EVALUATION OF THE ATTITUDES OF CLINICAL MEDICAL FACULTY STUDENTS TOWARD SCABIES PATIENTS
KLİNİK DÖNEM TIP FAKÜLTESİ ÖĞRENCİLERİNİN UYUZ HASTALARINAYÖNELİK TUTUMLARININ DEĞERLENDİRİLMESİ

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ÖZET

Amaç: Bu çalışma, tıp öğrencilerinin klinik eğitim deneyimlerine odaklanarak uyuz hastalığına yönelik tutumlarını ve endişelerini değerlendirmeyi amaçlamaktadır.

Gereç ve Yöntemler: Kesitsel nitelikteki bu çalışma, 2 Ocak 2023 - 28 Şubat 2023 tarihleri arasında çeşitli üniversitelerin tıp fakültelerinde eğitim gören tıp öğrencileri ile yürütülmüştür. Veriler, demografik bilgileri, uyuz hastalığına yönelik tutumları, endişeleri ve bilgileri kapsayan 29 maddelik bir anket yolu ile toplanmıştır.

Bulgular: Tıp öğrencileri, uyuz hastalığına yönelik orta düzeyde bir tutum seviyesi sergilemiş (ortanca puan: 17 üzerinden 10,00) ve hasta yaklaşımlarında endişelerini ifade etmiştir (ortanca puan: 70 üzerinden 33,00). Daha genç yaş grubundaki öğrenciler daha yüksek endişe puanları göstermiştir. Tutum ve endişe puanları arasında negatif bir korelasyon bulunmuştur ($p < 0.001$).

Sonuç: Uyuz hastalığına yönelik endişeler, daha genç tıp öğrencileri arasında daha yüksekken, bilgi arttıkça azalmaktadır. Mezuniyet öncesi eğitimi sırasında hastalığın bulaşma yolları ve önleyici tedbirleri ele alan eğitim müdahaleleri önerilmektedir.

ABSTRACT

Objective: This study aims to evaluate medical students' attitudes and concerns towards scabies by focusing on their clinical training experiences.

Material and Methods: This cross-sectional study was conducted with medical students studying at medical faculties of various universities between January 2, 2023, and February 28, 2023. Data were collected through a 29-item survey covering demographic information, attitudes, concerns, and knowledge about scabies.

Results: Medical students demonstrated a moderate level of knowledge about scabies (median score: 10.00 out of 17) and expressed concerns (median score: 33.00 out of 70) during the patient approach. Younger students displayed higher concern scores. There was a negative correlation between attitude and concern scores ($p < 0.001$).

Conclusion: Concerns about scabies transmission were higher among younger medical students, decreasing with increased knowledge. Educational interventions addressing transmission modes and preventive measures are recommended during pre-graduation training.

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Introduction

The causative agent of scabies, Sarcoptes scabiei var. hominis, is a microscopic mite from the arthropod class and is an ectoparasite that can affect individuals of all ages, genders, geographical locations, and cultures. It is primarily transmitted from person to person through skin-to-skin contact or by contact with items such as clothing and sheets (1-3).

On Earth, scabies affect an estimated 200 to 300 million people annually (4). It ranks among the most prevalent skin diseases worldwide (5) and is particularly endemic in developing regions (6). In children from developing countries, the average prevalence is estimated to range from 5% to 10% (4). Unlike institutional outbreaks, scabies is not a mandatory disease to be reported in Western countries; consequently, the epidemiology and actual prevalence of scabies remain unclear (7). In Turkey, scabies continues to pose a significant health challenge (3). According to a study conducted in Turkey, 0.77% of patients who sought care at the dermatology outpatient clinic between 2017 and 2019 received a diagnosis of scabies (8).

The scabies parasite is typically transmitted through prolonged and direct skin contact, although there are rare instances of transmission via fomites, where it can survive for up to 8 days (9). While scabies can be transmitted through any form of direct skin contact, it is most spread through close and extended interactions between individuals (10). The transmission of the disease through direct skin contact can occur with the presence of a single adult female mite or several larvae. Given the slow movement of mites in the external environment, transmission typically requires repeated or continuous skin contact, lasting approximately 20-30 minutes (11,12).

