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Experiences and Psychological Status of the Patients After Fractured Femur in Intensive Care Unit: A Cross-Sectional Study

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Öz

Amaç: Bu çalışma yoğun bakım ünitesinde yatan hastaların emosyonel durumları, deneyimleri ve bunları etkileyen faktörleri belirlemek amacı ile yapıldı.

Gereç ve Yöntem: Tanımlayıcı ve kesitsel tipteki bu araştırma Türkiye'nin Batı Bölgesindeki bir Eğitim ve Araştırma Hastanesi'nde yapıldı. Çalışmaya femur fraktürü nedeni ile cerrahi yoğun bakım ünitesinde yatan 120 hasta dahil edildi. Çalışma öncesinde etik kurul onayı alındı. Araştırma verileri, kişisel bilgi formu, Yoğun Bakım Deneyim Ölçeği (YBDÖ) ve Hastane Anksiyete Depresyon (HAD) ölçeği kullanılarak toplandı. Verilerin analizinde tanımlayıcı istatistikler, Mann Whitney U testi, Kruskal Wallis testi ve regresyon analizi kullanıldı.

Bulgular: Hastaların ölçeklerden aldıkları toplam puan ortalamaları sırası ile YBDÖ: 51,61±6,43, HAD anksiyete: 5,26±3,90, HAD depresyon: 4,21±2,79'dur. Hastaların yoğun bakım deneyimlerine yoğun bakımı hatırlama durumu, ağrı ve yoğun bakım ısısının etkili olduğu saptandı (p<0,05). HAD-anksiyete düzeyini yoğun bakımda yatış süresi ve hastanede kalış süresinin etkilediği belirlendi (p<0,05).

Sonuç: Araştırma sonuçları hastaların yoğun bakım ünitesinde kötümser deneyimler yaşadığı ve yoğun bakımda aldıkları bakımdan orta düzey memnun olduğunu göstermektedir. Hemşireler yoğun bakımda yatan hastaların daha olumlu deneyimler yaşamaları için gerekli hemşirelik girişimlerini uygulamalıdır.

Anahtar Kelimeler: Yoğun Bakım, Deneyim, Yoğun Bakım Hastası, Femur Fraktürü, Emosyonel Durum.

Abstract

Objective: The aim of the study was to determine the emotional state, experience of patients in the intensive care unit and the factors affecting them.

Methods: This descriptive study and cross-sectional study was performed the education and teaching hospital in the western region of Turkey. 120 patients with femur fracture hospitalized at surgical intensive care unit were included in the study. The ethical approval was obtained before the study. The data were collected using a personal information form, the Intensive Care Experience Scale (ICES), and the Hospital Anxiety Depression Scale (HADS). Descriptive statistics, Mann Whitney U test, Kruskal Wallis test and regression analysis were used for data analysis.

Results: The mean total scores of the patients were 51,61±6,43 for ICES, 5,26±3,90 for HADS anxiety, and 4,21±2,79 for HADS depression. Recollection of intensive care, pain, and intensive care temperature had an effect on the intensive care experience of the patients (p<0,05). HAD-anxiety level was found to affect the duration of hospitalization and length of stay in ICU (p<0,05).

Conclusion: The results showed that the patients had negative experiences in ICU but were moderately satisfied with the care they received. Intensive care nurses should implement nursing interventions designed to ensure that patients' experiences in ICU are more positive.

Key Words: Intensive Care, Experience, Intensive Care Patient, Fractured Femur, Emotional State.

1. Giriş

An intensive care unit (ICU) is an area that is designed to provide optimal management for patients with a range of acute medical and surgical conditions requiring close supervision due to the need for complex nursing

procedures, or who are at high risk of serious complications [1]. Femoral fractures are common in elderly population [2]. Frequently, because these patients are elderly, respiratory and cardiac problems

may occur. They may need to be monitored in the ICU the preoperative and postoperative periods. Perioperative ICU monitoring may improve patient outcomes. Monitoring in the ICU can improve patient outcomes [2,3]

In ICUs, patients requiring advanced care and monitoring are hospitalized for various reasons, such as internal injury, surgery, acute trauma, acute intoxication, and burns [4]. Patients are exposed to adverse environmental stressors that affect them during their stay in ICU. Stressors including invasive procedures, being away from family, immobilization, noises, lighting, temperature, lack of privacy, interruption of sleep due to various reasons, and presence of strangers in the environment increase the level of anxiety and depression both during hospitalization and continuing after discharge [5,6].

