



## DETERMINATION OF DRUG COMPLIANCE AND QUALITY OF LIFE IN INDIVIDUALS DIAGNOSED WITH SCABIES

### SCABIES TANISI OLAN BİREYLERDE İLAÇ UYUMU VE YAŞAM KALİTESİNİN BELİRLENMESİ

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#### ABSTRACT

**Objective:** This study was conducted to determine the relationship between sociodemographic characteristics, skin quality of life and medical compliance in individuals diagnosed with scabies.

**Method:** Patients diagnosed with scabies and called for follow-up after treatment were included in the study (87 people). A sociodemographic questionnaire and Skindex-16 Scale (Skindex-16) and Medication Adherence Report Scale were used in the study. The data were evaluated using the SPSS (Statistical Package for Social Sciences) package program and the level of significance was accepted as  $p<0.05$ . Percentage and mean were used to evaluate the data, student t-test and one-way ANOVA were used for comparisons between groups, and correlation analyzes were used to evaluate the relationship between variables.

**Results:** In the study, the quality of life of the individuals was found to be moderate. The scores they got from the drug compliance scale were at a good level. The quality of life score was found to be lower in those who had children, did not see the parasite under the microscope, and were diagnosed with scabies in other individuals at home. There is a statistically significant relationship between the quality of life score and the drug compliance score in the negative direction and the disease duration in the positive direction. A  $p<0.05$  value was accepted for the significance level of statistical tests.

**Conclusion:** It is thought that psychosocial support and psychotherapeutic interventions will positively affect the quality of life of these patients. It is considered important to provide education to individuals about drug compliance.

**Key Words:** Dermatology, Scabies, Compliance with Treatment, Quality of Life

#### ÖZ

**Amaç:** Bu araştırma, scabies tanısı alan bireylerde sosyodemografik özelliklerin cilt yaşam kalitesi ve tıbbi uyum ile ilişkisini belirlemek amacıyla yapıldı.

**Yöntem:** Araştırmaya scabies tanısı konulan ve tedavi sonrası kontrole çağrılan hastalar dahil edildi (87 kişi). Çalışmada sosyodemografik soru formu ve Skindex-16 Ölçeği (Skindex-16) ve İlaç Uyum Ölçeği kullanıldı. Veriler bilgisayar ortamında SPSS (Statistical Package for Social Sciences) paket programı kullanılarak değerlendirildi ve anlamlılık düzeyi  $p<0.05$  olarak kabul edildi. Verilerin değerlendirilmesinde yüzde ve ortalama, gruplar arası karşılaştırmalarda student t-testi ve one-way ANOVA, değişkenler arasındaki ilişkinin değerlendirilmesinde korelasyon analizleri kullanıldı.

**Bulgular:** Çalışmada bireylerin yaşam kalitesi orta düzeyde saptandı. İlaç uyum ölçeğinden aldıkları puan ise iyi düzeydeydi. Çocuğu olanlarda, mikroskopta paraziti görmeyenlerde ve evde başka bireylerde scabies tanısı olanlarda yaşam kalitesi puanı daha düşük düzeyde bulundu. Yaşam kalitesi puanının ilaç uyum puanı ile negatif yönde; hastalık süresi ile pozitif yönde istatistiksel olarak anlamlı bir ilişkisi vardı. İstatistiksel testlerin anlamlılık düzeyi için  $p<0,05$  değeri kabul edildi.

**Sonuç:** Bu hastalarda psikososyal destek ve psikoterapötik müdahalelerin bireylerde yaşam kalitesine olumlu etki edeceği düşünülmektedir. Bireylere ilaç uyum konusunda eğitim verilmesinin önemli olduğu düşünülmektedir.

