividing the scores of all items by the total number of questions [10]. Interpretations of the scores for GSI and subtests are as follows: there is a psychological problem if the score is greater than 1.0; there is a "moderate" psychological problem between 0.5 and 1; and the problem is considered to be "absent" if the score is less than 0.5.

Ethics approval for this study was received from the Institutional Review Board of Istanbul University Cerrahpaşa Faculty of Medicine on 02.05.2017 with the registration number 83045809-604.01.02.

### 2.2 Statistical analysis

Statistical evaluations of the data were performed using SPSS (Statistical Package for the Social Sciences) version 15.0. Continuous variables were expressed as mean  $\pm$  standard deviation, and categorical variables were expressed as frequencies and percentages. The Pearson's correlation test and Mann-Whitney U test were used to identify correlations between comparison groups. The results were significant if  $P < 0.05$  measured at the 95% confidence interval.

## 3. Results

A total of 120 PRs were enrolled in this study; 66 (55%) were female, between 18 and 74 years of age and a mean age ( $\pm$  SD) of 41.07 ( $\pm$  9.42). The majority ( $n = 98$ ; 82%) of participants had at least a high school education (Table 1). No PRs had known psychiatric diagnoses at the time of enrolment. A great proportion of PRs ( $n = 50$ ; 42%) were reluctant to respond to questions pertaining to their profession type, who were then classified in the 'others' category. Of the participants that identified their profession type, the majority were self-employed ( $n = 22$ ; 18%) and civil servants ( $n = 18$ ; 15%).

The general and subtest scores of the SCL-90 are summarized in Table 2. The highest mean score were obtained for the obsessive-compulsive subtest ( $1.232 \pm 0.801$ ) and the lowest score was noted for phobic anxiety ( $0.495 \pm 0.638$ ). With the exception of the phobic anxiety subtest, mean scores

**TABLE 2. General and subtest scores and descriptive statistics.**

	mean	SD	median	min	max
General	0.961	0.649	0.811	0.040	3.300
Somatization	1.056	0.801	0.917	0.000	3.75
Obsessive-compulsive	1.232	0.724	1.150	0.000	3.200
Interpersonal sensitivity	1.044	0.764	0.944	0.000	3.778
Depression	1.096	0.822	0.846	0.000	3.846
Anxiety	0.892	0.724	0.700	0.000	3.700
Anger-hostility	0.936	0.861	0.667	0.000	3.833
Phobic anxiety	0.495	0.638	0.286	0.000	3.857
Paranoid thought	1.031	0.706	1.000	0.000	3.500
Psychotic	0.619	0.598	0.500	0.000	2.700
Additional items	1.062	0.724	1.000	0.000	3.286

were higher than 0.5 for all subtests. Furthermore, the following subtests had a mean score greater than 1.0: obsessive-compulsive, somatization, interpersonal sensitivity, depression, and paranoid thought.

When grouped according to the GSI classification (i.e., no problem < 0.5, moderate problem 0.5-1, and psychological problem > 1), the highest proportion of participants had obsessive-compulsive as a psychological problem (n = 65; 54%), followed by somatization (n = 51; 42.5%), paranoid thought (n = 50; 42%), and interpersonal sensitivity (n = 48; 40%). Phobic anxiety had the lowest proportion of participants who identified it as a psychological problem (n = 18; 15%) (Table 3).

There was no statistically significant correlation between age and biological sex, somatization, interpersonal sensitivity, depression, anxiety, phobic anxiety, paranoid thought, psychosis, and other scores ( $P > 0.05$ ), while a weak negative correlation was found between age and obsessive compulsive and anger-hostility subtests ( $P < 0.05$ ). There was no statistically significant correlation between educational status and any SCL-90 subtests ( $P > 0.05$ ) (Table 4).