Previous studies have shown that patients experience negative symptoms related to ICU depending on the stressors they perceive. It has been reported that the ICU environment negatively affects patients' quality of life, causing stressful experiences, deterioration in communication, decreased comfort, loneliness, and environmental stress [7-9]. Strahan & Brown suggested that ICU patients can suffer from pain and sleep disorders due to physical stressors; an inability to distinguish between day and night, impaired mobilization and dependency on machines due to physical and environmental stressors; and anxiety, fear and impaired cognitive functions due to psychological stressors. The authors also reported difficulties in verbal communication of patients having an endotracheal tube [10]. Stressful negative experiences in ICU have been found to affect the healing process and emotional state of patients in a negatively [11]. In addition, patients with ICU experience have been reported to suffer from psychosocial problems, such as anxiety, depression, and post-traumatic stress disorder after discharged [11-12]. Patients with a history of ICU stay also recall negative memories and describe strange perceptual experiences, as well as tormenting and frightening hallucinations, the effects of which persist after being discharged [13].

Granja and coworkers reported that the patients did not recollect some or any of their experience during their stay in ICU [5]. Stein-Parbury and McKinley stated that patients' ICU experience was not all negative; it also had positive aspects, such as nurses' helpful attitudes that made them feel safe and secure [14]. Thus, the attitudes and behaviors of health professionals can also affect patients' ICU experience positively or negatively. Effective nursing care provided for patients increases their psychological comfort.

In Turkey, although the medical and physical needs of patients treated in ICU are met their psychological needs are not considered a priority. It is important to identify factors that may affect the experience of patients in ICU in order to plan necessary interventions for positive experiences. With high-quality nursing care,

patients can emotional states and ICU experience of patients that were referred to our orthopedic service for treatment after having been hospitalized in ICU following a fractured femur. The purpose of this study was to assess the emotional states, experiences of patients who were admitted to intensive care for fractured femur and the factors affecting them.

2. Materials and Methods

2.1. Study Design, Sample and Setting

This study was descriptive, cross sectional in nature. This study was conducted in the orthopedic clinic of a education and research hospital in the western of Turkey. The population of this study consisted of patients who were hospitalized in ICU of a hospital following a fractured femur between June 15 and December 15, 2016, and were later transferred to the orthopedic clinic of the same hospital for treatment.

The sample size was calculated using the Intensive Care Experience Scale (ICES) scores obtained from the study of Aslan and Tosun (2015) as a reference [15]. The minimum sample size was determined as 120 with a power of 80%, $\alpha=0,05$ error, and 95% confidence level. Initially 145 patients included in the study; however 10 patients did not meet the research criteria and 3 patients did not give consent, 4 patients were transferred other clinics and 8 patients were not completed the survey. The study was completed with 120 patients. For inclusion in the study, patients were at least 18 years of age, hospitalized in ICU for more than 24 hours following a fractured femur, had to be mentally and physically capable of participating, communicating without language problems, were willing and able to participate in this study. Patients were excluded if they for any reason withdrew their permit to join.

2.2. Data collection

The researcher explained purpose and nature of the study to potential participants, and written informed consent was received. The data were collected through a face-to-face interviews with patients and recorded on the form. Generally, it is about 25-30 minutes to complete the questionnaires. The questionnaires took place 24 hours after the transferred from ICU to the orthopedic clinic. All questionnaires were applied by the same researcher. For the collection of data, a personal information form, ICES, and the Hospital Anxiety Depression Scale (HADS) were used.

- **Personal Information Form:** This form contained questions related to the demographic characteristics of the patients (e.g., gender, age, marital status, body mass index, and occupation), presence of chronic diseases, length of ICU and hospital stay, previous experience with ICU, requirement of mechanical ventilation, and patients' experience and stress levels.