People who have close contact with these patients, including family members and healthcare providers, can be at risk of transmission, even after brief contact. Transmission may even occur from contact with the scales shed by these patients (11). Consequently, scabies with crusted lesions can trigger nosocomial outbreaks (13). Contrary to common misconceptions, scabies is not linked to poor hygiene. It can be found in individuals from all social strata and age groups, including families with young children, students living in shared accommodations, and people in various living situations (10, 14). Mites that become separated from their human host can survive for up to 48 hours at 21°C in the outdoor environment with a humidity range of 40-80%. However, they cannot endure temperatures exceeding 50°C for more than 10 minutes. Their survival time increases at lower temperatures and higher humidity levels (15).
To prevent mite penetration into the skin, it is essential to wash hands after examining scabies patients; however, this does not reduce the number of mites, so wearing gloves during patient examinations is necessary (9).

In daily medical practice, scabies is a relatively common condition among inpatients. The disease can also elicit anxiety among medical students who encounter scabies patients, as it is primarily transmitted through direct person-to-person contact or by sharing living spaces (16).
As far as our literature review indicates, there is a noticeable gap in studies examining medical students' attitudes, concerns, fears, and knowledge about scabies. Therefore, the primary objective of this study is to assess the level of concern and explore potential factors influencing medical students' approach to patients with scabies during their clinical training. This research will focus on clinical-term students from various medical schools, providing valuable insights into the clinical field's perspectives and experiences.

Method

This study is a cross-sectional descriptive study and is designed as a survey application. Data collection for the study took place from January 2, 2023, to February 28, 2023. The questionnaire was administered face-to-face to students at Izmir Katip Celebi University, while

students from other universities participated through an online survey. The survey typically required approximately 30 minutes to complete.

Participants

The study included participants who were 4th, 5th, and 6th-year students at İzmir Katip Çelebi University and students from several other medical faculties, including Adıyaman University, Akdeniz University, Ankara Yıldırım Beyazit University, Çukurova University, Dicle University, Dokuz Eylül University, Kahramanmaraş Sütçü İmam University, Maltepe University, Manisa Celal Bayar University, Mersin University, Muğla Sıtkı Koçman University, Tekirdağ Namık Kemal University, Van Yeni Yüzyıl University, Yeditepe University, and Zonguldak Bülent Ecevit University.

Data collection tool

For this study, a 29-item questionnaire was developed based on a review of the existing literature (17-30) and considering practical training issues within the medical faculties' training programs. Prior to participating in the online survey, participants were presented with consent information, and access to the questionnaire was granted only upon providing consent.

The initial four items gathered demographic information, including age, gender, university affiliation, and class. Other questions included medical students' attitudes and concerns during contact with scabies patients and their perceptions about the self-care of scabies patients.

Assessment of Medical Students' Attitude:

The survey assessed participants' attitudes about the modes of transmission when approaching a scabies patient using 17 statements (response options: I agree, disagree, no opinion). "In items 5, 7, and 8, 'I agree' was considered the correct response, while 'I disagree' was the correct response for the other items. The Physician Approach to Scabies Patient Information Score was calculated on a scale of 0-17 points, with 1 point awarded for each correct response to the 17 statements and 0 points for incorrect responses."

Assessment of Medical Students' Concerns:

To assess concern in the medical students' approach to a scabies patient, participants responded to 7 statements, each rated on a scale from 1 to 10, where 1 indicated "I am not worried at all," and 10 indicated "I am very worried." For items 15-17 and 24, the direction of concern was correct, while for the remaining items, it was reversed.
For the reversed items, scores were assigned as follows: a score of 10 was given for "1" answers, and 1 point was awarded for "10" answers. The concern score was evaluated on a scale ranging from 7 to 70."

Assessment of Perception of Patients' Self-Care:

Item 29 of the survey asked participants to rate their perception of the self-care behavior of scabies patients compared to other patients. Agreement with this proposition was assessed on a scale from 1 to 10, where 1 signified disagreement and 10 signified agreement.

Sample size

The "Snowball sampling method" was utilized to select the sample group for this study. Sample size calculations were performed using the Calculator.Net program. Since no similar studies had been conducted previously, it was assumed that the proportion of anxious individuals and those who were not would be equal (50%). To achieve a power of 95% and

maintain a type 1 error level of 5%, it was determined that a minimum of 385 participants would be required.

