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Clinical Features and Quality of Life in Patients with Scabies

Uyuzlu Hastalarda Klinik Bulgular ve Yaşam Kalitesi

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ABSTRACT

Objective: Scabies is a contagious cutaneous infestation characterized by intense itching. In this study, we aimed to evaluate the clinical features of scabies and the effect of scabies on quality of life, and the change in quality of life with treatment.
Methods: This prospective and cross-sectional study included 40 adults patients with classical scabies. Detailed skin examinations of the patients were performed. Dermatological life quality index (DLQI) was used to evaluate quality of life in patients with scabies. Visual analog scale (VAS) was used to investigate the severity of nocturnal itching and itch-related sleep disturbance. VAS levels and DLQI scores of the patients were evaluated at baseline (week 0) and after treatment (weeks 2 and 4).
Results: The most common lesion in patients was tunnel (100%), followed by papule (97.5%), crusted papule (85%) and excoriation (77.5%). The abdomen (90%) was the most common area of lesions, followed by hands (87.5%) and forearm (85%). It was determined that the quality of life of 75% of the patients was moderate to extremely large affected. There was a significant improvement in average DLQI scores of patients after treatment compared to before treatment ($p<0.001$, week 0: 11.50±7.81, week 2: 5.50±4.68, week 4: 1.05±2.08). The baseline VAS values of the patients for nocturnal itching and itch-related sleep disturbance were 7.22±2.80 and 6.30±3.60, respectively. A statistically significant improvement was detected in these values in the week 2 and week 4 ($p<0.001$). Thirty-nine of the patients were given 10% sulfur ointment (3 consecutive days) and 35 of these patients (89.7%) recovered.
Conclusion: Scabies has significant impact on quality of life in the vast majority of patients. Itch-related sleep disturbance is common in patients with scabies. Sulfur is an effective treatment choice for scabies.
Keywords: Itching, quality of life, scabies, sulfur

ÖZ

Amaç: Uyuz, yoğun kaşıntı ile karakterize bulaşıcı bir deri enfestasyonudur. Bu çalışmada uyuzun klinik özelliklerini ve uyuzun yaşam kalitesine etkisini ve tedaviyle yaşam kalitesindeki değişimi değerlendirmeyi amaçladık.
Yöntemler: Bu prospektif, kesitsel çalışmaya klasik uyuzlu 40 erişkin hasta dahil edildi. Hastaların detaylı deri muayeneleri yapıldı. Uyuzlu hastalarda yaşam kalitesini değerlendirmek için dermatolojik yaşam kalite indeksi (DYKİ) kullanıldı. Gece kaşıntısı ve kaşıntı ilişkili uyku bozukluğunun şiddeti vizüel analog skala (VAS) kullanılarak incelendi. Hastaların VAS düzeyleri ve DYKİ skorları başlangıçta (0. hafta) ve tedaviden sonra (2. ve 4. hafta) değerlendirildi.
Bulgular: Hastalarda en sık görülen lezyon tünel (%100) idi, bunu papül (%97,5), krutlu papül (%85) ve ekskoriasyon (%77,5) izliyordu. Lezyonların en sık görüldüğü bölge karın (%90) olup, bunu eller (%87,5) ve ön kol (%85) takip ediyordu. Hastaların %75'inin yaşam kalitesinin orta ila çok fazla etkilendiği belirlendi. Tedavi sonrası hastaların ortalama DYKİ skorlarında tedavi öncesine göre anlamlı iyileşme saptandı ($p<0,001$, 0. hafta: 11,50±7,81, 2. hafta: 5,50±4,68, 4. hafta: 1,05±2,08). Hastaların gece kaşıntısı ve kaşıntı ilişkili uyku bozukluğu için başlangıç ortalama VAS değerleri sırasıyla 7,22±2,80 ve 6,30±3,60 idi. Bu değerlerde 2. ve 4. haftada istatistiksel olarak anlamlı iyileşme saptandı ($p<0.001$). Hastaların 39'una %10 sülfürlü merhem verildi (3 ardışık gün) ve bu hastaların 35'i (%89,7) iyileşti.
Sonuç: Uyuz, hastaların büyük çoğunluğunda yaşam kalitesi üzerinde önemli bir etkiye sahiptir. Sülfür, uyuz için etkili bir tedavi seçeneğidir.
Anahtar Kelimeler: Kaşıntı, yaşam kalitesi, uyuz, sülfür

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Türkiye PARAZİTOLOJİ Dergisi

INTRODUCTION

Scabies is a contagious cutaneous infestation caused by the mite *Sarcoptes scabiei var. hominis* and is a significant public health problem in all countries regardless of socio-economic status (1). The prevalence of scabies has increased in the worldwide and in our country (Türkiye) in recent years (2,3).

