

## ANALYSIS OF ACTIVITIES OF DAILY LIVING AND COMFORT LEVELS IN BURN PATIENTS

### YANIK HASTALARININ GÜNLÜK YAŞAM AKTİVİTELERİ VE KONFOR DÜZEYLERİNİN İNCELENMESİ

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#### ABSTRACT

**Objective:** The aim of this study is to examine dependence and comfort levels of burn patients in activities of daily living and the relationship between these two parameters.

**Materials and Methods:** The study was conducted with a descriptive, cross-sectional and correlational design. 149 burn patients who were treated in a research and training hospital constituted the sample of the study. The study data were collected by the researchers prospectively. In statistical analyses, descriptive statistics, Kruskal-Wallis test, Mann-Whitney U test, and Spearman's rho correlation analysis were used.

**Results:** In this study, 57.7% of the burn patients were in the age range between 18-35 years, and 66.4% had second-degree burns. 51.7% had undergone surgical treatment. As the age, burn ratio and degree of the patients increased, their dependence in activities of daily living increased as well. It was determined that sociodemographic variables did not have any effects on comfort level. Also, a positive, strong, and statistically significant relationship was found between the burn patients' activities of daily living and their comfort levels.

**Conclusion:** In the study, activities of daily living and comfort levels of burn patients were found to be low. It is recommended to take initiatives that will improve burn patients' daily life activities and increase their comfort level.

**Keywords:** Activities of Daily Living, Burn, Burn Injury, Comfort.

#### ÖZET

**Amaç:** Bu çalışmada yanık hastalarının günlük yaşam aktivitelerindeki bağımlılık ve konfor düzeylerinin ve bu iki parametre arasındaki ilişkinin incelenmesi amaçlandı.

**Gereç ve Yöntemler:** Çalışma tanımlayıcı, kesitsel ve ilişki arayıcı bir tasarımla yürütüldü. Araştırmanın örneklemini bir eğitim ve araştırma hastanesinde tedavi gören 149 yanık hastası oluşturdu. Çalışma verileri araştırmacılar tarafından prospektif olarak toplandı. İstatistiksel analizlerde tanımlayıcı istatistikler, Kruskal-Wallis testi, Mann-Whitney U testi ve Spearman's rho korelasyon analizi kullanıldı.

**Bulgular:** Bu çalışmada yanık hastalarının %57,7'si 18-35 yaş aralığında olup, %66,4'ünde ikinci derece yanık mevcut idi. %51,7'sine cerrahi tedavi uygulanmıştı. Hastaların yaşı, yanık yüzdesi ve derecesi arttıkça günlük yaşam aktivitelerindeki bağımlılıkları da artıyordu. Sosyodemografik değişkenlerin konfor düzeyi üzerinde herhangi bir etkisi olmadığı belirlendi. Ayrıca yanık hastalarının günlük yaşam aktiviteleri ile konfor düzeyleri arasında pozitif yönde, güçlü düzeyde ve istatistiksel olarak anlamlı bir ilişki bulundu.

**Sonuç:** Bu çalışmada yanık hastalarının günlük yaşam aktiviteleri ve konfor düzeylerinin düşük olduğu saptandı. Yanık hastalarının günlük yaşam aktivitelerini iyileştirecek ve konfor düzeylerini artıracak girişimlerde bulunulması önerilmektedir.

**Anahtar kelimeler:** Günlük Yaşam Aktiviteleri, Konfor, Yanık, Yanık Yaralanması

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## INTRODUCTION

Burns are the most frequent type of injuries that come in the fourth place among the causes of injuries across the world (Davies et al., 2019). In the United States alone, 1.1 million people a year suffer from burn injuries (American Burn Association, 2020; Schmid, 2015; World Health Organization-WHO, 2020). There is an increase in the number of burn centers in Turkey due to high incidence of burn injuries (Akkoç et al., 2021; Çıkman et al., 2011). Individuals who cannot receive care at the optimal level following burn injuries, especially in low-income countries, are faced with poor clinical outcomes, death, and disabilities (Sadeghi-Bazargani & Mohammadi, 2012; Palmu et al., 2016;). In addition to physiological results of burn injuries, psychological problems are also commonly seen. Posttraumatic Stress Disorder (PTSD), depression (Huang & Su, 2021), anxiety (Ghezaljah et al., 2017), poor perception of body image, high stress (Uyar et al., 2022), and low quality of life (Wasiak et al., 2014) are among these problems.