**Anahtar Kelimeler:** Dermatoloji, Scabies, Tedaviye Uyum, Yaşam Kalitesi

#### INTRODUCTION

*Sarcoptes scabiei*, which is defined as a neglected tropical disease by the World Health Organization (WHO), causes significant morbidity and loss of quality of life due to the transmission (predominantly from skin to skin) by the *Sarcoptes scabiei* mite [1]. Scabies is generally seen as a problem of people living in low- and middle-income countries and can affect any age group [2]. In Turkey, the overall case increase rate was 81% in 2018 and 138% in 2019 [3]. During the COVID-19 pandemic, the risk of transmission has

people they live with, with the "Stay at home" policy. In addition, daily habits such as body care and personal hygiene practices have changed due to house arrest and social isolation [4]. In a study conducted in Italy, it was stated that there was an increase in scabies cases in 2020-2021 [4]. The most common symptom of scabies is itching, especially at night. In addition, the disease may present with papular rash and excoriations [5]. The intensity of itching can vary between individuals, from extreme itching that impairs quality of life to mild symptoms [6]. Treatment failure is largely attributable to ineffective application of topical scabicides and poor environmental control [7].

#### Makale Bilgisi/Article Info

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Misuse of the drug, for example, insufficient exposure time to the drug, inability to shorten the nails (which may harbor subungual mites after itching), or not applying permethrin to the scalp in young children have been reported as reasons for failure in treatment [8]. In another study, the reasons for the persistence of the infection were stated as inadequate treatment of those in close contact with the sick individual, insufficient effect of current treatments, resistance of *Sarcoptes*, non-repetition of treatment, insufficient dose and application methods in treatment, and oral administration of treatments [9].

Scabies can lead to increased morbidity through progression to secondary bacterial infections, followed by sepsis, a life-threatening condition. It has been reported that the disease can cause depression and insomnia, but also affects social status, continuing to work, and causes high financial costs [5]. Because the mode of transmission is mostly direct person-to-person contact, patients may be subject to significant social stigma. In addition, skin lesions accompanied by infection may cause embarrassment [10]. This disease has a significant negative effect on the quality of life in individuals [11]. Studies have shown that scabies adversely affects the quality of life [12,13]. In another study, it was determined that 111 out of 120 patients (92%) had difficulty in working at the workplace, a feeling of embarrassment occurred in 83.3% of them, and social relations were affected in 82.5% of the patients [14].

It is known that scabies causes a significant social impact, reduces the quality of life, and affects a very large population economically and psychologically [15]. No study has been found in the literature that deals with drug compliance and quality of life in patients diagnosed with scabies. This study was planned to determine the drug compliance and quality of life of individuals diagnosed with *Scabies*.

## METHOD

This study was carried out between February 2022 and April 2022 at the Kuşadası State Hospital Dermatology and Venereal Diseases Clinic/outpatient clinic with patients over the age of 18 by means of a face-to-face survey. The study was carried out in accordance with the Declaration of Helsinki.

### Participants

Inclusion criteria were: being over 18 years of age, volunteering to participate in the study, and being diagnosed with *Scabies*. The sample size was determined as 87 by G power analysis [16]. The cause of the disease was shown to the patients who applied to our outpatient clinic for the first examination using a digital microscope (Figure 1)