Scabies is usually transmitted through close skin-to-skin contact or sexual contact. Generalized itching that worsen at night and cutaneous lesions begin 3-6 weeks after primary infestation. Burrow which is pathognomonic lesion of scabies and non-specific lesions such as papules and nodules are seen in patients with scabies (4). Burrow often seen on the flexural side of the wrist, the finger webs, the palms and the sides of the fingers. After appropriate treatment, itching and cutaneous lesions may persist for several weeks however will disappear completely over time (5).

The diagnosis of scabies is based on history and clinical findings. However, the diagnosis of corfirmed scabies can be made by identifying of the scabies mite or mite products (eggs or faeces) using various devices such as light microscopy, dermoscopy (6).

Scabies causes social stigma because it is transmitted through skin-to-skin contact and the cutaneous lesions are located in exposed areas (7,8). In addition, most patients with scabies complain of sleep disturbance and disruption of their work and social activities due to itching. All these reasons may affect the quality of life of scabies patients. In this study, we aimed to evaluate the clinical features of corfirmed scabies, the effect of scabies on quality of life and sleep and the change in quality of life after treatment. Another aim of the study was to determine the effectiveness of the treatment applied to scabies patients.

METHODS

Study Design and Population

Ethical approval was received for this prospective and cross-sectional study from Aydın Adnan Menderes University, Medical Faculty, Non-Interventional Clinical Research Ethics Committee (approval number: 2021/179, date: 02.12.2021).

Forty people involved in this prospective study were selected among the patients with classical scabies who applied to the dermatology outpatient clinic of Aydın Adnan Menderes University Hospital in Türkiye. Patients whose diagnosis of scabies was confirmed by dermoscopy, being 16 years or older, patients with itching for at least 1 week, and being literate were included in the study. Patients younger than 16 years, being illiterate, patients with chronic cutaneous disease (e.g., psoriasis, atopic dermatitis), patients with crusted scabies, patients with uncontrolled systemic disease (e.g., diabetes mellitus), patients with severe neurological disease (e.g., dementia), patients using immunosuppressive drug, and pregnant or breastfeeding women were excluded in the study. Written informed consent was obtained from all the patients.

Detailed skin examinations of the patients included in the study were performed by a dermatologist. Socio-demographics data and clinical characteristics of the patients were collected.

Treatment

In week 0, 39 patients were given 10% sulfur ointment (10 gram precipitated sulfur in 90 gram vaseline, prepared in the pharmacies), while 1 patient was given the lotion (commercial preparation containing mainly benzyl benzoate, sulfur, peru balsam) as treatment. Patients using 10% sulfur ointment applied the ointment to their entire body except the head for 3 consecutive days and washed off on the fourth day. The effectiveness of the treatment was evaluated using dermoscopy at week 2. A patient was considered to have recovered if new lesions did not appear, old scabies lesions disappeared, and mites were not identified by dermoscopy. Patients who failed treatment were restarted 10% sulfur ointment (for 3 consecutive days) and re-evaluated at 4 week.

Questionnare and Measurements

The dermatology life quality index (DLQI) is the most extensively used questionnaire to measure the burden of cutaneous diseases and evaluate effectiveness of treatments based on patients' perspective (9). It was created by Finlay and Khan (10). The validity and reliability study of the Turkish version was made by Oztürkcan et al. (11). DLQI consists of 10 questions across 6 domains: Symptoms/feelings (questions 1 and 2), daily activities (questions 3 and 4), leisure (questions 5 and 6), work/school (questions 7), personal relationships (questions 8 and 9) and treatment (question 10). The questionnaire has four or five alternative responses for each question: not at all (0 score), a little (1 score), a lot (2 score), very much (3 score) and not relevant (0 score). The DLQI score is found by adding the scores of 10 questions. The DLQI score ranges from 0 to 30. The higher the DLQI score indicates the greater the deterioration in quality of life (10). The DLQI scores are categorized as follows: 0-1= no effect on patient's life; 2-5= small effect on patient's life; 6-10= moderate effect on patient's life; 11-20= very large effect on patient's life; and 21-30= extremely large effect on patient's life (12). The DLQI questionnaires were completed by patients at baseline (week 0), week 2, and week 4. The quality of life questionnaire team at Cardiff University Faculty of Medicine has granted us a free license to use the DLQI-Turkish version for the purposes of the study.

