Original Article

Comparison of social supports for geriatric patients admitted to emergency department for trauma and medical reasons

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ABSTRACT

Objectives: Developments in medical technology have increased life expectancy around the world thereby, the population of elderly patients increases. While diagnosing the elderly patients, besides factors like physiological changes, comorbidities, multiple medications and admittance to the Emergency Department (ED) for serious causes, a lack of information and experience complicate the work of emergency physicians. Elderly people are admitted to ED with medical or traumatic complaints; nevertheless, independent of the reason for admittance to the ED their presenting condition should be simultaneously assessed for comorbidities. In this study, we aimed to compare social support and stress levels in geriatric patients admitted to the ED for trauma and medical reasons.
Methods: This was a single-center, prospective, descriptive, epidemiologic trial conducted in the ED of a training and research hospital between October 1st, 2015, and April 1st, 2016. Participants consisted 197 patients who were older than 65 years and presented to ED with medical reasons or trauma whose Emergency Severity Index (ESI) was ≥3. A socio-demographic and clinical data form, and the DUKE Social Support and Stress Scale (DUSOCS) were completed for each patient.
Results: Patients presenting with medical problems had higher family support levels than patients presenting with traumatic incidents, and this difference was statistically significant ($p = 0.028$). Concurrently, when both groups' family stress and social stress levels are viewed, patients presenting with trauma had higher levels of stress, and this difference was also statistically significant ($p < 0.001$).
Conclusion: This study revealed that the patients admitted to the ED for trauma have lower social support levels than patients admitted for medical reasons. Moreover, social stress levels were also higher in these patients.

1. Introduction

Developments in medical technology have increased life expectancy around the world and have, thereby, increased the population of elderly patients. While diagnosing the elderly patients, besides factors like physiological changes, co-morbidities, multiple medications and admittance to the Emergency Department (ED) for serious causes, a lack of information and experience complicate the work of emergency physicians, who need to make quick decisions about diagnosis and treatment.[1,2] Therefore, elderly patients evaluated at the ED should be considered as a special population, considering the geriatric emergency medicine concept.[2] Elderly people are typically admitted to the ED with medical complaints such as cardiopulmonary diseases, neurological and infectious diseases and/or trauma e.g., falls and traffic accidents.[3–5] Independent of the reason for admittance to the ED, all of the patients' presenting condition should be simultaneously assessed for co-morbidities, however, elderly patients need additional attention because of their high co-morbidities compared to young population.[6,7]

Elderly people need more social support owing to their co-morbidities. Social support is described as a financial and emotional contribution provided by close relatives and friends of the individuals under stressful situations.[8] Social support is generally assessed using four categories: emotional, instrumental (financial), informational, and common support; and it can be provided by family members, close friends, colleagues, neighbors, relatives, and even healthcare personnel. Multiple studies have highlighted to the positive impact of social

support on both physical and psychological health.[9,10] Therefore, social support is important tool for competing with the diseases, besides accelerating the healing process, increasing compliance with medication and quality of life, and extending life expectancy.

Many studies on elderly people have evaluated the association between diseases and social support.[11] However, to the best of our knowledge, no studies have compared the effects of social support or social stress on admitting to the ED for medical reasons or trauma. Therefore, this study aimed to compare social support and stress levels in geriatric patients admitted to the ED for trauma or medical reasons.

2. Methods

This was a single-center, prospective, descriptive, epidemiologic trial conducted in the ED of a training and research hospital with approximately 250.000 patient admissions per year, between October 1st, 2015 and April 1st, 2016. Participants consisted of patients over the age of 65 who presented to the ED for medical reasons or trauma. All participants provided written informed consent, and the study was approved by the local ethics committee.

The study considered all patients whose Emergency Severity Index (ESI) was ≥ 3. Patients with an ESI ≤ 2, who could not speak Turkish, who did not agree to participate in the study, and who were residing in a nursing home were excluded. Patients were grouped according to their age: early old age (65–75 years), middle old age (76–85 years), and late old age (> 85 years).[12]

All consecutive patients admitted to the ED were enrolled to the study. A socio-demographic and clinical data form, and DUKE Social Support and Stress Scale (DUSOCS) were completed by an ED physician who were unaware of the medical history of the patient.

The socio-demographic and clinical data form asked age, gender, marital status, number of children, and social characteristics such as co-morbidities, medications, admitting complaints, type of admission, ESI, state of residence, cause of preferring the ED, walkable distance with/without help, and present usa of any walking equipment.

