Submitted: 04 March, 2025 Accepted: 14 May, 2025 Published: 08 September, 2025 DOI:10.22514/sv.2025.126

Open Access
Signa Vitae

ORIGINAL RESEARCH

Itchy skin diseases in the emergency department before and after the earthquakes

Bilgehan Demir[1], Levent Şahin[2,*], Kısmet Kaya[3], Merve Ayyıldız Akın[4]

[1]Department of Emergency Medicine, Medical School, Malatya Turgut Özal University, 44000 Malatya, Türkiye
[2]Department of Emergency Medicine, Medical School, Kafkas University, 36100 Kars, Türkiye
[3]Department of Dermatology, Malatya Training and Research Hospital, 44000 Malatya, Türkiye
[4]Department of Biostatistics, Veterinary Medicine, Kafkas University, 36100 Kars, Türkiye

***Correspondence**
leventsahin@kafkas.edu.tr
(Levent Şahin)

Abstract

Background: Infectious diseases increase after natural disasters such as earthquakes. Increase in skin diseases may also occur and are not well documented. This before-after study analyzed patients presenting with itching to the emergency department and dermatology outpatient clinic of a tertiary hospital in Malatya, a province severely affected by the February 2023 earthquakes. Patients were divided into two groups: pre-earthquake and post-earthquake. The study aimed to investigate the impact of the earthquake on these presentations. **Methods**: Patient information was retrospectively identified through records in the hospital information system. Data on age, gender, nationality, diagnosis and clinic of presentation were reviewed for patients presenting with itching complaints during the year before and the year after the earthquake. Statistical analyses with graphical representations were conducted to evaluate significant findings from the comparisons. **Results**: The study included 3468 patients after applying exclusion criteria. Scabies, contact dermatitis, pityriasis rosea and tinea corporis were more common in the post-earthquake group. Scabies was the most frequently observed diagnosis both before and after the earthquake among both the local and refugee populations. Scabies was particularly prevalent among the refugee population. **Conclusions**: Post-earthquake living conditions in overcrowded shared spaces and poor hygiene are associated with a rise of itchy skin diseases. Increased hygiene education for earthquake survivors and healthcare staff, improving temporary shelter conditions, ensuring water sanitation and access to clean water, and frequent health monitoring can help reduce the number of cases.

Keywords

Earthquake; Itching; Skin diseases; Hygiene

1. Introduction

The decrease in rural populations and uncontrolled urbanization contribute to increased losses during earthquakes [1]. Earthquakes have caused significant loss of life and major challenges globally. The most recent example, the 06 February 2023, earthquake in Maraş, Türkiye, resulted in over 50,000 deaths and thousands of injuries. The destructive power of earthquakes has profound effects on all aspects of human life. Among these, infectious diseases following earthquakes are a notable challenge.

Poor hygiene conditions caused by limited access to clean water, food and sanitation are among the most significant health issues post-earthquake. Additionally, air pollution from heavy machinery operating in debris fields and dust from collapsed buildings further contribute to health problems. Overcrowded communal living spaces, difficulties in accessing clean water and insufficient hygiene creates a fertile ground for the spread of infectious diseases. Studies have shown that gastrointestinal infections are more common in the acute phase post-earthquake [2]. Subsequently, scabies infestations (caused by Sarcoptes scabiei) have been observed in areas where personal hygiene rules are not followed, prolonged close contact occurs, and shared bathrooms and toilets are not cleaned [3].

Transmission typically occurs through prolonged contact and shared use of contaminated spaces. Therefore, it is crucial to provide effective and rapid responses to the needs of affected populations and to conduct accurate infectious disease risk assessments following major disasters such as earthquakes [4]. Factors such as the size of the affected area, population density, access to clean water, healthcare services and effective monitoring play primary roles in controlling outbreaks.

The aim of this study is to evaluate measures that can be taken to address diseases that arise post-earthquake and the necessity of resolving them before they escalate into epidemics. The relationship between earthquakes and diseases causing itchy skin conditions, particularly scabies, is discussed in this paper.

2. Materials and methods

This study was conducted at a tertiary university hospital in Malatya, one of the provinces most affected by the 06 February earthquake. The hospital has an average daily patient influx of approximately 10,000. Patients presenting to the emergency department and dermatology outpatient clinic with complaints of itching were retrospectively divided into two groups: pre-earthquake and post-earthquake. The pre-earthquake period was defined as 01 April 2022–01 April 2023, and the post-earthquake period as 01 April 2023–01 April 2024. Patients were categorized based on age, gender, nationality, diagnosis and clinic of presentation. Each group was evaluated and compared for pre-earthquake and post-earthquake periods. All collected data consisted of numerical values and did not violate patient privacy.