Patients' nocturnal itching and itch-related sleep disturbance were measured by visual analog scale (VAS), which has a numerical rating from 0 to 10 (0=no itch/no itch-related sleep disturbance, 10= worst imaginable itch/I couldn't sleep at all). VAS measurements were completed by patients at baseline (week 0), week 2, and week 4.

Statistical Analysis

Data analysis was conducted using IBM SPSS Statistics 25.0 (IBM Corp., Armonk, New York). Categorical variables were shown as numbers and percentages, while continuous variables were shown as mean and standard deviation. Wilcoxon signed-rank test was used on the data obtained at baseline and after treatment to evaluate the changes with treatment in the DLQI, nocturnal itching and itch-related sleep disturbance. A p-value less than 0.05 or 0.001 was considered statistically significant.

RESULTS

Of the 40 adults with scabies, 19 (47.5%) were males and 21 (52.5%) were females. The mean age of the patients was 33.2±14.2 years, and the ages ranged from 19 to 68 years. The mean duration of complaints was 11.8±14.6 weeks (range =1-52 weeks). All patients complained of itching. And 38 (95%)

patients had nocturnal itching. Thirteen (32.5%) patients also had a stinging sensation, and 16 (40%) patients had a burning sensation. Thirty-three patients (82.5%) reported itch-related sleep disturbance. Eighteen of the patients (45%) had at least one family member with similar complaints. Twenty-seven (67.5%) of the patients had previously applied to a health institution at least once due to their complaints, and only 6 (22.2%) of them were diagnosed with scabies and received topical scabies treatment.

Burrow, the pathognomonic lesion of scabies, was present in all patients. The most common non-spesific lesions seen in patients were the papules (97.5%), followed by crusted papules (85%), excoriations (77.5%) and macules (55%). Details of lesion types in scabies patients are shown in Table 1.

Lesions were most commonly observed on the abdomen (90%), followed by hands (87.5%) and forearm (85.0%). The face (2.5%) was the area with the least lesions. Localization details of lesions in scabies patients are shown in Table 2.

It was determined that scabies had a moderate or a very large effect on the quality of life in majority (57.5%) of the scabies patients. At week 2 after treatment, it was observed that scabies had small effect the quality of life of the majority (55%) of patients. At week 4 after treatment, it was observed that scabies had not effect the quality of life of the majority (80%) of patients. There was only 1 patient whose quality of life was very large affected at week 4, and this patient was one of two patients in whom sulfur treatment failed. Banding according to the DLQI scores at baseline and after treatment in scabies patients was shown in Table 3.

Symptoms/feelings domain was the most affected domain at baseline (week 0). After the treatment, it was determined that there was a decrease in the scores of other domains except the treatment domain (Table 4). Question 1 (related to symptoms, over the last week, how itchy, sore, painful or stinging has your skin been?) had the highest score (2.4±0.63) among the DLQI questions and all patients received at least 1 score. While the mean DLQI score of the patients was 11.50±7.81 before treatment (week 0), it was found as 5.50±4.68 (week 2) and 1.05±2.08 (week 4) after treatment. It was determined that the mean DLQI scores after treatment (week 2 and week 4) showed a statistically significant improvement compared to week 0. It was also determined that mean DLQI scores was decreased significantly the week 4 when compared to the week 2. The patients' baseline VAS values for nocturnal itching and itch-related sleep disturbance in week 0 were found be 7.22±2.80 and 6.30±3.60, respectively. A statistically significant improvement was detected in these values both in the week 2 and week 4 compared to the week 0 ($p<0.001$) (Table 5). While only 2 patients evaluated nocturnal itching as 0 points (no itching) in week 0, 7 patients evaluated it as 0 points in week 2, and 25 patients evaluated it as 0 points in the week 4. In addition, only 7 patients evaluated itch-related sleep disturbance as 0 points (no itch-related sleep disturbance) in week 0, 15 patients evaluated it as 0 points in week 2, and 30 patients evaluated it as 0 points in the week 4.