### Data Collection Tools

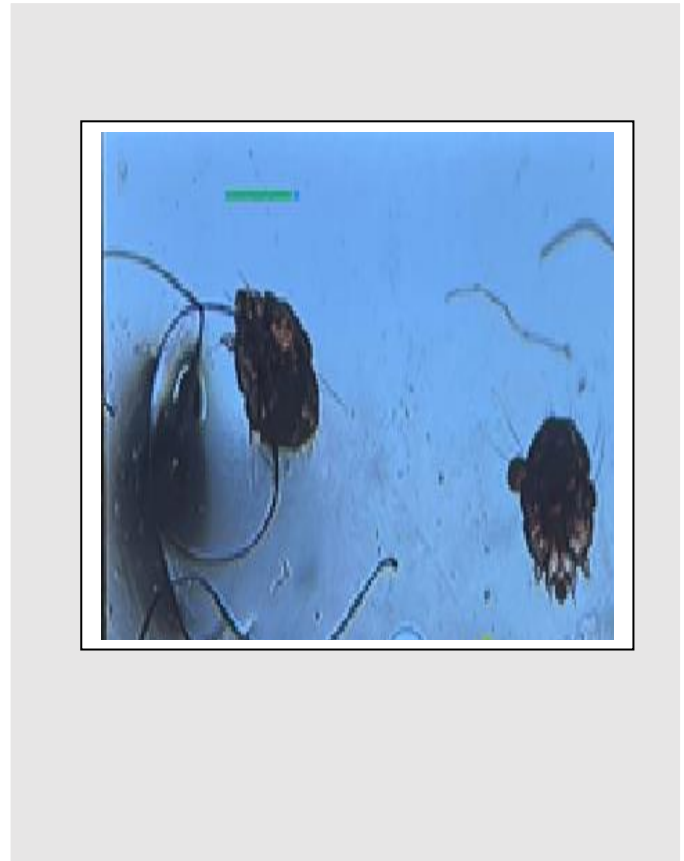
All participants completed the socio-demographic questionnaire, Skindex-16 Scale and Medication Adherence Scale, which included socio-demographic characteristics and disease-specific questions.

*Sociodemographic Questionnaire*: This form includes questions about age, gender, education level, marital status and socioeconomic status, and whether there are additional systemic diseases (diabetes mellitus, hypertension, heart diseases and thyroid diseases).

*Skindex-16 Scale (Skindex-16)*: Skindex is a dermatology-specific quality of life scale developed by Chren et al. in 1996 with 61 items [17]. The scale was simplified to 29 items and then to 16 items, with psychometric analyzes maintaining its validity and reliability. Skindex-16 consists of 3 scales and 16 items. There are 5 questions on the function scale, 4 questions on the symptom scale, and 7 questions on the emotion scale. The lowest score represents the best health status. Skindex-16 was adapted into Turkish in 2016 with the validity and reliability test performed by Aksu et al. [18]. The higher the score, the lower the quality of life.

*Medication Adherence Report Scale*: The Medication Adherence Report Scale (MARS-5) was developed by Horne and Weinman (2002) to identify patients with drug non-compliance (19). It is a 5-

point Likert Type scale consisting of five items ("Never" is graded with 5 points and "Always" is graded with 1 point). The scale does not have a cut-off score; It can be said that the higher the total score obtained from the scale, the higher the fit. It was observed that the scale adapted to Turkish showed a single factor structure explaining 54% of the variance. The Cronbach's alpha coefficient of the Turkish form was found to be 0.78. The scale also showed a significant and strong correlation with the Morisky Coherence Scale, which measures the same construct [20].



**Figure 1.** Digital microscope

### Data Collection

The research data were applied to the patients diagnosed with Scabies who came to the Kuşadası State Hospital Dermatology and Venereal Diseases clinic/outpatient clinic through a face-to-face questionnaire after the ethics committee approval. Written informed consent about the study was obtained. Incompletely filled questionnaires were not included in the study.

### Ethics of the Study

Ethical approval was obtained from the Health Sciences Non-Interventional Clinical Research Ethics Committee of İzmir Demokrasi University for the conduct of the study with the decision number 2022/03 on 23.02.2022. Informed consent was placed at the beginning of the form, and if the participant gave the consent, he or she completed the questionnaire online.

### Statistical Analysis

The data were evaluated in computer environment using SPSS (Statistical Package for Social Sciences) package program and the level of significance was accepted as  $p < 0.05$ . The conformity of the data to the normal distribution was evaluated with the Shapiro-Wilk and Kolmogorov-Smirnov tests, and percentages and averages were used in the evaluation of the data, student t-test and one-way ANOVA were used in the intergroup comparisons, and correlation analyzes were used in the evaluation of the relationship between the variables.