Burn injuries start to restrict the freedom and comfort areas of an individual who is exposed to the burn starting from the first day. As the surface and depth of the burn increases, the need for treatment and care also increases (Akkoç & Bülbüloğlu, 2022). In individuals who are exposed to burn injuries, long-term restriction of activities of daily living and a poor level of comfort are inevitable. A burn injury suppresses the immune system and increases the risk of sepsis (Manning, 2018). In addition, it requires specialized and high-cost health care. Morbidity and mortality rates are rather high due to complications in the hospitalization process of serious burns (Güldoğan et al., 2019). High stress and anxiety in burn patients can increase elevated catabolism and protein need, secondary infection development, deterioration in injury recovery, and death risk.

Prolonging of recovery process in burn injuries may cause the patients to be dependent in terms of meeting their individual needs and their comfort levels to decrease. Clinicians mostly focus on physiological parameters of the patients and disregard the social impacts of burn injuries. In this context, no study in the literature was encountered in which comfort levels and activities of daily living in burn patients were examined. Social problems caused by burn injuries should be investigated more. Hence, the aim of this study is to determine dependence and comfort levels of individuals exposed to burn injuries and to examine the relationship between these two parameters.

## MATERIAL AND METHOD

The study was conducted in order to investigate patients' activities of daily living and comfort levels after burn injuries and to determine the relationship between these two parameters.

### Research Design and Participants

The study is a descriptive, cross-sectional and correlational research which was conducted with the participation of the patient's receiving treatment in the burn unit of a research and training hospital located in the east of Turkey. No sampling was performed in the study, and all burn cases who agreed to participate in the study and met the inclusion criteria were included in the study sample. As a result of the power analysis performed with G\*Power-3.1.9.2 software, it was determined that with 0.05 margin of error and 90% confidence interval, the minimum number of participants should be  $n=96$ . Eventually,  $n=149$  patients were included in the study sample. The inclusion criteria for the study was "being over the age of 18 years", "not being exposed to any injuries other than burn injury", "being hospitalized and receiving therapy in the burn unit of the hospital where the study was conducted", and "being voluntary to participate in the study." Patients who did not meet these criteria were excluded from the study sample. After informed consents were taken from the burn patients, they were requested to fill in the forms in 15 minutes.

### Data Collection Method and Tools

The study data were collected prospectively between May-October 2022 through Identifying Information Form prepared by the researchers by taking expert opinion, the Katz Activities of Daily Living Index, and General Comfort Questionnaire. Information about the data collection tools has been presented below.

### Identifying Information Form

The form consists of questions inquiring about descriptive characteristics of the burn patients such as age, gender, marital status, and burn status.

***The Katz Activities of Daily Living (ADL) Index***

The Katz ADL Index was developed by Katz et al. in 1963 in order to determine the basic activities necessary for maintaining daily living. The Katz ADL Index consists of 6 questions inquiring about the activities of bathing, dressing, going to toilet, transferring, feeding, and continence. On the ADL index, 0 point is assigned for the areas in which the patient is dependent, and 1 point is assigned for the areas in which the patient is independent. 0 point indicates total dependence, while 6 points show independence (Katz et al., 1963). The Turkish adaptation study of the index was conducted by Diker et al. in 2001 (Diker et al., 2001). The Cronbach's alpha coefficient of the index was found to be 0.81 in the present study.

***General Comfort Questionnaire Short Form***

General Comfort Questionnaire Short Form (GCQ-SF) was developed by Katharine Kolcaba et al., in 2006 (Kolcaba et al., 2006). Kolcaba determined the Cronbach's alpha internal consistency coefficient of the questionnaire as 0.80. Kuguoglu and Karabacak conducted the Turkish validity and reliability of the questionnaire in 2008 and found its Cronbach's alpha coefficient as 0.85 (Kuğuoğlu & Karabacak, 2008). The validity and reliability of the short form of the questionnaire was conducted by Citlik Saritas et al., (2018), and they calculated its Cronbach's alpha coefficient as 0.82. In the present study, the Cronbach's alpha coefficient of the scale was found to be 0.83, which is considered high reliability. The questionnaire is made up of 28 items. The questionnaire has three subscales, which are relief (9 items), ease (9 items), and transcendence (10 items).

In the evaluation of the questionnaire, which included both positive and negative statements, the negative items are reversely coded. The total scale score obtained is divided by the number of the items, and a mean value is obtained. The score to be obtained from the questionnaire ranges between 28-168. Accordingly, the minimum score to be obtained indicates low comfort level of 1, while 6 indicates high level of comfort.