In terms of biological sex, the general, somatization, obsessive-compulsive and depression scores of female PRs were significantly higher than male PR. Although female PRs were older than males in this study and had higher scores in interpersonal sensitivity, anxiety, anger-hostility, phobic anxiety, paranoid thought, psychosis, and additional items, no statistically significant difference was found between sexes ( $P > 0.05$ ) (Table 5).

#### 4. Discussion

There are a number of differences in patients and PRs who visit ED compared to inpatients and their PRs in other hospital units such as chronic care and rehabilitation. These differences arise because of the nature of the visit, which is often unplanned, unexpected, sudden, and life-threatening in the ED. The intensity and severity of the situation can introduce psychological and emotional issues in PRs and patients such as stress, anger, anxiety, and depression [1, 5, 7]. In providing

holistic health care to patients, health care providers must identify and consider the psychological health requirements of PRs. Since there has been limited research on the needs and expectations of PRs in Turkey, we conducted a cross-sectional survey study to identify the psychological symptoms of PRs in the ED using the SCL-90.

The majority of previous studies on the psychological status of the PRs were conducted in the context of cancer care. In these studies, depression [14, 15] and anxiety [14, 16] were the most prevalent psychological symptoms. For example, Jadoon *et al.* [17], reported that two-third of cancer patients and their PRs in their study developed anxiety. In a study where patients underwent an operation for colon cancer, spouses reported a higher level of emotional stress than the patients one year after the operation [18]. The literature has established the understating that PRs of end-stage patients also experience dramatic changes in their psychological status. For instance, one study found that between 26% and 57% of participants reported depression during the terminal period of the PRs disease progression, and this number was higher when PRs accompanied the patient in hospice care [19]. In another study of PRs of chronic pain patients, the authors found that the somatization, anxiety, depression, interpersonal sensitivity, psychosis, paranoid thought, anger and mean GSI scores of SCL-90 were higher in the PR group than the patient group [20]. In the present study, the SCL-90 was used to study the psychological status of PRs in EDs. The results of this study agree with similar studies on other populations that found high depression and anxiety scores. Apart from phobic anxiety, the mean scores for all subtests in the present study were higher than 0.5, and higher than 1.0 for obsessive-compulsive, somatization, interpersonal sensitivity, depression, and paranoid thought. The findings of this study emphasize the usefulness of SCL-90 for identifying the psychological status and symptoms of PRs. This information is key for arranging psychiatric follow-up for PRs, if necessary. By addressing and treating psychological symptoms, PRs may be able to provide higher quality support to their loved-one during emergency situations.

Caregiver burden is a worldwide issue that has been exacerbated by the following factors: age, ethnic origin, biological sex, closeness to the patient, degree of volunteering in care provision, type of care given, the impact of the care, the functional status of the patient, educational status, economic infrastructure, health status and/or the presence of pre-existing diseases, coping skills, beliefs, social support for the patient, the society's culture, and the characteristics of the condition [21, 22]. Previous research has found that PRs are primarily women [23] who are more likely than men to manage the patients' symptoms such as pain, vomiting, and fatigue [24]. In the study of Tuncay and Işıkhan, the psychological symptom scores of female PRs were found to be significantly higher than male PRs [24]. In another study, the mean state and trait anxiety scores of women who cared for patients receiving chemotherapy was found to be higher than males [25]. Furthermore, Friðriksdóttir *et al.* [26] wrote that women providing care for their loved-ones had higher anxiety levels than men. The results of the present study were similar to previous study findings on the relationship between biological sex and psychological symptoms; 55% percent of the PRs were