**RESULTS**

Forty seven (54%) of the participants were male and 70.1% were married. Fifty seven (65.5%) of them were at undergraduate and above level of education, 81.6% of them were working. Forty four (50.6%) of individuals smoke, 95.4% did not have any other disease. Fifty (57.3%) of them were parents with children. Forty seven (54%) of individuals saw the parasite that caused the disease under the microscope at the time of diagnosis. Sixty six (75.9%) stated that there was another patient diagnosed with Scabies at home, and Fifty (57.5%) answered that they benefited from the treatment (Table 1).

**Table 1.** Characteristics of the participants (n=87)

Characteristics	n	%
<b>Gender</b>		
Female	40	46
Male	47	54
<b>Marital status</b>		
Married	61	70.1
Single	26	29.9
<b>Education level</b>		
Middle school graduate and lower	30	34.5
Undergraduate and above	57	65.5
<b>Working status</b>		
Employed	71	81.6
Unemployed	16	18.4
<b>Having a child</b>		
Yes	50	57.3
No	37	42.5
<b>Smoking</b>		
Yes	44	50.6
No	43	49.4
<b>Are there any other scabies patients in the house</b>		
Yes	66	75.9
No	21	24.1
<b>Seeing the parasite in the microscope</b>		
Yes	47	54
No	40	46
<b>Response to treatment</b>		
Yes	50	57.5
No	37	42.5

The patients' Skindex-16 scale total score average was 58.11±33.87, the symptoms sub-dimension score average was 15.60±7.28; the mean score of the emotion sub-dimension was 25.89±16.91 and the mean score of the function sub-dimension was 16.60±10.52. Considering the drug compliance scale score, it is 21.19±5.16. The relationship of socio-demographic characteristics with Skindex-16 is given in Table 2. Skindex-16 total score (51.06±32.90) in patients with children; symptoms (54.64±29.13), emotion (54.47±39.82) and function subscale scores (44.08±33.47) skindex-16 total score (30.59±30.05) of those without children; symptoms (35.33±26.51), emotion (30.17±35.37) and function sub-dimension scores (26.27±30.98) were statistically significantly higher (p<0.05). Compared to the patients with no other scabies diagnosis at home, the Skindex-16 scale total score (49.67±33.22) and symptoms (52.08±29.99), emotion (53.27±39.48) and function scores (43.66±33.69) were determined by the Skindex-16 scale were higher (p<0.05) than patients who had no other scabies diagnosis at home, scale total score (16.93±17.70) and

symptoms (26.07±18.36), emotion (12.82±20.15), and function scores (11.90±18.02) (Table 2). Skindex-16 scale total score and sub-dimension scores (symptoms, emotion, function) were statistically significantly higher in those who did not see the parasite causing the disease under the microscope (p= 0.00).

**Table 2.** Participants' characteristics and comparison of Skindex-16

Characteristics (n)	Skindex-16 Scale			
	Skindex-16 total Mean±SD	Symptoms Mean±SD	Emosyon Mean±SD	Functional Mean±SD
<b>Gender</b>				
Female (409)	57.62±32.44	15.82±6.87	25.57±16.54	16.22±9.97
Male (47)	58.53±35.38	15.42±7.68	26.17±17.39	16.93±11.07
p values	0.90	0.80	0.87	0.76
<b>Marital status</b>				
Married (61)	45.90±33.10	49.48±29.16	40.11±33.94	40.11±33.94
Unmarried (26)	32.07±32.15	37.16±29.80	26.34±30.82	26.34±30.82
p values	0.07	0.07	0.09	0.08
<b>Having a child</b>				
Yes (49)	51.06±32.90	54.64±29.13	54.47±39.82	44.08±33.47
No (38)	30.59±30.05	35.33±26.51	30.17±35.37	26.27±30.98
p values	<b>0.04***</b>	<b>0.02***</b>	<b>0.04***</b>	<b>0.01***</b>
<b>Are there any other scabies patients in the house</b>				
Yes (66)	49.67±33.22	52.08±29.99	53.27±39.48	43.66±33.69
No (21)	16.93±17.70	26.07±18.36	12.82±20.15	11.90±18.02
p values	<b>0.00*</b>	<b>0.00*</b>	<b>0.00*</b>	<b>0.00*</b>
<b>Seeing the parasite in the microscope</b>				
Yes (47)	14.03±10.22	22.73±12.79	9.39±10	9.97±12.81
No (40)	74.36±17.27	72.90±19.01	83.60±17.48	66.57±22.40
p values	<b>0.00*</b>	<b>0.00*</b>	<b>0.00*</b>	<b>0.00*</b>