Statistical analysis

Age was categorized into three groups: 20-22, 23, and 24 and above.

Quantitative data were analyzed using IBM SPSS Statistics Standard Concurrent User Version 25 (IBM Corp., Armonk, New York, USA). Descriptive statistics were presented as counts (n), percentages (%), median (M), first quartile (Q1), and third quartile (Q3).

To assess the normal distribution of numerical variables, the Shapiro-Wilk normality test, Q-Q plots, box plots, histograms, and skewness-kurtosis coefficients were employed. Non-parametric data were analyzed using the Mann-Whitney U and Kruskal-Wallis tests. Correlation analysis was conducted using the Spearman Correlation Test. A significance level of $p < 0.05$ was considered statistically significant.

Ethical approval

For this study, approval (No. 510) was obtained from the Izmir Katip Celebi University Non-Interventional Clinical Research Ethics Committee on November 24, 2022.

Results

A total of 445 students participated in this study, with 51.0% being male, and 41.1% falling into the 20-22 age group. Furthermore, 354 students (79.6%) were enrolled at Izmir Katip Celebi University, and 45.8% of the students were in their 5th year of study. Table 1 provides an overview of the study group's distribution based on various sociodemographic characteristics.

Table 1: Distribution of the study group according to some sociodemographic characteristics

Variables	**n (%)**
Gender, *n* (%)	
Woman	215 (48,3)
Male	227 (51,0)
No information	3 (0,7)
Age group (year), *n* (%)	
20-22	183 (41,1)
23	159 (35,7)
24	103 (23,1)
School (University), *n* (%)	
İzmir Katip Çelebi	354 (79,6)
Other	91 (20,4)
Class, *n* (%)	
4th	116 (26,1)
5th	204 (45,8)
6th	125 (28,1)
Total	445 (100,0)

Medical students' attitude

The distribution of responses to propositions questioning the level of participants' knowledge about the modes of transmission of Scabies is presented in Table 2. The median score of the attitudes of participants was calculated as 10.00 (min 7.00- max 12.00).

Table 2. Distribution of responses to propositions questioning the level of attitude for medical students' approach to scabies patient

N: 445 The number of propositions in the questionnaire		**Agree (%)**	**Disagree (%)**	**I have no idea (%)**
Propositions where the correct answer is "**I agree**"				
5	Scabies can be transmitted with a short contact of 1-2 minutes.			
		38,0	44,5	17,5
7	Joint use of personal items such as bedding, clothes, and towels facilitates the transmission and spread of scabies.			
		97,8	0,7	1,5
8	The sick person can also transmit scabies during the period when he does not show signs of scabies.			
		68,8	9,9	21,3
Propositions with the correct answer **being "Disagree"**				
6	If there is transmission after contact with the scabies patient, it gives symptoms in a short time (1-3) days.			
		37,8	**38,0**	24,3
9	The itching caused by scabies does not change during the day, it always remains at the same intensity.			
		2,7	**85,4**	11,9
10	If scabies patients are hospitalized, they should be isolated in separate rooms.			
		72,6	**18,4**	9,0
11	Patients with scabies should be isolated in a separate ward in the hospital.			
		42,9	**45,2**	11,9
12	The materials used in scabies patients (portrait, pliers, pliers, etc.) should be sterilized by a special method other than the sterilization methods normally applied.			
		35,5	**47,0**	17,5
13	Hospital items used by scabies patients (sheets, pillows, pillowcases, beds, etc.) cannot be used in other patients even if they are cleaned according to the standard procedure.			
		34,8	**43,1**	22,0
14	In the treatment of scabies, it is enough to treat only the person who shows symptoms of scabies, people living in the same house do not need to be treated.			
		5,4	**86,7**	7,9
18	I don't want to be in the same room as the scabies patient.			
		58,4	**36,6**	4,9
19	I do not want to examine the patient for scabies.			
		33,7	**60,2**	6,1
20	I do not want to use my stethoscope when examining a patient with scabies.			
		64,0	**29,2**	6,7
21	I do not want to dress the scabies patient.			
		34,8	**59,3**	5,8
22	I do not want to perform an interventional procedure on a scabies patient.			
		29,4	**64,5**	6,1
23	I do not want to do Cardiopulmonary resuscitation on a patient with scabies.			
		18,7	**75,7**	5,6
28	If the syringe I use in a scabies patient sinks into my hand, scabies can infect me.			
		22,0	**49,0**	29,0

Medical students' concern

The concern score of participants when approaching scabies patients was determined as 33.00 (min 27.00 - max 40.00) and the median scores of responses are given in Table 3.