**TABLE 3. Severity of psychological problems in accord with general and subtest scores.**

	No problem		Moderate problem		psychological problem	
	n	%	N	%	n	%
General	31	25.8	44	36.7	45	37.5
Somatization	29	24.2	40	33.3	51	42.5
Obsessive-compulsive	16	13.3	39	32.5	65	54.2
Interpersonal sensitivity	26	21.7	46	38.3	48	40.0
Depression	33	27.5	39	32.5	48	40.0
Anxiety	39	32.5	41	34.2	40	33.3
Anger-hostility	39	32.5	45	37.5	36	30.0
Phobic anxiety	79	65.8	23	19.2	18	15.0
Paranoid thought	26	21.7	44	36.7	50	41.7
Psychotic	58	48.3	41	34.2	21	17.5
Additional items	27	22.5	38	31.7	55	45.8

**TABLE 4. The relation of age, educational status, and SCL-90 scores.**

	R	P
Age-General	-0.139	0.130
Age-Somatization	-0.043	0.645
Age-Obsessive-compulsive	-0.214	<b>0.019*</b>
Age-Interpersonal sensitivity	-0.177	0.053
Age-Depression	-0.069	0.452
Age-Anxiety	-0.111	0.229
Age-Anger-hostility	-0.221	<b>0.015*</b>
Age-Phobic anxiety	-0.127	0.167
Age-Paranoid thought	-0.079	0.388
Age-Psychotic	-0.099	0.281
Age-Additional items	-0.158	0.085
Educational status -General	-0.036	0.693
Educational status -Somatization	-0.131	0.154
Educational status -Obsessive-compulsive	0.006	0.950
Educational status -Interpersonal sensitivity	-0.112	0.222
Educational status -Depression	0.061	0.508
Educational status -Anxiety	-0.038	0.682
Educational status -Anger-hostility	0.006	0.949
Educational status -Phobic anxiety	-0.056	0.540
Educational status -Paranoid thought	0.082	0.372
Educational status -Psychotic	-0.026	0.776
Educational status -Additional items	-0.092	0.320

\* $P < 0.05$

women, and the mean somatization, obsessive-compulsive and depression scores were significantly higher in females compared to males.

In the Turkish culture - a bridge between middle-Eastern and European cultures - the care of a patient is viewed to be the responsibility of women. Compared to men, women

may spend more time with the patient, may be more self-sacrificing, and even more willing to fulfill their caregiving responsibilities. Women are also primarily housewives in Turkey, while men are preoccupied with income generation activities outside the house. Previous research has found that women can address their problems behind by staying [24, 27, 28]. Although research has found that younger caregivers have lower social support and greater difficulties in providing care compared to older caregivers [29–31], other studies have reported no statistical relationship between age, social support, and difficulties in providing care. For example, Tuncay and Işıkhan [24] used the SCL-90 in PRs of oncology patients and found no significant difference in the psychological symptom scores across different age groups. Furthermore, age and biological sex are not statistically associated with the needs of PRs of patients who are admitted to the ED because the needs of patients dominate health care provider attention, which supports a conjecture that the age and biological sex of patients are more important factors in emergency care [32]. The present study supports this conclusion; age was found to have a negative significant correlation only with obsessive compulsive and anger-hostility scores. This study found no significant relationship between age and other scores.

One study reported that the PRs' need for social support increases inversely with their level of education [32, 33]. Likewise, Tuncay and Işıkhan [24] found that PRs' psychological symptom scores decreased with increasing education. In the present study, although there was a negative correlation between educational status and the majority of subtest scores, there was no statistically significant relationship between education and subtest scores. These results indicate that the sociodemographic characteristics of PRs other than biological sex do not play a role in increasing or protecting against psychological symptoms in the emergency setting.