Thirty-six of 40 patients (90%) recovered at week 2. All 4 patients who failed treatment used 10% sulfur ointment. The success rate of 10% sulfur ointment was found to be 89.7% in patients who received 10% sulfur ointment. When 10% sulfur ointment was restarted in the four patients whose treatment failed, two of the four patients recovered at week 4. No major side effects were observed during sulfur treatment and the patients completed the treatment as recommended.

Table 1. Types of lesions in patients with scabies

Types of lesion	**Patients with scabies (n=40) n (%)**
Burrows	40 (100)
Papules	39 (97.5)
Crusted papules (papule covered with thin crust)	34 (85)
Excoriations	31 (77.5)
Macules	22 (55)
Eczematization	7 (17.5)
Vesicles	6 (15)
Pustules	5 (12.5)
Nodules	4 (10)
Superinfection/secondary infection (suppuration, abscess, secondary impetigo, *furuncle*)	0 (0)

Table 2. Localization details of lesions in patients with scabies (n=40)

Localization details of lesions	**n (%)**
Abdomen	36 (90)
Hand * Hand (except interdigital spaces) * Interdigital spaces	36 (87.5) 31(77.5) 33 (82.5)
Forearm * Forearm (except elbow and wrist) * Elbow * Wrist	34 (85) 28 (70) 13 (32.5) 23 (57.5)
Legs	26 (65)
Penis (n=21)	13 (61.9)
Buttock	24 (60)
Inguinal area + inner side of thigh	24 (60)
Thigh (except inner side of thigh)	20 (50)
Lower back	18 (45)
Upper back	15 (37.5)
Upper arm	12 (30)
Thorax (except breast)	12 (30)
Axilla	8 (20)
Genital (except penis in men)	6 (15)
Feet	6 (15)
Breast *Areola mammae *Breast (except areola mammae)	5 (12.5) 1 (2.5) 5 (12.5)
Ankle	3 (7.5)
Scalp	3 (7.5)
Neck	3 (7.5)
Face	1 (2.5)

Table 3. Banding according to the dermatology life quality index scores at baseline and after treatment in scabies patients

Week 0 n (%)	Week 2 n (%)	Week 4 n (%)	Range of DLQI scores	QoL effect
1 (2.5)	5 (12.5)	32 (80)	**0-1**	No effect
9 (22.5)	22 (55)	7 (17.5	**2-5**	Small effect
12 (30)	7 (17.5)	-	**6-10**	Moderate effect
11 (27.5)	5 (12.5)	1 (2.5)	**11-20**	Very large effect
7 (17.5)	1 (2.5)	-	**21-30**	Extremely large effect

DLQI: Dermatology life quality index, QoL: Quality of life

Table 4. Impairment* and scores of each DLQI domain at baseline (week 0) and after treatment (week 2 and week 4) in scabies patients

	Week 0		Week 2		Week 4	
	Score Mean ± SD	Impairment n (%)	Score Mean ± SD	Impairment n (%)	Score Mean ± SD	Impairment n (%)
Symptoms, feelings (questions 1 and 2)	4.26±1.53	40 (100)	1.75±1.14	34 (85)	0.30±0.79	7 (17.5)
Daily activities (questions 3 and 4)	1.90±1.86	27 (67.5)	0.85±1.05	21 (52.5)	0.05±0.31	1 (2.5)
Leisure (questions 5 and 6)	2.30±2.28	28 (70)	0.88±1.50	13 (32.5)	0.08±0.34	2 (5)
Work/school (question 7)	1.13±1.47	15 (37.5)	0.40±0.84	10 (25)	0.08±0.47	1 (2.5)
Personal relationships (questions 8 and 9)	1.18±1.51	19 (47.5)	0.40±0.74	11 (27.5)	0.05±0.22	2 (5)
Treatment (question 10)	0.65±1.02	13 (32.5)	1.35±0.86	32 (80)	0.50±0.59	18 (45)