Table 3. Distribution of answers to suggestions/questions questioning the level of concern for the medical students' approach to scabies patient

N: 445 Anketteki önerme no'su	**Proposition/Question**	**Score (Median (25%-75%)) Maximum achievable score (10.00)**
Suggestions/questions where a high score indicates concern		
15	How worried do you worry about approaching a patient who does not have a known infectious disease? I don't worry at all 1... I'd be too worried 10	5,00 (2,00-7,00)
16	How worried do you worry about approaching a scabies patient? I don't worry at all 1... I'd be too worried 10	8,00 (6,00-10,00)
17	How worried do you get when approaching a scabies patient with adequate protective equipment (gloves, gowns, visors, masks, etc.)? I don't worry at all 1... I'd be too worried 10	4,00 (2,00-6,00)
24	I am worried that there is a scabies patient in the ward where I work. I don't worry at all 1... I'd be too worried 10	5,00 (2,00-7,00)
Suggestions/questions where a low score indicates concern (Results presented with reverse scoring)		
25	After intervening with scabies, washing my hands with soap and water many times relieves me. **Never relieves 1**... Very relaxing 10	3,00 (1,00-6,00)
26	Wearing gloves when intervening with a scabies patient relaxes me. **Never relieves 1**... Very relaxing 10	3,00 (1,00-4,00)
27	Wearing an apron when intervening with a scabies patient relaxes me **Never relieves 1**... Very relaxing 10	3,00 (1,00-6,00)

In the analysis performed by excluding three participants who did not specify gender, the concern score did not show a statistically significant difference according to gender (Mann-Whitney: 25.895; p: 0.266) but there was a significant difference according to age groups. Accordingly, the concern score was higher in the 20-22 age group (35.00 (28.00-42.00)) than in the other two groups (score in the 23-age group: 31.00 (25.00-38.00)) and (in the 24-age group: 32.00 (26.00-38.00)), (Kruskal Wallis: 11.705; p: 0.003).

There was no statistically significant difference between the students of İzmir Katip Çelebi University and the students of other faculties in terms of concern score (Mann-Whitney U: 17.446.5; p: 0.204) and there was no statistically significant difference according to the classes studied (Kruskal Wallis: 5,912; p: 0.052).

A statistically significant and negative correlation was found between the attitude score and the concern score (Spearman: -0.418; p<0.001).

Perception of Patients' Self-Care

For the proposition 'I think the self-care of scabies patients is lower than other patients,' the agreement score ranged from 2.00 to 7.00, with a median score of 5.00.

Discussion

This study, encompassing 445 medical faculty students, assessed the medical students' i) attitudes, ii) concerns about scabies, and iii) perception about the self-care of scabies patients. The findings reveal that younger students exhibit higher anxiety, which decreases with an increase in knowledge about scabies. Moreover, the outcomes indicate that the study

participants generally maintained a moderate viewpoint concerning the potential stigmatization of scabies patients.

Scabies is currently endemic in developing third-world countries, and tropical and subtropical regions. In 2013, the World Health Organization (WHO) recognized the significance of this disease by including it in the list of 'Neglected Tropical Diseases and Other Neglected Diseases.' Accurate diagnosis and treatment of scabies are crucial due to its status as a worldwide public health concern (17). As a part of our study, we conducted a comprehensive assessment of the attitudes of medical students during the approach to scabies patients through a total of 17 statements. Notably, no similar study has been conducted in our country.