It is important to note that PRs prioritize the needs of patients over their own [32, 34]. At the same time, the primary purpose of emergency care is to save the patient's life, prevent disabilities and/or cure acute illnesses. Notwithstanding these considerations, PR needs and preferences should not be overlooked in emergency care, especially since psychological symptoms

**TABLE 5. Age and SCL-90 scores in relation to biological sex.**

	Male			Female			<i>P</i>
	Mean	SD	Median	Mean	SD	median	
Age	40.65	9.32	39.00	41.41	9.57	40.50	0.661
General	0.814	0.563	0.778	1.080	0.693	0.917	<b>0.025*</b>
Somatization	0.798	0.631	0.667	1.268	0.866	1.125	<b>0.002**</b>
Obsessive-compulsive	1.069	0.690	1.050	1.365	0.728	1.300	<b>0.044*</b>
Interpersonal sensitivity	0.922	0.683	0.889	1.145	0.816	1.000	0.153
Depression	0.859	0.712	0.808	1.289	0.860	1.115	<b>0.004**</b>
Anxiety	0.769	0.656	0.700	0.992	0.765	0.800	0.083
Anger-hostility	0.889	0.902	0.500	0.975	0.832	0.833	0.221
Phobic anxiety	0.381	0.497	0.286	0.589	0.724	0.286	0.228
Paranoid thought	0.972	0.679	0.833	1.078	0.729	1.000	0.350
Psychotic	0.557	0.512	0.550	0.670	0.660	0.500	0.520
Additional items	0.915	0.613	0.857	1.182	0.788	1.000	0.088

\**P* < 0.05. \*\**P* < 0.005

that persist during emergency situations makes coping and recovery processes more challenging for both PRs and patients [1, 35]. Several studies have found that addressing the unique psychological needs of PRs can improve patient recovery [33, 36, 37]. Therefore, health care providers in the ED must consider the needs and preferences of PRs as an essential part of emergency care. In an effort to provide high-quality emergency care and increase patient and PR satisfaction with health services, PR needs and preferences should be identified and strategies must be developed to best support them during intense emergency situations [4, 23, 34].

### 5. Strengths and limitations of this study

This study is one of few research studies that identifies the psychological symptoms of PRs in emergency care. However, there are a number of limitations of this study. First, this study only used the SCL-90 to assess the psychological status of PRs. While this test was preferred as a general screening approach, other instruments may be better suited to evaluate depression, anxiety, anger, and somatization such as the Hamilton Depression Rating Scale and the Beck Depression Inventory. Second, this study did not assess the association between patient demographic characteristics and PRs' psychological status. Future studies might consider identifying potential statistical relationships between the age, biological sex, educational status, or medical condition of patients and PRs' psychological status.

### 6. Conclusions

The findings of this study show that PRs of patients admitted to the ED exhibited a number of psychological symptoms. The PRs in this study reported high SCL-90 scores across a number of subtests, with the highest score found for the obsessive-

compulsive subtest. These findings emphasize the importance of assessing the psychological symptoms of PRs for the goal of providing essential psychosocial support and preventing psychiatric complications. This goal must be pursued using using robust and reliable instruments like the SCL-90.

In emergency situations, health care providers must perceive and understand the needs and preferences of PRs, and address and address any concerns through clear, consistent, and coherent information provision. Providing physical relaxation, moral support, and emotional support to PRs may prevent intense stress and worry. The findings of this study highlight the importance health care provider awareness of PRs' emotions and needs. Supporting PRs in this way may increase the quality of patient care as well as their patient and PR satisfaction with emergency health services. The findings presented in this study is a first step to identifying and devising evidence-based strategies that alleviate the psychological symptoms of PRs.

### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethics approval for this study was received from the Institutional Review Board of Istanbul University Cerrahpaşa Faculty of Medicine on 02.05.2017 with the registration number 83045809-604.01.02.

### AUTHOR CONTRIBUTIONS

Mandana Hosseinzadeh, Ozgur Karcioğlu, Ibrahim Ikizceli, designed the study. Mandana Hosseinzadeh, Ibrahim Ikizceli, and Fatih Cakmak, collected the data. Mandana Hosseinzadeh, Ibrahim Ikizceli, Fatih Cakmak, and Asghar Kolahforoush analyzed the data. Mandana Hosseinzadeh, Ozgur Karcioğlu, and Asghar Kolahforoush analyzed the results and drafted the manuscript.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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