DLQI: Dermatology life quality index, *: Impairment is equivalent to a score ≥1 in domain, SD: Standard deviation

Table 5. Nocturnal itching, itch-related sleep disturbance and DLQI scores of scabies patients at baseline (week 0) and after treatment (week 2 and week 4)

	Week 0 (Mean ± SD)	Week 2 (Mean ± SD)	Week 4 (Mean ± SD)	p
Total DLQI	11.50±7.81	5.50±4.68	1.05±2.08	<0.001[a,b,c]
Nocturnal itching-VAS	7.22±2.80	2.52±1.88	0.58±0.81	<0.001[a,b,c]
Itch-related sleep disturbance-VAS	6.30±3.60	2.12±2.15	0.30±0.65	<0.001[a,b,c]

DLQI: Dermatology life quality index, VAS: Visual analog scale, SD: Standard deviation. All values are expressed as mean ± SD, [a]: Week 0 vs. week 2, [b]: Week 0 vs. week 4, [c]: Week 2 vs. week 4

DISCUSSION

Patients with scabies present with non-specific lesions such as papules, nodules, eczematizations, excoriations, pustules, pyodermic lesions (impetigo and furuncles, etc.) and burrows, which are pathognomonic lesion of scabies (4,13). Various studies have reported that the most frequently observed lesions in patients with scabies are papules and excoriations (7,14,15). Consistent with these studies, the most common non-specific lesions in our study were papules and excoriations. Unlike these studies, our study was detected burrows in all patients. The reason for this is that scabies patients whose burrow was demostrated by dermoscopy were included in our study.

Various studies have shown that scabies lesions in older children and adults patients were mostly localized on the abdomen, inguinal area/medial parts of thights, axillas, hands, wrists, interdigital spaces, forearms, arms, legs, thorax, back, buttocks and genitals, rarely on the face, scalp, neck (7,14-16). It was observed that the lesion distribution of patients in our study was similar to other studies.

A study in China reported that scabies had a moderate to very large effect on quality of life in 71.9% of patients, with an mean DLQI score of 10.09 (8). A study in Nepal that scabies had a moderate to very large effect on quality of life in 80.6% of patients, and mean DLQI score of patients were 12.91 (17). In the study conducted in Iraq, it was reported that the scabies had a moderate to extremely large effect on quality of life in 100% of the scabies patients and the mean DLQI score was 14.95 (18). In two studies conducted in Türkiye, it was reported that the quality of life of the majority of scabies patients was moderately to extremely large affected, and mean DLQI scores of the patients were 10.54 and 13.16 (19,20). Similar to these studies, in our

study, it was determined that scabies had a moderate to extremely large effect on the quality of life in the majority (75%) of scabies patients. The mean DLQI score of our patients was 11.50±7.81 at baseline. Unlike our study and the studies mentioned above, in a study conducted in the Solomon Islands, it was reported that the quality of life of adults with scabies was small affected and mean DLQI score was 3.1 (21). Interestingly, another study conducted in Türkiye reported that the mean DLQI score in scabies patients was quite high at 27.75 (22). As shown in our study, although it is not life-threatening, scabies significantly affects the quality of life of patients. Therefore, it is important that patients are diagnosed early and their treatment begins as soon as possible. Although 27 (67.5%) of the our patients had previously applied a doctor at least once due to their complaints, unfortunately 21 of them were misdiagnosed. We think that reinforcing the training of physicians, about the scabies will be beneficial for early diagnosis and treatment of scabies.

In various studies, it has been reported that the most impaired domain in patients with scabies is symptoms/feelings (8,17,19,20). Similar to these studies, in our study, it was determined that the most frequently affected domain in scabies patients was symptoms/feelings. It was observed that the impairment of the symptoms/feelings domain gradually decreased after the treatment. Similarly, it was found that the impairment of other domain except the treatment domain decreased after the treatment. The increased impairment in the treatment domain at week 2 was probably related to the application of sulfur and fomite (clothing, towels, bedding, etc.) disinfection for the treatment of scabies.