When we examine similar studies conducted in countries other than Turkey, we find that the assessment of medical students' knowledge in approaching scabies patients tends to be more superficial and comprises fewer questions. One study that aligns closely with our research was conducted by Alshehri et al. (22) in the Kingdom of Saudi Arabia in 2018, involving 445 medical students. Their findings indicated that the level of knowledge among medical students in Saudi Arabia regarding scabies and their preventive measures was deemed 'adequate', with an 85.8% proficiency rate. Furthermore, most participants were aware that scabies could be diagnosed through skin scraping, rather than through blood culture or stool analysis. In the same study, medical students' attitudes towards interacting with scabies patients in a clinical setting were assessed through specific items, including not taking the patient to a private room, restricting visitors until the treatment regimen is completed, and emphasizing the importance of preventing scabies through good personal hygiene. These attitudes were further evaluated in terms of 'Ensuring rapid treatment of scabies cases,' and the findings indicated that medical students displayed highly appropriate attitudes in these aspects. In 2019, Alsaidan et al. (23) conducted a study in Saudi Arabia involving 216 primary care physicians to assess their knowledge regarding the diagnosis and management of scabies, as well as the factors influencing this knowledge. The study identified that the highest level of knowledge was related to age sensitivity, clinical findings and diagnosis, mode of transmission, the causative pathogen, and the incubation period, with management being the lowest-scoring category. The results of the logistic model analysis revealed a correlation between a high level of knowledge about scabies and factors such as recent information review, older age, and more experience. However, despite these findings, Alsaidan et al. (23) concluded that the participating primary care physicians generally exhibited 'insufficient' knowledge regarding scabies. As can be seen, in one of two recent studies from Saudi Arabia, the knowledge level of medical students about scabies was reported to be sufficient, while the knowledge level of primary care physicians was reported to be insufficient.

In 2019, Alharthi et al. (24) conducted a study in Saudi Arabia targeting the general population, with a total of 3,778 participants aged between 15 and 30. The study aimed to assess the level of knowledge about scabies using a 12-question questionnaire. The findings revealed that approximately 93.3% of the participants exhibited a good level of knowledge about scabies. Notably, individuals with a higher level of knowledge were predominantly women, residents of urban areas, those who had previously heard about scabies, younger individuals, those with higher levels of education, and those employed in fields such as the medical and education sectors.

In 2001, Rathi et al. (25) conducted a study in Karachi, Pakistan, focusing on 200 General Practitioners (GPs) who had graduated within the past decade. The study aimed to assess their awareness of scabies. Surprisingly, only 36% of the participating physicians reported having a satisfactory level of awareness regarding scabies. Notably, the study did not find any significant impact of increased age or years of experience on the level of awareness.
A study conducted by Birjandi et al. (26) in Accra, Ghana, aimed to determine the prevalence of scabies and assess health literacy among 2,766 high school students across 22 high schools.

The study revealed that 53.4% of the students exhibited a good level of knowledge about scabies, while 44.1% had a medium level of knowledge. Remarkably, approximately 91.3% of the students displayed a positive attitude toward scabies prevention. These findings are notably high for high school students.

When considering studies conducted in Europe, Lapeere et al. (27) conducted research focusing on general practitioners and dermatologists in the Ghent region of Belgium. The study assessed knowledge levels about scabies through a knowledge test, and the results showed acceptable scores for both general practitioners and dermatologists, with median scores of 59% and 79%, respectively. Given that scabies falls within the domain of dermatology, it's not surprising that dermatologists exhibited a higher level of knowledge compared to general practitioners. Additionally, the study found that the duration of experience in scabies treatment (in years) and a higher annual estimated number of scabies cases were factors associated with an increased level of knowledge.

In our study, we found that 38% of participants incorrectly believed in the false proposition that 'Scabies can be transmitted through short contact of 1-2 minutes,' and the same percentage of participants also accepted the false proposition that 'If the infection occurs after contact with a scabies patient, symptoms will appear in a short time (1-3) days.' (Table 2). It's important to note that symptoms of scabies typically take 2-6 weeks to manifest in a person who has it for the first time (1,19). These findings highlight a lack of knowledge within the study group regarding the mode of transmission and the incubation period of scabies.

In our study, the lowest knowledge rate, at 18%, was observed for the proposition 'If scabies patients are hospitalized, they should be isolated in separate rooms.' It's worth noting that while some doctors may have the misconception that scabies patients should be isolated, such information is not supported by the literature.