- **ICES:** This scale was developed by Rattray et al. in 2004 to determine the ICU experience of patients [14]. Demir et al. evaluated and confirmed the validity and reliability of the Turkish version of the scale. The scale consists of 19 five-point Likert-type items under

the following four subscales: awareness of surroundings (6 items, 6-30 points), frightening experiences (4 items, 4-20 points), recall of experiences (5 items, 5-25 points), and satisfaction with care (4 items, 4-20 points) in ICU. The total score range of the ICES is 19-95. Both total and subscale scores of ICES were used in this study. A higher score indicates a higher level of awareness and more positive experiences in ICU while a lower score reveals negative experiences. The scale does not have a cut-off point [8].

- **HADS:** This scale was developed by Zigmond and Snaith (1983), and the Turkish version was found to be valid and reliable by Aydemir et al. (1997). The scale consists of 14 items divided into two subscales: anxiety (7 items) and depression (7 items). Each item is scored from 0 to 3. The cut-off scores for the HADS subscales are 10 for anxiety and 7 for depression. Having a higher score than these values indicates that the person is in the risk group for the corresponding subscale [17,18].
- The dependent variables of this study were ICES and HADS scores. The independent variables consisted of demographic characteristics such as, gender, age, educational level, pain score, and length of stay in ICU, etc.

2. 3. Ethical Considerations

The study was practiced in accordance with the Helsinki Declaration; prior to the research, the approval was obtained from the ethics committee of the university (Reference Number: 11.05.2016-20478486-182) and the patients that fulfilled the inclusion criteria provided written and verbal consent after being informed about the objectives of the study.

2. 4. Statistical Analysis

Data were entered and analyzed using the SPSS 15.0 program (SPSS, Chicago, IL, USA). Missing data were excluded from the study. The Shapiro-Wilk test was used to determine whether the data showed a normal distribution. Numerical variables were described as mean \pm standard deviation, and categorical variables as numbers and percentages. The data were analyzed Mann Whitney U test, Kruskal-Wallis test, and regression analysis.

For the multivariate regression analysis, a linear model was constructed for the factors that affect ICU experience. The values which were found to significantly affect in univariate ICU experiences in univariate analyses were included in this model and tested. The significance level was accepted as $p < 0,05$.

3. Results

Table 1 presents the socio-demographic characteristics of the patients. The mean age of the patients was $67,93 \pm 18,19$ years, the mean length of illness was $8,00 \pm 3,35$ days, the mean length of stay in ICU was $1,93 \pm 1,46$ days. Furthermore, 30,0% of the patients had previous ICU experience, 63,3% remembered their ICU

stay, and 12,1% were connected to a mechanical ventilator with an endotracheal tube.

Table 1. Clinical and Demographic Characteristics of the Patients (n = 120)

Parameters	Mean \pm SD	Min-max
Age	67.93 \pm 18.19	18.00-85.00
Length of Illness	8.00 \pm 3.35	3.00-20.00
Length of ICU Stay	1.93 \pm 1.46	3.00-20.00
Length of Hospital Stay	12.70 \pm 4.46	4.00-27.00
	n	%
Gender		
Female	60	50.0
Male	60	50.0
Education Level		
Primary school	64	53.3
Middle school	17	14.2
High school and above	39	32.5
Income Level		
Average and above \uparrow	93	77.5
Below average \downarrow	27	22.5
Previous Hospitalization in ICU		
Yes	36	30.0
No	84	70.0
Recollection of ICU Stay		
Yes	76	63.3
No	44	36.7
Mechanical Ventilation (n = 66)		
Endotracheal tube	8	12.1
Non-invasive face mask	58	87.9

Mean: Arithmetic mean, **SS:** Standard deviation, **Min:** Minimum value, **Max:** Maximum value

The patients who were hospitalized in ICU following a fractured femur were found to be most stressed by being constantly in bed (85%) and ICU temperature (45,8%) and the least stressed by not knowing the time or day, and ventilation of the environment of ICU (16,7%) (Table 2).

The mean total ICES score was $51,61 \pm 6,43$. Subscale scores of ICES were as follows: awareness of surroundings was $16,14 \pm 2,47$, frightening experiences was $12,86 \pm 1,27$, recalling of experiences was $10,20 \pm 1,60$, and satisfaction with care was $12,42 \pm 3,31$. The mean subscale scores of HADS were $5,26 \pm 3,90$ and $4,21 \pm 2,79$ for anxiety and depression, respectively (Table 3).