Data collection for pre-earthquake patients was straightforward, but identifying accurate post-earthquake patients presented challenges due to the chaotic healthcare system. Detailed reviews of entered diagnoses and patient records were required. Therefore, inclusion and exclusion criteria were applied carefully. Inclusion Criteria: Patients aged ≥8 years. Presenting with complaints of itching. Anamnesis forms completed in the hospital information system. Exclusion Criteria: Patients aged <8 years (chosen as the minimum age capable of independently expressing complaints). Complaints of itching secondary to chronic conditions (*e.g.*, liver disease, biliary problems, diabetes, hypercholesterolemia). Patients who died during hospitalization in the emergency department or other units. Incomplete anamnesis notes in the hospital information system. Duplicate entries of the same patient for the same complaint—only one instance was included.

The analysis of the study data was performed using IBM SPSS 25.0 software (New York, NY, USA). Descriptive statistics for categorical variables are presented as numbers and percentages. For non-categorical variables, mean and standard deviation (SD) were used for normally distributed data, while median and minimum–maximum (min–max) values were used for non-normally distributed data. The normality of quantitative variables was tested using the Kolmogorov-Smirnov test. Categorical variables were compared using cross-tabulations and chi-square tests. The Mann-Whitney U test was applied for comparisons of non-normally distributed independent groups. Results were evaluated at a 95% confidence level, and $p < 0.05$ was considered statistically significant.

3. Results

A total of 3468 patients, including 1015 women and 2453 men, were included in the study. The number of male patients was higher because the difficult transportation conditions were more surmountable for men and women were staying in tents or containers to care for the children. Among these, 1139 patients (517 women and 622 men) were in the pre-earthquake group, while 2329 patients (498 women and 1831 men) were in the post-earthquake group (Fig. 1).

The mean ages of patients in the pre-earthquake and post-earthquake groups were 39.03 and 32.32 years, respectively. There is a statistically significant difference between the mean ages of the patients divided into two groups as before and after the earthquake ($p < 0.05$). The mean age of the patients decreased after the earthquake (Table 1).

This was thought to be because casualties were higher in the elderly group and the elderly had difficulties in reaching the hospital after the earthquake. In addition, while elderly patients need the help of other people to go to the hospital, young patients do not need such assistance. It is thought that elderly applications have decreased because elderly patients have chronic health problems, and they are afraid of hospitalization because they think that the buildings are damaged in an earthquake.

Although the number of male patients was higher than female patients before and after the earthquake, the application rate of male patients increased more after the earthquake com-