In addition to these findings, misconceptions and knowledge gaps related to approaching scabies patients due to fear of contamination were evident. For instance, 29.2% of participants expressed that they would not want to use their stethoscope when examining a scabies patient, and 36.6% indicated that they would not want to be in the same room with a scabies patient (Table 2). These findings underscore the importance of addressing these issues in scabies patient approach guidelines and physician training programs.

In our study, the median score for the attitudes of medical students while approaching scabies patients was 10.00 out of a maximum possible score of 17. This score falls within the 'medium' knowledge level range, especially considering that medical students have recently received clinical training. It suggests that there may be perceived deficiencies in approaching scabies patients among this group. As such, it is advisable to plan post-graduate training programs to bridge this knowledge gap.

When examining the results of studies conducted in various countries, comparing the level of knowledge about scabies becomes challenging due to variations in questionnaire design, scales, and different study populations, including the general population, physician groups, medical students, and high school students. It can be concluded that new studies addressing this gap and contributing to the literature about scabies are needed, as there appear to be insufficient publications in the existing literature.

In a study conducted by Alharthi et al. (24) in Saudi Arabia, the "Fear of Scabies Scale-10" was employed to assess the degree of apprehension regarding scabies within the general population. This scale, ranging from 10 to 40 points, with a higher score denoting greater fear, yielded an average score of 33±4.46, indicating that 58.3% of participants harbored heightened fear. Given that our investigation targeted medical students rather than the general population, a reduced level of concern regarding scabies might have been anticipated. However, our study found that the medical students' approach to scabies patient concern score was 33.00 (27.00-40.00). This score, assessed against a maximum of 70 points, categorizes the level of concern

as "medium". In comparison to the findings of Alharthi et al. (24), it appears that the level of concern about scabies is relatively lower in our study. It is crucial to note that our study employed a researcher-developed questionnaire, whereas the Fear of Scabies Scale-10 was utilized in Alharthi's study.

In this study, it was found that gender, the university where medical education is received, and the class level do not significantly differ in physicians' approach to anxiety toward scabies patients. However, in the younger age group of 20-22, the anxiety score was higher. The elevated anxiety score among younger participants may be attributed to these students being newcomers to clinical practice in the medical faculty. When examining the questions assessing anxiety in approaching scabies patients, although the median score was obtained as "8" in the evaluation on a scale of 10 for the question "How worried are you about approaching a scabies patient?", it is observed that anxiety decreases to a median score of "4" when approaching a scabies patient with adequate protective equipment (gloves, gown, face shield, mask, etc.). Moreover, washing hands repeatedly with soap and water after intervening with scabies patients and wearing gloves and a gown while dealing with them were found to reduce anxiety (Table 3).

In the study by Alharthi et al. (24), although the level of knowledge was deemed good, the concern level regarding scabies was found to be high, and a positive correlation was reported between the attitude level and the concern level. In our study, an inverse relationship was observed: as the medical students' attitude score towards scabies increased, the concern score decreased, indicating a negative correlation between the two ($p<0.001$). Despite these seemingly contradictory findings, it's essential to consider that Alharti et al.'s study was conducted in the general population with a focus on understanding scabies disease, whereas our study specifically delves into medical students' perspectives on scabies. As students' knowledge about the disease increases, their inclination to take preventive measures and educate patients may contribute to reduced concerns.

In our investigation, we explored medical students' perspectives on whether they perceived the self-care of scabies patients as lower than that of other patients. The obtained median score was 5 out of 10 points. This outcome suggests that the study participants held a moderate viewpoint regarding the potential stigmatization of scabies patients. It is noteworthy that scabies disease is not directly associated with personal hygiene.

Conclusion

In this study, it was found that concern is higher among younger medical students regarding scabies patients, and as the level of knowledge about scabies increases, the concern decreases. It is recommended to address concerns about the transmission of scabies to physicians who intervene in the approach to scabies patients through educational interventions on the mode of transmission and preventive measures of the disease during pre-graduation training in medical faculties.

Limitations

This study is constrained by its cross-sectional design and the absence of a scale with established validity and reliability for calculating both the concern and attitude scores. Nevertheless, a notable strength of this study is its pioneering nature, as no other study has explored the concern in the approach to scabies patients among medical students in Turkey.

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