***Ethical Considerations***

Prior to the study, permission was taken from the Plastic, Reconstructive, and Aesthetic Surgery Institutional Review Board (IRB) of Dicle University Research and Training Hospital, where the study was conducted. Then, necessary ethical and legal approvals were obtained from Istanbul Arel University Ethics Board Directorate (Date: 25.02.2022, Meeting No: 2022/05, Decision No: E-69396709-050.01.04-208675). At all stages of the study the principles of the Declaration of Helsinki were observed. Finally, written informed consent was taken from each participant.

***Statistical Analyses***

The statistical analyses of the study data were performed through Statistical Package for Social Sciences-SPSS for IBM 25 software. In the evaluation of the data, descriptive statistics (frequency, standard deviation, mean) were employed. Kolmogorov-Smirnov test was used in order to determine whether the data met normal distribution assumptions. In order to determine statistical significance of the differences between the mean scores of the groups, paired samples t test, Kruskal-Wallis and PostHoc test were used. Spearman's rho correlation analysis was used in order to examine the relationship between scale scores. The results were evaluated at 95% confidence interval and  $p < 0.05$  significance level.

## RESULTS

In Table 1, sociodemographic characteristics, Katz ADL Index, and General Comfort Questionnaire mean scores of burn patients are presented.

**Table 1. Descriptive Characteristics, Katz ADL and GCQ Mean Scores of Burn Patients (n=149)**

Age	n	%	Katz ADL	GCQ
Between 18 and 35 (1)	86	57.7	4.59±1.54	59.35±4.34
Between 36 and 50 (2)	45	30.2	4.17±0.53	61.85±4.33
51 and above (3)	18	12.1	2.81±1.83	58.74±4.41
<b>Test and Sig.</b>			KW=1.955 <b>p=0.000**</b>	KW=2.281 p=0.516
<b>PostHoc</b>			1>2>3	
<b>Gender</b>				
Female	48	32.2	5.45±0.74	58.83±5.63
Male	101	67.8	3.7±1.71	59.22±3.57
<b>Test and Sig.</b>			U=0.896 <b>p=0.000**</b>	U=2.377 p=0.848
<b>Burn Degree</b>				
First-degree	2	1.3	5±0.48	59.58±3.63
Second-degree	99	66.4	4.65±1.61	58.90±4.64
Third-degree	48	32.2	3.43±1.56	57±4.24
<b>Test and Sig.</b>			KW=2.576 <b>p=0.000**</b>	KW=0.835 p=0.659
<b>PostHoc</b>			1>2>3	
<b>Burn Percentage</b>				
20 and below (1)	113	75.8	4.42±1.65	60.16±4.79
Between 21 and 40 (2)	25	16.8	3.96±1.71	59.56±3.95
Between 41 and 50 (3)	6	4	1.83±1.12	58.94±4.44
51 and above (4)	5	3.4	1.5±0.74	57.79±3.94
<b>Test and Sig.</b>			KW=1.265 <b>p=0.004**</b>	KW=0.816 p=0.648
<b>PostHoc</b>			1>2>3,4	
<b>The body parts injured by the burn</b>				
Only head-neck	12	8.1	3±1.24	58.04±3.01
Head-neck together with anterior-posterior trunk	38	25.5	3.33±1.34	57.74±3.96
Right upper extremity	37	24.8	3.31±1.99	56.12±3.91
Left upper extremity	37	24.8	3.3±1.76	55.14±2.98
Right and/or left lower extremity	25	16.8	2.99±2.44	53.24±4.01
<b>Test and Sig.</b>			KW=0.714 p=0.111	KW=0.843 p=0.741
<b>Treatment Applied</b>				
Surgical Treatment	77	51.7	3.85±1.76	59.16±3.99
Medical Treatment	72	48.3	4.7±1.48	59.02±4.69
<b>Test and Sig.</b>			U=1.130 <b>p=0.001**</b>	U=0.971 p=0.0715

Sig.: Significance, t=Paired samples t test, KW=Kruskal Wallis test, \*p<0.05, \*\*p<0.01

57.7% of the sample were in the age range between 18-35 years, and 67.8% were male. 66.4% had second-degree burns, and the burn percentage of 75.8% was 20% and below. 51.7% of the burn patients had received surgical treatment. As age, burn percentage, and burn degree increased, dependence in ADL increased. Dependence was lower in females compared to males and in burn patients who had received medical treatment compared to the burn patients who had received surgical treatment. All these results were statistically significant (p<0.05). It was determined that sociodemographic characteristics did not statistically significantly affect