The linear regression analysis determined that recollection of ICU stay, pain, and ICU temperature affected the patients' intensive care experience ($p < 0,05$). As remembering the time in ICU decreased, the total score of ICES increased. The total ICES score was increased in patients that were negatively affected by ICU temperature and those that had a higher level of pain (Table 4).

Table 2. Factors Causing Stress in ICU (n = 120)

Factors	n*	%
Being constantly in bed	102	85.0
Ambient temperature	55	45.8
Noise of the machines in the environment	50	41.7
Being in an unfamiliar environment	46	38.3
Noise made by staff	39	32.5
Absence of a television or radio	38	31.7
Meeting basic needs in bed	31	25.8
Limited visiting hours	29	24.2
Lighting of the environment	27	22.5
Difficulty knowing what time it was	25	20.8
Difficulty knowing what day it was	20	16.7
Insufficient ventilation of the environment of ICU	20	16.7

* shows the number of people that responded 'yes'.

Table 3. ICES and HADS Scores of the Patients (n = 120)

ICES	Mean ± SD	Min - Max*
Awareness of surroundings	16.14±2.47	9.00-22.00
Frightening experiences	12.86±1.27	10.00-16.00
Recall of experiences	10.20±1.60	4.00-14.00
Satisfaction with care	12.42±3.31	5.00-23.00
Total	51.61±6.43	32.00-69.00
HADS-Anxiety	5.26±3.90	1.00-15.00
HADS-Depression	4.21±2.79	0.00-16.00

*Minimum value, maximum value

ICES: Intensive Care Experience Scale

HADS: Hospital Anxiety Depression Scale

Table 4. The Results of the Model Explaining the Factors Affecting ICU Experiences of Patients

ICES total score (n=120)	β	p
R² = 0.331		
Constat		0.000
Length of illness	0.014	0.903
Length of ICU stay	0.134	0.303
Type of mechanical ventilation (n=66)	-0.048	0.698
Recollection of ICU stay	-0.283	0.021
Pain	0.348	0.013
Sleeping pattern in ICU	0.008	0.957
ICU temperature	0.339	0.003

β : Standardized β

Although not shown in the table, the results of the multiple logistic regression model explaining the factors that affected HADS anxiety are not presented in a table but they revealed higher HADS anxiety scores in patients that stayed in ICU for more than 24 hours [OR (95% CI) 2,138 (1,276-3,582)] and in patients that stayed in hospital for 13 days or more [OR (95% CI);

0,794 (0,660-0,954)], compared to those that had a shorter length of stay in ICU and hospital.

4. Discussion

The most patients (63,3%) in this study remembered at least some of what happened while they were in ICU. A previous study by Alasad and colleagues reported that the majority of the patients (83%) indicated high level of recollection and clear memory about the surrounding events and relatives' visits [1]. Wong and coworkers determined that patients remembered at least some of what experienced while they were in ICU [19]. Similarly, Wang et al. noted that while staying in ICU, the patients heard the alarms of devices and the voices of staff, and after being discharged, they remembered the care and treatment provided for them [20]. Different from our results, some studies determined that the most patients had no recollection in their ICU stay [5,15,21].

In this current study, the mean ICES score was 51,61 ± 6,43. This result indicated that the patients' intensive care experience was mostly negative. Similarly, other researchers have generally reported negative ICU experiences (frightening, tormenting, annoying, and boring) of patients [7,16]. However, Stein-Parbury and McKinley found that some patients also had positive experiences, particularly referring to the feeling of trust created by the nurses [14]. Previous studies conducted with patients discharged from ICU have reported that patients mostly referred to unpleasant memories, and tormenting and frightening hallucinations to describe their ICU experiences, and stated that the effects of these experiences persisted even after their discharge [5,13,19]. In this study, parallel to the literature, it was found that patients had negative experiences in ICU.

In our study, the most stressed factors was found that being constantly in bed (85%), and ICU temperature (45,8%) and noise of the machines in the environment (41,7%). Similar results were obtained in other studies [6,22]. Many studies have shown that patients constantly hear the alarms and warning sounds of devices and staff and remember the care and treatment given in ICU, and these factors stress them [20,23]. Patients in ICU have been reported to have sleep problems due to noise, medication, lighting, insufficient ventilation of the environment, and pain [19]. We consider that the noise in the environment, and the care and treatment provided affect the quality of sleep of the patients and increase their stress.