Jackson et al. (7) demonstrated that 93.4% of scabies patients complained of itching, and 68.8% of them had itching classified as moderate to severe. Nair et al. (14) found that 99.9% of scabies patients had itching and 79.4% of scabies patients had night aggravation of itching. Worth et al. (15) showed that all scabies patients complained about itching, and the 75.1% of them had classified itching as moderate to severe. It was also reported that the severity and frequency of itching decreased significantly one week after ivermectin treatment (15). Similar to these studies, in our study, it was found that all patients complained of itching. In addition, the highest score among the DLQI questions was contained in question 1 (related to itching symptom). It was observed that the severity of nocturnal itching gradually decreased significantly both in the week 2 and week 4 after the treatment.

Studies have shown that the majority of patients with scabies have an itching-related sleep disturbance (7,14,15). Worth et al. (15) demostrated that 87.5% of patients with scabies had an itch-related sleep disturbance, and the majority of them had moderate to severe sleep disturbances. It was also reported that the severity of itch-related sleep disturbances decreased significantly one week after ivermectin treatment (15). In our study, consistent with the aforementioned study, 33 (82.5%) patients had itch-related sleep disturbance. It was observed that the severity of itch-related sleep disturbance gradually decreased after the treatment.

In a retrospective study from Türkiye, treatment success rate of 10% sulfur ointment was found to be superior to permethrin 5% treatment (83.5% vs. 50%, respectively) (23). In a retrospective study conducted by Altunel (24) from Türkiye, the success rate of the first course 5-10% sulfur treatment was reported as 71.9%. To the our knowledge, this is the first prospective study to evaluate the effectiveness of sulfur in the treatment of scabies in Turkish patients. We determined that the success rate of 10% sulfur ointment in scabies patients was 89.7%. Therefore, we think that sulfur, which is an effective and safe agent, be preferred as the first agent in the first-line treatment of scabies patients.

Study Limitations

The limitation of our study is the relatively small number of scabies patients. Another limitation is that it has not been investigated whether there is a relationship between quality of life and the clinical severity of scabies.

CONCLUSION

As a result, scabies significantly affects the quality of life in the vast majority of patients. After treatment, the quality of life in scabies patients returns to normal within a few weeks. Sulfur is an effective treatment choice for scabies.

*Ethics

Ethics Committee Approval: Ethical approval was obtained from Aydın Adnan Menderes University Faculty of Medicine, Non-Interventional Clinical Research Ethics Committee (date: 02.12.2021, approval number: 2021/179). The study was carried out according to the ethical standards stated in the Declaration of Helsinki and its amendments, and all patients were examined and included with respect to good clinical practice guidelines.

Informed Consent: Written informed consent form was obtained from the all participants.

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Footnotes

*Authorship Contributions

Surgical and Medical Practices: M.G., A.P.K., Concept: M.G., Design: M.G., A.P.K., Data Collection or Processing: M.G., A.P.K., Analysis or Interpretation: M.G., A.P.K., Literature Search: M.G., A.P.K., Writing: M.G.

Conflict of Interest: No conflict of interest was declared by the authors.

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REFERENCES

1. Thomas C, Coates SJ, Engelman D, Chosidow O, Chang AY. Ectoparasites: Scabies. J Am Acad Dermatol. 2020; 82: 533-48.
2. Özden MG, Ertürk K, Kartal SP, Yayli S, Göktay F, Doğramacı CA, et al. An extraordinary outbreak of scabies in Turkey. J Eur Acad Dermatol Venereol. 2020; 34: e818-e20.
3. Schneider S, Wu J, Tizek L, Ziehfreund S, Zink A. Prevalence of scabies worldwide-an updated systematic literature review in 2022. J Eur Acad Dermatol Venereol. 2023; 37: 1749-57.
4. Arora P, Rudnicka L, Sar-Pomian M, Wollina U, Jafferany M, Lotti T, et al. Scabies: a comprehensive review and current perspectives. Dermatol Ther. 2020; 33: e13746.