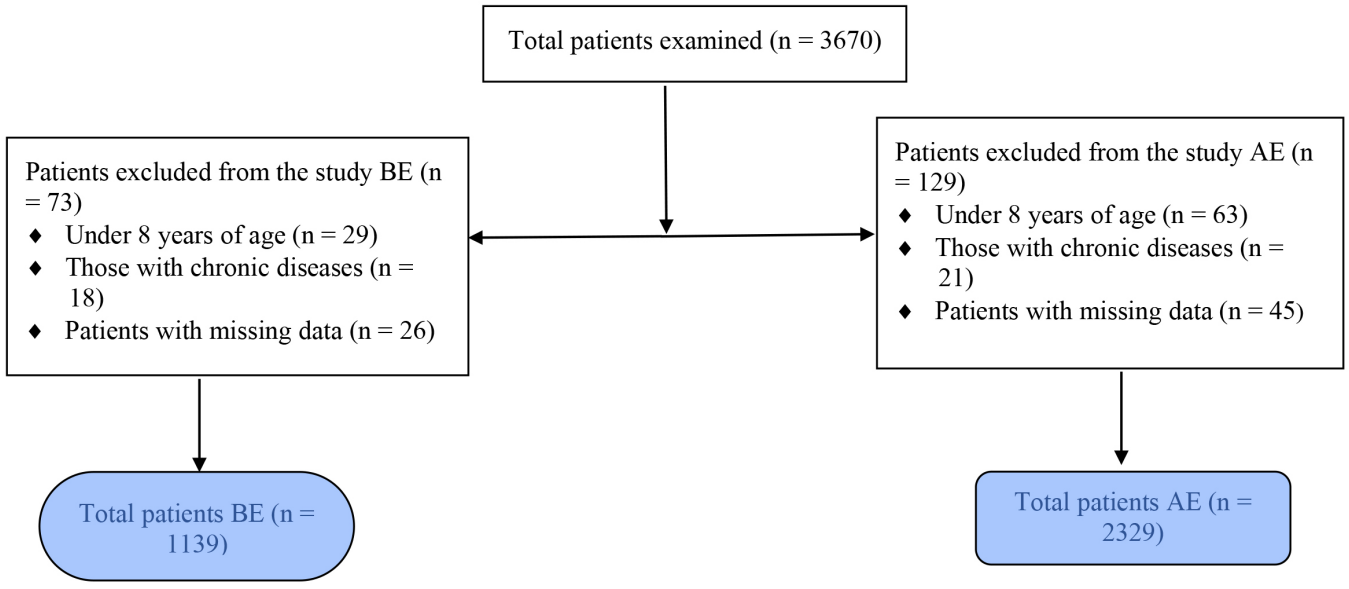

FIGURE 1. Flow diagram of study participants. AE: After earthquake; BE: Before earthquake.

TABLE 1. Demographic and diagnostic characteristics (age, gender and diagnosis) of patients in pre- and post-earthquake groups.

Variables	Pre-Earthquake (n = 1139)	Post-Earthquake (n = 2329)	Total (n = 3468)	*p*
Age, (mean ± SD)	39.03 ± 20.87	32.32 ± 14.36	37.04 ± 19.55	0.0001*
Median (min–max)	34 (0–97)	29 (8–90)	33 (0–97)	
Gender, n (%)				
Female	517 (45.4)	498 (21.4)	1015 (29.3)	0.0001*
Male	622 (54.6)	1831 (78.6)	2453 (70.7)	
Diagnosis, n (%)				
Scabies	783 (68.7)	1793 (77.0)	2576 (74.3)	0.0001*
Urticaria	147 (12.9)	128 (5.5)	275 (7.9)	
Xerosis cutis	107 (9.4)	112 (4.8)	219 (6.3)	
Contact dermatitis	80 (7.0)	228 (9.8)	308 (8.9)	
Pityriasis rosea	13 (1.1)	36 (1.5)	49 (1.4)	
Tinea corporis	9 (0.8)	32 (1.4)	41 (1.2)	

**Statistically significant ($p < 0.05$). SD: standard deviation; min: minimum; max: maximum.*

pared to before the earthquake. This situation was determined to be statistically significant (Table 1; $p < 0.05$).

The difference between the distribution of the diagnoses of the patients in the pre- and post-earthquake groups is statistically significant (Table 1; $p < 0.05$). The proportions of patients diagnosed with scabies, contact dermatitis, pityriasis rosea and tinea corporis were significantly higher in the post-earthquake group, while the proportions of urticaria and xerosis cutis were lower. Scabies was the most common diagnosis in both groups, with contact dermatitis being the second most common diagnosis post-earthquake (Table 1).

In terms of clinic visits, 833 patients in the pre-earthquake group visited the dermatology outpatient clinic, while 306 visited the emergency department. In the post-earthquake group, 290 patients visited the dermatology outpatient clinic, and 2.039 visited the emergency department. We attribute the fact that there were more applications to the emergency department than to the dermatology clinic after the earthquake due to several reasons. First, it was thought that the poor social conditions due to the earthquake (such as the need to live in communal living spaces, lack of hygiene) and the fact that health problems were ignored until they prevented social life caused the outpatient clinic applications to be directed to the emergency department. The other was that the necessity of making an appointment for outpatient clinic applications created a reluctance to spend valuable time in front of the clinic for people who lost their homes after the earthquake.

In both groups, the highest number of applicants are citizens of the Republic of Türkiye. However, the housing challenges for refugees were exacerbated post-earthquake due to increased housing destruction. This situation likely led to forced migration among the refugee population and a reduction in hospital visits. Since refugees have been living in difficult conditions since they migrated from their home country, it is thought that they can overcome this socio-economic trauma and adapt more easily, thus making the transition to normal life easier. Among the pre-earthquake patients, 1089 were Turkish citizens, and 50 were refugees. In the post-earthquake group, 1813 were Turkish citizens, and 516 were refugees (Table 2).

In the pre-earthquake data, 4.4% of patients were refugees, and 95.6% were Turkish citizens. According to the results, there is no significant relationship between the groups in the disease diagnosis and nationality. In other words, there is no statistically significant difference in nationality according to the groups at disease diagnosis ($p > 0.05$) (Table 3).