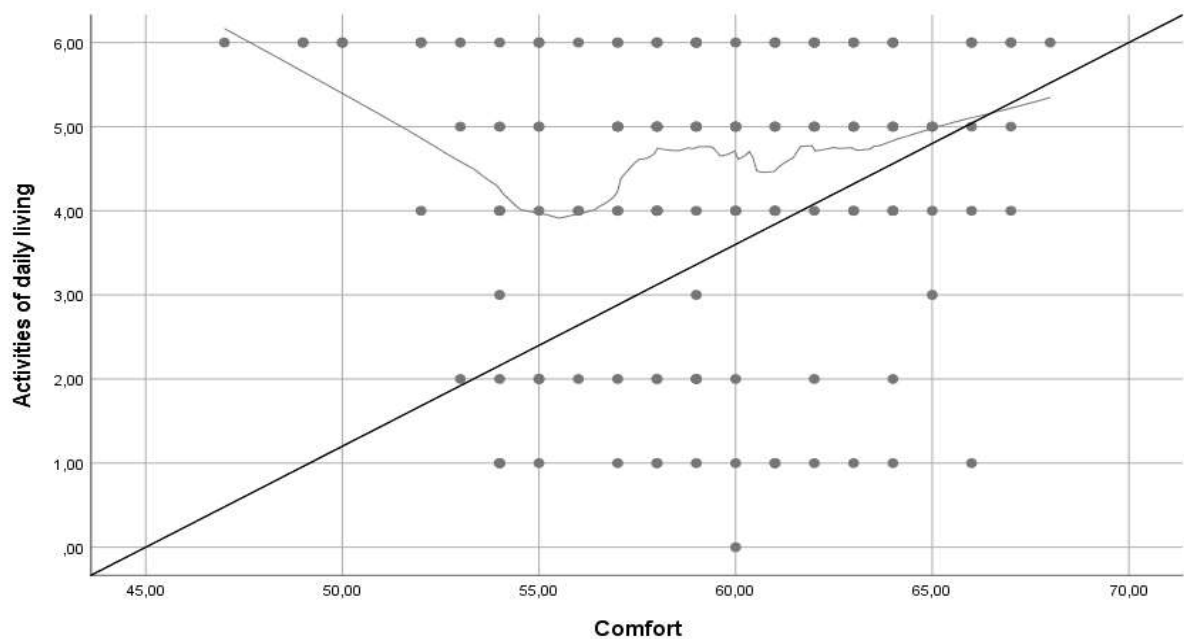
comfort level. Although there was no statistically significant difference, comfort level of males and burn patients between the ages of 36-50 years were higher ( $p>0.05$ ) (Table 1).

In Table 2, Katz ADL and GCQ mean scores are presented. Accordingly, Katz ADL total scale mean score was determined to be  $4.26\pm 1.68$  (min. 0, max. 6). The highest dependence was found in bathing subscale, while the lowest dependence was in the continence subscale. GCQ total scale mean score was found as  $59.1\pm 4.33$  (min. 47, max. 68). The scores obtained from relief, ease, and transcendence subscales were  $2.12\pm 0.28$ ,  $2.05\pm 0.29$ ,  $2.15\pm 0.24$ , respectively.

**Table 2. Mean Scores Obtained from Katz Activities of Daily Living and General Comfort Questionnaire Short Form (n=149)**

Scales	Number of Items	Items	Score Range	Mean $\pm$ SD	Min	Max
<b>Katz ADL Total</b>	6	6	0-6	$4.26\pm 1.68$	0	6
Bathing	1	1	0-1	$0.48\pm 0.42$	0	1
Dressing	1	2	0-1	$0.69\pm 0.46$	0	1
Going to Toilet	1	3	0-1	$0.78\pm 0.41$	0	1
Transferring	1	4	0-1	$0.79\pm 0.40$	0	1
Continence	1	5	0-1	$0.97\pm 0.16$	0	1
Feeding	1	6	0-1	$0.55\pm 0.49$	0	1
<b>GCQ Total</b>	28	1-28	28-168	$59.1\pm 4.33$	47	68
Relief	9	7,8,9,12,15,20,22,26,28	1-9	$2.12\pm 0.28$	1.44	3
Ease	9	1,4,13,16,17,18,23,24,25	1-9	$2.05\pm 0.29$	1.5	2.9
Transcendence	10	2,3,5,6,10,11,14,19,21,27	1-10	$2.15\pm 0.24$	1.56	2.89

In Figure 1, the relationship between Katz ADL and GCQ mean scores of burn patients are presented. The score range of GCQ is between 28 and 168, but the maximum score obtained was 68. The mean score obtained from ADL was relatively higher compared to GCQ. Burn patients obtained scores from all levels of dependence. GCQ scores mainly concentrated between 50-65.