The DUSOCS is a tool developed by the Department of Community and Family Medicine of Duke University over the past 35 years. Two parts of the scale contain 12 questions each, wherein the first part pertains to people who provide support to the individual. Answers to the first 10 questions are provided as "none", "some", "a lot", or "there is no such person". The eleventh question aims to identify a particular person who the participant can trust and go to with personal difficulties (part I) or the cause of most personal stress (part II). If the answer to the eleventh question is "yes" then an open-ended twelfth question that asks who he/she is. Scoring for an answer of "none/there is no such person" is "0", "some" is "1", and "a lot" is "2". Additionally, if the support/stress source is a family member the score is "2", and if it is not a family member or there is no such source of support/stress, the corresponding score is "0". The scores obtained from the sum of the first six questions and the twelfth question is multiplied by 14/100, and is called the DUSOCS family support/stress, and the scores obtained from the sum of 7–10 and the twelfth question is multiplied by 10/100, and is called the DUSOCS nonfamily support/stress. On the other hand, scores obtained from the sum of all 12 questions multiplied by 22/100 gives social support/stress score. A higher score is associated with higher social support/stress levels.

Statistical analyses were performed using SPSS software (Ver. 15.0, Chicago, IL). The Shapiro-Wilk test was used to assess the normality of the variables. Descriptive statistics and discrete and continuous numeric variables are expressed as mean and standard deviation, or median (minimum-maximum). Categorical parameters were analyzed using Pearson's Chi-square test. Non-parametric parameters were analyzed using the Mann-Whitney U test. The Kruskal- Wallis test was used for independently comparing the three groups; the Spearman Correlation was used to determine the correlation between age and social support. Reliability analysis of the questions was performed, and

Table 1
Sociodemographic characteristics of the patients.

	Patients admitted for medical reasons	Patients admitted for traumatic reasons
	($n = 114$)	($n = 83$)
Gender, *n* (%)		
Female	66 (57.9)	49 (59.0)
Marital status, *n* (%)		
Married	58 (50.9)	40 (48.2)
Age, *n* (%)		
Early old age (65–75)	66 (57.9)	37 (44.6)
Middle old age (76–85)	41 (36.0)	31 (37.3)
Late old age (≥ 86)	7 (6.1)	15 (18.1)
Education, *n* (%)		
Illiterate	50 (43.9)	46 (55.4)
Primary school	53 (46.5)	31 (37.3)
Secondary school and higher	11 (9.6)	6 (7.2)
Number of children, *n* (%)		
≤ 2	20 (17.5)	27 (32.5)
3–5	75 (65.8)	40 (48.2)
≥ 6	19 (16.7)	16 (19.3)
Comorbidities *n*, (%)		
Hypertension	81 (71.1)	64 (77.1)
Diabetes	45 (39.5)	32 (38.6)
CAD	34 (29.8)	30 (36.1)
COPD/asthma	41 (36.0)	10 (12.0)
CRF	4 (3.5)	1 (1.2)
CHF	17 (14.9)	8 (9.6)
Dementia/Alzheimer	10 (8.7)	4 (4.8)
Other	6 (5.2)	2 (2.4)
Emergency Severity Index, *n* (%)		
3	24 (21.1)	8 (9.6)
4	62 (54.4)	71 (85.5)
5	28 (24.6)	4 (4.8)
Walking assist device use, *n* (%)		
Present	59 (51.8)	44 (53.0)
Distance of walking without help, *n* (%)		
< 10 m	14 (12.3)	15 (22.8)
< 50 m	26 (22.8)	18 (21.7)
Everywhere	74 (64.9)	50 (60.2)
Distance of walking with help, *n* (%)		
< 10 m	4 (3.5)	2 (2.4)
< 50 m	18 (15.8)	19 (22.9)
Everywhere	92 (80.7)	62 (74.7)

CAD: Coronary Arterial Disease, **COPD:** Chronic Obstructive Lung Disease, **CRF:** Chronic Renal Failure, **CHF:** Congestive Hearth Failure.

the Cronbach's Alpha was found to be 0.76. A *p*-value of < 0.05 was considered statistically significant.

3. Results

During the study period of 6 months, 262 patients admitted to the ED with an age of 65 years or more. Of these, 65 were excluded (17 had and ESI score of < 2, 34 declined to participate, 13 did not speak Turkish). Thus, 197 patients were enrolled in the study, of which 114 of them presented for medical reasons and 83 for trauma. The median age of the patients who presented with medical reasons was 75 (min-max: 65–95) years and that of patients presenting with trauma was 76 (min-max: 64–92) years. Table 1 provides the basic demographics, past medical histories, mobility levels and social characteristics, which were similar among the two groups, of the patients.