Recall of memories, pain, and ICU temperature had an effect on the intensive care experience of the patients. In a study by Granja et al., 38% of the patients did not remember some or any of the time spent in intensive care [5]. Another study reported that only 34% of the patients recalled the reason for being admitted to ICU [24]. Russell found that only 24% of the patients remembered their ICU experience [13]. There is also study reporting that patients fully remember the length of their stay in ICU [1]. Intensive care nurses should take necessary precautions to ensure that patients'

experiences in ICU are more positive. It was also observed that pain experienced in ICU negatively affected the intensive care experience. Pain is an organism's response to tissue damage and is an unpleasant experience for the individual suffering from it [25]. Özdemir showed that patients who had pain better recollected their intensive care experience [26]. In the literature, it has been stated that more than half of the patients in ICU experienced moderate or severe pain [27]. In addition to the pain caused by the illness, extreme pain and aches have been reported due to materials, tubes, catheters, invasive and non-invasive ventilation, aspiration, dressing, position, rehabilitation applications, and patient transfer [28]. In another study, 47% of the patients had pain associated with similar causes [24]. Furthermore, Alasad et al. reported that pain led to confusion, anxiety, anger, irritation, anxiety, changes in mental and verbal functions, and psychological symptoms [1].

The current research findings are in parallel with the literature. It is considered that the patients' pain was associated with surgical trauma due to fractured femur surgery, treatment, and physical restrictions caused by surgery. Therefore, effective pain management should be undertaken for patients during their ICU stay.

Ambient temperature was another factor that contributed to the negative intensive care experiences of the patients. Previous studies have also shown that ICU room being hot/cold is a stress factor for patients [23].

It has previously been reported that patients on mechanical ventilators cannot communicate with others, have difficulty adapting to the environment, develop psychological problems, and have negative ICU experiences [9,20]. However, in the current study, being connected to a mechanical ventilator did not affect the patients' intensive care experience. This was attributed to the short duration of mechanical ventilation support provided for the patients in this study. The research, we considered that previous hospitalization in ICU might affect patients' ICU experience; however, similar to other studies, we did not find an association between the two [9,29]. This may be because the patients in the current study were able to accept their situation and cope with their illness.

In the current study, the anxiety and depression levels of the patients were low; however, the anxiety levels were found to increase with the increased length of ICU and hospital stay. In a study by Alaca and coworkers were found that 47% of the patients to experience anxiety and 72% had depression [30]. In a meta-analysis, at least one third of ICU patients reported to feel anxiety [31]. Rattray and colleagues identified negative emotional outcomes (anxiety, depression, and posttraumatic stress) in patients discharged from ICU, which were associated with the length of hospital stay [16]. In another study, many patients that underwent intensive care were shown to have significant psychological problems. Recent indicators related to patients with intensive care

experience reveal that they develop emotional problems [11]. In particular, conscious patients cope with their vital problems while, at the same time, witnessing the state of other patients and trying to become accustomed to the sound of technological devices. It is considered that as the duration of hospital stay increases, the environmental factors, disease-related distress, social isolation, and ongoing treatment and care to which the patients are exposed negatively affect and elevate their anxiety levels.

• **Implications for clinical practice**

Based on these results, it is recommended that adverse factor in the ICU environment that can negatively affect patients' intensive care experience; e.g., noise, limited communication with external environment, and lighting should be carefully considered and reduced. Furthermore, patients that are admitted to ICU for care and treatment should be informed in detail about the procedures involved and should be provided with personalized nursing care until discharge.

• **Study limitations**

This study was conducted with patients who had undergone intensive care in hospital following a fractured femur and were then referred to the orthopedic service of the same hospital. Therefore, the results of this research can only be generalized to patients with similar characteristics. Furthermore, patients were interviewed after being discharged from ICU; thus, they may have forgotten about their intensive care experience. Since the research was quantitative, different themes could not be qualitatively investigated. Lastly, for data collection, the questionnaire forms were completed through face-to-face interviews, which means that the reliability of data was limited to the information provided by the respondents.

5. Conclusion

It was determined that the patients had negative experiences in ICU and were moderately satisfied with the care they received. Recollection of intensive care, pain, and ambient temperature had an effect on the patients' intensive care experience. Furthermore, the anxiety of HADS was affected by the length of ICU and hospital stay.

6. Kaynaklar

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