**Figure 1. Scatter Plot of ADL and GCQ Scores of Burn Patients (n=149)**

In Table 3, the results of the correlation analysis between Katz Activities of Daily Living and General Comfort Questionnaire mean scores are presented. A positive, strong, and statistically significant relationship was found between Katz ADL and GCQ mean scores ( $r=0.014$ ,  $p=0.017$ ).

**Table 3. Correlation Analysis Between Katz Activities of Daily Living and General Comfort Questionnaire Mean Scores**

		General Comfort Questionnaire	Katz ADL Index
Spearman's rho	Correlation Coefficient	1	0.014
	Sig. (2-tailed)	-	0.017*
	N	149	149
	Correlation Coefficient	0.014	1
	Sig. (2-tailed)	0.017*	-
	N	149	149

\* $p<0.05$

## DISCUSSION

Comfort is a psychological stage in which the individual believes s/he can control everything and feels relieved. Comfort is perceived differently by each individual. Individuals would like to be in an environment where they feel themselves relieved and want to do their activities in this environment. The areas where individuals feel relieved and safe are comfort areas, and in such times, they feel themselves psychologically relieved. Considering that individuals spend most of their time in closed spaces, these interior spaces where they do their activities should be designed in such a way to meet their needs (Demir, 2021). Even when burn patients are hospitalized in a hospital in good condition but where their comfort area is restricted, poor clinical conditions obviously decreases their comfort. In the present study, it was determined that as independence in ADL increased in burn patients, their comfort level increased, and that the correlation between these two parameters was high ( $p<0.05$ ).

Dependence and low level of comfort in many areas of ADL in major surgery patients are among the frequent problems encountered (Demir & Bülbüloğlu, 2021; Kapıkıran et al., 2021). Dependence in ADL refers to the individual's meeting his/her needs with the help of others. The basic needs, which are also the subscales of Katz ADL, are bathing, dressing, going to toilet, transferring, continence, and feeding. In the present study, it was determined that the areas where burn patients felt the most dependent were bathing, feeding, and dressing. Dependence in ADL makes it difficult for individuals to return to their social roles and business life and leads to depression (Terzi & Kaya, 2017). The main prerequisite for a high level of comfort is meeting ADL in full (Bülbüloğlu & Kapıkıran, 2021; Demir & Bülbüloğlu, 2021). In the study, burn patients not being fully independent may have laid the ground for decreased comfort level. In fact, GCQ mean score of the burn patients were determined to be  $59.1\pm 4.33$  (min. 47, max. 68). Considering the score range of GCQ, it can be concluded that the comfort levels of the burn patients were quite low.

Infection risk related to burn injury and long hospital stay duration cause patients to experience social isolation, and thus, they cannot receive psychosocial family and environmental support. This situation can trigger the development of psychiatric problems in burn patients (Ghezeljeh et al., 2017; Uyar et al., 2022). The present study aimed to examine burn patients' dependence in ADL and their comfort levels. It was determined that the burn patients in the study were not fully independent, and their comfort was not at an acceptable level. Also, there was a strong correlation between dependence in ADL and comfort level. The results obtained in the study show that burn patients are in need of support in terms of meeting their basic needs and ensuring their comfort. The present study has certain limitations. Firstly, the study conducted is a single-center study, and thus, its results cannot be generalized to all burn patients. Many problems that they experienced during their hospitalization other than burn injury may have decreased their comfort levels. Another limitation is that the burn patients were not followed up after discharge.

## CONCLUSION

In the study, dependence in ADL and comfort levels of burn patients in hospitalization process were determined. A strong, positive, and statistically significant correlation was found between dependence

in ADL and comfort levels, and the patients were not in good condition in terms of both parameters. Total scale mean scores of the burn patients indicate dependence and poor comfort level. The reasons for not providing the burn patients with comfort should be identified. Necessary interventions should be made in order to improve the patients' ADL, and family caregivers should be trained in this regard. Dependence in ADL and poor level of comfort can weaken psychological well-being of burn patients. In this context, psychological support should be provided to burn patients. Based on the findings obtained in the study, it is recommended to improve burn patients' conditions in terms of ADL and comfort levels.

#### Conflict of Interest

There is no conflict of interest about authors or the article. The authors didn't received institutional support, non-commercial grants, commercial support.

#### Author Contributions

**Study conception and design:** MG, SB, BS; **Data analysis and interpretation:** MG, SB, FEA, BS, EA, GZ, KNK; **Data collection:** SB, FEA, BS; **Drafting of the manuscript:** MG, SB, FEA, BS, EA, GZ, KNK; **Critical revision of the manuscript:** MG, SB.

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