In the post-earthquake data, 22.2% of the groups were refugees and 77.8% were Turkish citizens. According to the results, there is a statistically significant difference ($p < 0.05$) between nationality and disease diagnosis groups after the earthquake. Among Turkish citizens, 72.2% had scabies, 6.7% had urticaria, 5.9% had xerosis cutis, 11.6% had contact dermatitis, 1.9% had pityriasis rosea and 1.7% had tinea corporis. It was observed that 93.8% of refugees had scabies, 1.2% had urticaria, 1% had xerosis cutis, 3.5% had contact dermatitis, 0.2% had pityriasis rosea and 0.4% had tinea corporis. It was found that refugees were more likely to be diagnosed with scabies than Turkish citizens, while Turkish citizens were more likely to be diagnosed with urticaria, xerosis cutis, contact dermatitis, pitrazis rosae and tinea corporis than refugees (Table 3). On the other hand, there is no statistically significant difference in clinical and nationality distribution in the pre- and post-earthquake groups ($p > 0.05$).

According to the binary logistic regression analysis; age (Odds Ratio (OR) = 0.236), gender (OR = 0.327), type of admission (OR = 0.052), and nationality (OR = 0.161) significantly affect individuals' admission status before or after the earthquake ($p < 0.05$). Looking at Table 4, the likelihood of being 66 years or older after the earthquake is 76.4% lower compared to before the earthquake ($1 - 0.236 = 0.764 \rightarrow$ 76.4%). This means that the patients after the earthquake are significantly younger. The likelihood of being female in post-earthquake admissions is 67.3% lower than before ($1 - 0.327 \rightarrow$ 67.3%). So the proportion of men among those

TABLE 2. Demographic and diagnostic characteristics (clinic and nationality) of patients in pre- and post-earthquake groups.

Variables	Pre-Earthquake (n = 1139)	Post-Earthquake (n = 2329)	Total (n = 3468)	*p*
Clinic, n (%)				
Dermatology	833 (73.1)	290 (12.5)	1123 (32.4)	0.163
ED	306 (26.9)	2039 (87.5)	2345 (67.6)	
Nationality, n (%)				
Turkish	1089 (95.6)	1813 (77.8)	2902 (83.7)	0.770
Refugee	50 (4.4)	516 (22.2)	566 (16.3)	

ED: Emergency Department.

TABLE 3. Illness rates by nationality.

Groups	Pre-Earthquake (n = 1139)		Post-Earthquake (n = 2329)	
	Turkish Citizens	Refugee	Turkish Citizens	Refugee
Scabies	746 (68.5%)	37 (74.0%)	1309 (72.2%)	484 (93.8%)
Urticaria	144 (13.2%)	3 (6.0%)	122 (6.7%)	6 (1.2%)
Xerosis cutis	103 (9.5%)	4 (8.0%)	107 (5.9%)	5 (1.0%)
Contact dermatitis	76 (7.0%)	4 (8.0%)	210 (11.6%)	18 (3.5%)
Pityriasis rosea	11 (1.0%)	2 (4.0%)	35 (1.9%)	1 (0.2%)
Tinea corporis	9 (0.8%)	0 (0%)	30 (1.7%)	2 (0.4%)
Total	1089 (100.0%)	50 (100.0%)	1813 (100.0%)	516 (100.0%)
Statistical values	n = 1139, χ^2 = 5.71, SD = 5, p = 0.273		n = 2329, χ^2 = 106.725, SD = 5, p = 0.0001	

SD: standard deviation.

TABLE 4. Binary logistic regression model.

Variables	β	SE	Exp(B)	95% CI (Lower–upper)	*p*
Age	−1.442	0.134	0.236	0.182–0.307	0.0001
Constant	−1.727	0.083	0.178		0.0001
Gender	−1.117	0.078	0.327	0.281–0.381	0.0001
Constant	−0.185	0.060	0.831		0.002
Dermatology-Emergency	−2.952	0.092	0.052	0.044–0.063	0.0001
Constant	1.001	0.067	2.722		0.0001
Nationality	−1.824	0.153	0.161	0.120–0.218	0.0001
Constant	3.081	0.145	21.780		0.0001

B: regression coefficient; Exp(B): exponential value of B; SE: standard error; CI: confidence interval. Reference: 0–65 age group, For age, Model (block 1) summary: −2 Log likelihood: 1754.527, Nagelkerke R^2 = 0.083; omnibus test of model coefficient: χ^2 = 122.617, sig. = 0.0001; Reference: male group, For gender, Model (block 1) summary: −2 Log likelihood: 3986.712, Nagelkerke R^2 = 0.082; omnibus test of model coefficient: χ^2 = 206.310, sig. = 0.0001; Reference: urgent group, For derma-urgent, Model (block 1) summary: −2 Log likelihood: 3076.222, Nagelkerke R^2 = 0.434; omnibus test of model coefficient: χ^2 = 1291.473, sig. = 0.0001; Reference: Syria group, For nationality, Model (block 1) summary: −2 Log likelihood: 2873.829, Nagelkerke R^2 = 0.101; omnibus test of model coefficient: χ^2 = 212.337, sig. = 0.0001.

who applied after the earthquake is higher. The likelihood of applying to dermatology after the earthquake is 94.8% lower than before (1 − 0.052 → 94.8%). This indicates that most post-earthquake admissions were directed to the emergency department, while applications to dermatology have decreased significantly (Table 4).