As shown in Table 2, the median family support score in patients admitted for medical reasons was 30.9 (min-max: 0–71) and that in patients admitted for trauma was 28.5 (min-max:0–57), these scores were significantly different ($p < 0.05$).

The difference in family support and social support scores among the three age groups was statistically significant ($p < 0.001$; Table 3). Concurrently, there was a negative but weak correlation between the social support and age ($\rho = -0.280$, $p < 0.05$). Furthermore, there

Table 2

Social support and stress scores according to the DUSOCS.

	Patients admitted for medical reasons (*n* = 114)	Patients admitted for traumatic reasons (*n* = 83)	*p*-value*
DUSOCS family support median (min–max)	30.9 (0–71)	28.5 (0–57)	0.020
DUSOCS nonfamily support median (min–max)	0 (0–60)	0 (0–40)	0.600
DUSOCS social support median (min–max)	22.7 (0–73)	18.1 (5–40)	0.900
DUSOCS family stress median (min–max)	7.1 (0–57)	21.4 (0–50)	< 0.010
DUSOCS nonfamily stress median (min–max)	0 (0–20)	0 (0–40)	0.200
DUSOCS social stress median (min–max)	4.5 (0–36)	13.6 (0–32)	< 0.010

DUSOCS: DUKE Social Support and Stress Scale, min: minimum, max: maximum.

* Mann-Whitney U.

was statistically significant difference in the family support and social support scores between married and non-married groups (*p* < 0.001; Table 4). There was no significant difference between the social support and number of the children, gender, or educational status.

As shown in Table 2, the median score for family stress in patients admitted for medical reasons was 7.1 (min–max: 0–57), while that in patients admitted for trauma was 21.4 (min–max: 0–50). Further, the medians of social stress scores for medical reasons and trauma were 4.5 (min–max: 0–36) and 13.6 (min–max: 0–32), respectively. Both these scores were significantly different between two groups (*p* < 0.001).

Conversely, in all the other groups, there was a significant difference in family stress between the married and the non-married groups (*p* < 0.05).

4. Discussion

This study revealed that the patients admitted to the ED for trauma have lower social support levels than patients admitted for medical reasons. Moreover, social stress levels were also higher in these patients. Thus, it may be possible to reduce the numbers of patients with trauma and prevent mortality and morbidity at this age group by the increasing support levels and decreasing higher stress levels and by augmenting and enhancing social networks, social services, and geriatric rehabilitation programs.

Admission to the ED is higher in the geriatric population than the younger population and their social support levels are lower. In our study on social support and stress levels in elderly patients, family and social support scores of the patients admitted for trauma were lower than that of patients admitted for medical reasons. This observation can be an indicator of greater exposure to trauma in the elderly who have less family and social support. Physiological changes due to aging can both cause and explain obstacles in performing self-care activities. Further, because treatments for medical illnesses often include getting pills and paying attention to nutrition, the absence of support can complicate problems. However, these chronic medical comorbidities also restrict physical functions in elderly individuals, and in the absence of helpers, such restrictions can easily cause traumatic injuries even while performing daily activities.[13] Importantly, as demonstrated by Hartholt et al., the population worldwide is aging, and this aging population needs greater levels of nursing following traumatic injuries

than the relatively younger population; this also accounts for extra requirement for social support. The elderly people who were exposed to trauma because lack off social support, were rendered short of this support after the injury, consequently increasing treatment cost and mortality.[14]

The geriatric population includes individuals aged ≥65 years. This population can be categorized to three groups: early old age, middle old age, and late old age.[12] The progression of age brings along physical and mental restrictions and makes the person more dependent. Additionally, late old age also means greater and longer care time, leading to caregiver's fatigue and a consequent reduction in the quality and the quantity of care provided.[15] Beside this, with time, the younger members of the family grow up, get married, have children and responsibilities of their own and may not be able to provide adequate care or support if the elderly patients do not live with them.[16] In our study, most of the patients were in the middle age group, and the social support decreased as the patients' age increased. In contrast, another study has demonstrated that there is a negative correlation between living with children and receiving social support, because the presence of a close relationship does not feel adequately supportive and isolates the individual from other social relations.[17]