5. Executive Committee of Guideline for the Diagnosis and Treatment of Scabies. Guideline for the diagnosis and treatment of scabies in Japan (third edition): Executive Committee of Guideline for the Diagnosis and Treatment of Scabies. The Journal Dermatolgy. 2017; 44: 991-1014.
6. Engelman D, Yoshizumi J, Hay RJ, Osti M, Micali G, Norton S, et al. The 2020 International Alliance for the Control of Scabies Consensus Criteria for the Diagnosis of Scabies. Br J Dermatol. 2020; 183: 808-20.
7. Jackson A, Heukelbach J, Filho AF, Júnior Ede B, Feldmeier H. Clinical features and associated morbidity of scabies in a rural community in Alagoas, Brazil. Trop Med Int Health. 2007; 12: 493-502.
8. Jin-gang A, Sheng-xiang X, Sheng-bin X, Jun-min W, Song-mei G, Ying-ying D, et al. Quality of life of patients with scabies. J Eur Acad Dermatol Venereol. 2010; 24: 1187-91.
9. Vyas J, Johns JR, Abdelrazik Y, Ali FM, Ingram JR, Salek S, et al. The dermatology life quality index (DLQI) used as the benchmark in validation of 101 quality-of-life instruments: A systematic review. J Eur Acad Dermatol Venereol. 2025; 39: 631-79.
10. Finlay AY, Khan GK. Dermatology life quality index (DLQI)--a simple practical measure for routine clinical use. Clin Exp Dermatol. 1994; 19: 210-6.
11. Oztürkcan S, Ermertcan AT, Eser E, Sahin MT. Cross validation of the Turkish version of dermatology life quality index. Int J Dermatol. 2006; 45: 1300-7.
12. Hongbo Y, Thomas CL, Harrison MA, Salek MS, Finlay AY. Translating the science of quality of life into practice: What do dermatology life quality index scores mean? J Invest Dermatol. 2005; 125: 659-64.
13. Uzun S, Durdu M, Yürekli A, Mülayim MK, Akyol M, Velipaşaoğlu S, et al. Clinical practice guidelines for the diagnosis and treatment of scabies. Int J Dermatol. 2024; 63: 1642-56.
14. Nair PA, Vora RV, Jivani NB, Gandhi SS. A study of clinical profile and quality of life in patients with scabies at a rural tertiary care centre. J Clin Diagn Res. 2016; 10: WC01-5.
15. Worth C, Heukelbach J, Fengler G, Walter B, Liesenfeld O, Hengge U, et al. Acute morbidity associated with scabies and other ectoparasitoses rapidly improves after treatment with ivermectin. Pediatr Dermatol. 2012; 29: 430-6.
16. Heukelbach J, Wilcke T, Winter B, Feldmeier H. Epidemiology and morbidity of scabies and pediculosis capitis in resource-poor communities in Brazil. Br J Dermatol. 2005; 153: 150-6.
17. Paudel S, Pudasaini P, Adhikari S, Pradhan MB, Shekhar Babu KC. Quality of life in patients with scabies: a cross- sectional study using dermatology life quality index (DLQI) questionnaire. JEADV Clin Pract. 2023; 2: 399-403.
18. Bilal K, Othman SM, Asaad YA. Quality of life in patients with scabies in Erbil, Iraq. Zanco J Med Sci. 2021; 25: 638-48.
19. Koç Yıldırım S, Demirel Öğüt N, Erbağcı E, Öğüt Ç. Scabies affects quality of life in correlation with depression and anxiety. Dermatol Pract Concept. 2023; 13: e2023144.
20. Karadoğan SK, Ulgen Altay B. Dermatology quality of life and depression, anxiety, and stress scale-42 in scabies patients. Dermatol Pract Concept. 2024; 14: e2024112.
21. Lake SJ, Engelman D, Sokana O, Nasi T, Boara D, Marks M, et al. Health-related quality of life impact of scabies in the Solomon Islands. Trans R Soc Trop Med Hyg. 2022; 116: 148-56.
22. Demirbas A, Demirbas GU, Durmaz K, Metin Z. Investigation of the effect of oral ivermectin on systemic inflammatory response and quality of life in scabies patients. Arch Dermatol Res. 2024; 316: 601.
23. Ertugrul G, Aktas H. Comparison of sulfur ointment and permethrin treatments in scabies. Dermatol Ther. 2022; 35: e15897.
24. Altunel CT. The efficacy, safety and tolerability of sulfur in the treatment of scabies: A cross-sectional study. Turkiye Klinikleri J Dermatol. 2022; 32: 175-83.