\* p<.001, \*\*p<.01, \*\*\*p<.05

No statistically significant correlation was found between socio-demographic characteristics such as gender (p=0.882), educational status (p=0.122), marital status (p=0.076), and employment status (p=0.891) and the Skindex-16 scale score.

Correlation analysis was performed to determine the factors affecting the quality of life of individuals diagnosed with scabies. The results are presented in Table 3.

**Table 3.** Correlation between participants' disease duration, Skindex-16 and and Drug Adherence Scale

Variables	Disease duration		Drug Adherence Scale	
	r	p	r	p
Disease duration	<b>1</b>		-0.476	<b>0.000*</b>
Skindex-16 scale	0.630	<b>0.000</b>	-0.799	<b>0.000</b>
Symptoms	0.639	<b>0.000*</b>	-0.756	<b>0.000</b>
Emotion	0.637	<b>0.000</b>	-0.813	<b>0.000</b>
Functional	0.554	<b>0.000</b>	-0.745	<b>0.000</b>
Drug Adherence Scale	-0.476	<b>0.000</b>	1	

\* p<.001

As shown in this table, the duration of disease was positive with the skindex16 scale total score and sub-dimensions; It was found to be negatively and statistically significantly associated with drug compliance. Adherence to medication was negatively and statistically

significantly correlated with Skindex-16 scale total score and sub-dimension scores ( $p=0.00$ ).

## DISCUSSION

It has also been stated that skin diseases cause social isolation and alienation from work/school by causing anxiety, depression, anger and embarrassment in individuals [21]. Scabies causes a decrease in quality of life due to the stigma associated with the disease, with a perceived effect on schooling and social participation, especially in communities where recurrent infection is common [22,23]. This research was carried out to determine the quality of life of individuals diagnosed with scabies, their drug compliance levels and socio-demographic factors affecting their quality of life.

In this study, the total score obtained by the participants from the Skindex-16 scale was  $58.11 \pm 33.87$ , which is moderate. Considering the minimum and maximum score range (0-100) that can be obtained from the scale, it can be said that the scores they got from the drug compliance scale were at a good level. In the study conducted by Chowdhry et al. on scabies patients, it was determined that the life quality of 25.7% of adults was moderately affected, and the quality of life of 44.1% of children was mildly affected (11). Worth et al. found that 13.9% of the patients diagnosed with scabies noticed a major or very large effect on their lives due to scabies, 65.2% had a mild or moderate decrease in their quality of life, and 20.9% did not feel any restriction [12]. Teh et al. found that the quality of life of 51.6% of adults diagnosed with scabies was affected at a low level, and the quality of life of 62.5% of children was minimally affected [14]. In another study, more than half of the scabies patients complained of little itching, while others stated that the disease caused too much embarrassment and social and partner interaction problems [13]. Srinivas et al. found that scabies moderately affected the quality of life of individuals in the form of embarrassment and stigma [24]. Being diagnosed with scabies and the symptoms experienced due to the disease can negatively affect individuals and reduce their quality of life. It is recommended to provide psycho-social support to these individuals at the same time.

In the study, the quality of life of the participants who had children was found to be lower than those who did not have children. In a study conducted with patients with scabies and impetigo, it was reported that diseases were perceived as diseases that affect children, school attendance and sleep quality of families [25]. Having a child may have caused the anxiety of transmitting the disease to him as well. It is thought that this may have led to a negative impact on the quality of life of individuals.