Similar to several other studies, we demonstrate that married individuals have higher social support scores than non-married and divorced individuals. Married people have higher life quality and receive much more emotional, moral, and material support from their partner.[16,18,19] One study reported that women living alone after their husbands' death confessed that their life would be better if their husbands were alive. Another study has demonstrated that newly divorced women increase their social networks in search of support structures. Thus, it appears that married people have better social support while non-married people may plunge into a quest for new support sources.[18,19] Other studies have shown that having children with a strong relationship increases vitality and aging satisfaction, and improve moral, material, and social support. While some of the studies suggest a relationship between the number of children and social support, others do not support this relationship. In our study, we found no relationship between the number of children and social support and stress. Likewise, there was no relationship between education and social support and stress scores in our study, which is contrary to available literature.[16,20,21] A probable explanation is the greater proportion of

Table 3

Comparison of social support and stress according to age.

	65–75 (*n* = 103)	76–85 (*n* = 72)	≥86 (*n* = 22)	*p*-value*
DUSOCS family support median (min–max)	35.7 (0–71)	28.5 (0–43)	21.4 (0–43)	< 0.010
DUSOCS nonfamily support median (min–max)	0 (0–60)	0 (0–40)	0 (0–40)	0.600
DUSOCS social support median (min–max)	22.7 (0–73)	22.7 (0–32)	18.1 (0–36)	< 0.010
DUSOCS family stress median (min–max)	15.9 (0–57)	0 (0–50)	28.5 (0–36)	0.100
DUSOCS nonfamily stress median (min–max)	0 (0–30)	0 (0–40)	0 (0–20)	0.100
DUSOCS social stress median (min–max)	4.5 (0–36)	4.5 (0–32)	18.1 (0–23)	0.080

DUSOCS: DUKE Social Support and Stress Scale, min: minimum, max: maximum.

* Kruskal Wallis H.

Table 4
Comparison of social support and stress according to the marital status.

	Married ($n = 98$)	Non-married ($n = 99$)	p-value∗
DUSOCS family support median (min–max)	35.7 (14–71)	28.5 (0–43)	< 0.010
DUSOCS nonfamily support median (min–max)	0 (0–60)	0 (0–40)	0.100
DUSOCS social support median (min–max)	22.7 (9–73)	18.1 (0–41)	< 0.010
DUSOCS family stress median (min–max)	14.3 (0–57)	7.1 (0–43)	0.020
DUSOCS nonfamily stress median (min–max)	0 (0–10)	0 (0–40)	0.080
DUSOCS social stress median (min–max)	9.1 (0–36)	4.5 (0–27)	0.070

DUSOCS: DUKE Social Support and Stress Scale, min: minimum, max: maximum.
 ∗ Mann-Whitney U.

individuals with primary school and/or low education level (91.3%) in our study.

In Turkey and many Eastern countries, taking care of elderly people by their family continues to be an important social value.[22,23] In fact, in the Turkish society, social support is considered equal to family support.[24] When this family support is lost, physically restricted elders are further exposed to traumatic injuries. Moreover, in the absence of support these individuals also have a tendency to suffer from depression, and, importantly, the use of antidepressants correlates with trauma, including falls.[25] In agreement, we also found that family stress and social stress scores of the patients admitted for trauma were higher than those of patients admitted for medical reasons. Even though, comparative studies like the present study have not been published, we think that similar underlying causes can explain this situation.

5. Limitation(s)

There are several limitations to our study. Firstly, although it is a two-way scale for both support and stress, we only used one scale to determine support/stress, which may be a limitation for comparing scales. Secondly, the number of enrolled participants was small; large number of participants can provide better perspective of the society in general. Lastly, this is a single-center study and only shows the socio-cultural level of patients coming to a single hospital. Consequently, future studies non-homogenous populations are needed.

6. Conclusion(s)

We show that patients admitted for trauma have lower social support and higher social stress levels, and it has been determined that social support levels decrease with increasing age. In the chaotic atmosphere of the ED it may be difficult to determine the required support and stress levels in geriatric patients. Nonetheless, we think that if support levels can be evaluated and attempts made to increase support, admittance to ED can be reduced along with accelerating recovery of the elderly patients.

Funding

No additional funding was required for this study.

Author contribution statement (Mandatory)

Study conception and design: Tuba SAFAK.
Acquisition of data: Eda KAN.
Analysis and interpretation of data: Seref Kerem CORBACIOGLU.
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Conflicts of interest statement (Mandatory)

The authors declare that there are no conflicts of interest.

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