In the study, the quality of life was found to be lower in patients with a family history of scabies. To ensure the eradication of the mites and ultimately the prevention of further contamination, it is important that all members of the affected household are treated and their environment properly sanitized [6]. In a study, it was found that the presence of symptoms as a family member causes frustration in individuals and leaves a feeling of being unwelcome in relatives [26]. Linuwih et al. found that the presence of an individual diagnosed with scabies in the family did not affect the quality of life [10]. In another study, families with more than ten people showed the highest rates of scabies (49.5%) [27].

The presence of the disease in family members may lead to recurrence of the infection. This can negatively affect the coping mechanism of individuals with the disease and reduce their quality of life. In a study, it was concluded that low public awareness and perception were associated with high prevalence and contagiousness of scabies [28]. In one study, repeated prescriptions for scabies were common, especially in adolescents and young adults. Failure of first-line treatments was observed in 6-8% of all patients in clinical trials. Here, too, it has been reported that young adults have low drug compliance, especially within their peer groups [29]. Skin creams and lotions are available for the treatment of scabies, but patients may not apply them fully. In a

controlled trial study in 12 villages to test whether an oral drug called Ivermectin could reduce scabies in a tribal community in central India, healthcare workers supervised patients. Two and twelve months after these treatments, the number of scabies cases was evaluated. In villages where oral ivermectin was used, the risk of scabies was reduced by 79% and 51% at the end of two and twelve months [30]. All these results show the importance of providing accurate and adequate information about drug compliance to patients. Health professionals should organize more detailed training and patient follow-up on this issue.

In the study, the Skindex-16 scale total score and sub-dimension scores (symptoms, emotion, function) of those who did not see the parasite causing scabies under the microscope were statistically significantly higher than those who saw the parasite under the microscope. The rate of benefit from the treatment was found to be higher in patients who saw the parasite taken from them during the diagnosis under the microscope. In the literature, there is no study showing the cause of the disease to the patient in this way. This is thought to be important in terms of understanding and caring about the severity of the disease.

In this study, a statistically significant positive correlation was found between the duration of the disease and the Skindex-16 scale. With this result, it can be said that the quality of life deteriorates as the duration of the disease increases. Worth et al. similar to our study, it was determined that the quality of life of patients with longer-term scabies was more affected [12]. Dealing with a long-term illness can disrupt the sleep pattern of the individual, negatively affect his socialization and reduce his quality of life. For this reason, it is thought that correct diagnosis and effective treatment are very important in patients.

In the study, a negative correlation was found between the Skindex-16 scale total score and drug compliance. As the patient's compliance score increases, the quality of life score decreases. It has been stated in the literature that most cases of treatment failure are probably due to inadequate treatment or inadequate adherence to treatment [31]. In a study, it was reported that there is a need for improvement in the prevention and treatment of scabies in terms of education for the sick individual, management of the disease and providing affordable access to treatment [23]. Lake et al. reported that treatment rarely had an effect on HRQoL [32]. As drug compliance increases, it is possible that the symptoms will decrease and the quality of life will be affected positively. For this reason, it is important to give patients the necessary information about drug compliance.

## Limitations and Strengths of the Study

The single-center nature of our study is one of the limitations of our study. The fact that a similar study has not been conducted before is the strength of the research. In addition, showing the parasite to patients under the microscope is a situation that has not been encountered in previous studies. The fact that it is the first study to measure the level of belief in diagnosis and adherence to treatment by showing the parasite under the microscope makes this study different from the others. This is the strength of the study.

## CONCLUSION

This study shows that the quality of life of individuals with skin disease is adversely affected. In the light of the data we obtained in our study, we observed that the treatment success of patients with children was low.

We think that this is due to the fact that pediatric patients do not comply with topical treatments and re-infect their family members. We found that patients who saw the parasite, which is the causative agent of the disease, under the microscope during the diagnosis benefited from the treatment at a higher rate. We think that this situation increases the patients' belief in the diagnosis and contributes to their correct application of the treatment.

*Ethical Approval:* 2022/03 Non-Interventional Clinical Research Ethics Committee of Izmir Demokrasi University

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