The probability of becoming a Turkish citizen in post-earthquake applications is 83.9% lower than before the earthquake (1 − 0.161 → 83.9%). In other words, the majority of those who applied for health care after the earthquake are refugees.

As a result of these results, the probability of admission of individuals aged 66 and over (76.4% decrease), the probability of women applying (67.3% decrease), the probability of applying to dermatology (94.8% decrease) and the probability of being a citizen of the Republic of Turkey (83.9% decrease) decreased significantly in the post-earthquake period ($p < 0.05$). These findings show that the population applying to health services after the earthquake is younger, more male, more refugees and emergency department oriented. All results were found to be statistically significant ($p < 0.05$) (Table 4).

The overall fit of the model was significantly better compared to the "Intercept Only" model (Chi-square = 90.564, $df = 5$, $p < 0.001$). This result shows that the model improved significantly with the earthquake status variable used as the explanatory variable. It was observed that the earthquake status variable had a significant effect on the model. It was found that $p = 0.0001$ was found to be the model fit and the model was determined as appropriate. On the other hand, Nagelkerke $R^2 = 0.031$ and shows the ratio of the independent variable to the diagnostic category of being able to explain the dependent variable together. The diagnostic variable, which is the dependent variable, was included in the multinominal logistic regression model as 0 for pre-earthquake and 1 for post-earthquake. "Tinea Corporis" was taken as a reference value. The results appear in Table 5 and graph. In urticaria and Xerotic Cutis disease, the β coefficients of the pre-earthquake values of the people and the Wald statistic were taken into account and evaluated (Table 5).

The significant difference in diagnosis distribution between groups is shown in Table 1. However, the multinomial logistic regression model presented in Table 5 analyzes the independent effect of the earthquake time variable on each diagnosis. Therefore, although there was an increase in some diagnoses, no significant difference was detected in the regression analysis. This result is consistent with the two different analysis approaches. The probability of being diagnosed with urticaria in the pre-earthquake period was approximately 4.08 times higher than after the earthquake (OR = 4.083, 95% confidence interval (CI): 1.878–8.877, $p < 0.05$). This finding shows that there was a significant decrease in urticaria diagnoses in the post-earthquake period, and it was diagnosed more frequently in the pre-earthquake period. The probability of being diagnosed with xerosis cutis in the pre-earthquake period was approximately 3.4 times higher than after the earthquake, and it was diagnosed more frequently in the pre-earthquake period (OR = 3.397, 95% CI: 1.549–7.451, $p < 0.05$). This suggests that the diagnosis of xerosis cutis may have decreased in the post-earthquake period (Fig. 2).

4. Discussion

In the 06 February twin earthquakes in our country, approximately 26 million people were directly or indirectly affected by the consequences of the disaster [5]. Over 50,000 deaths and approximately 107,000 injuries were recorded, while 3 million people migrated to other provinces for temporary or permanent settlement [6]. Disruptions in healthcare services occurred as some hospital buildings were damaged, causing delays in patients' access to diagnosis and treatment. Thousands of earthquake survivors were forced to live in shared public living spaces. These unhealthy conditions led to an increase in infectious skin diseases, viral infections, gastrointestinal infections and vector-borne diseases [7, 8]. Post-earthquake studies on epidemic infectious diseases have often focused on malaria [9, 10]. However, there is a limited number of publications addressing infectious skin diseases.

One study in the literature highlighted that the combination of housing issues, damaged infrastructure, a growing refugee population, and clean water shortages led to an increase in infectious skin diseases [11]. The most common among these is scabies, a highly contagious skin infestation caused by the Sarcoptes scabiei mite. Scabies is a disease that can affect anyone but is more prevalent in overcrowded living conditions. The most common symptom is itching, which worsens at night. Delayed treatment may result in secondary infections. Early diagnosis and appropriate treatment can help control the disease [3].

According to the study conducted by Aflatoonian MR and his colleagues, most of the skin infections after earthquakes are caused by leishmaniasis [12]. Earthquakes can change the habitats of animals and vectors that cause infectious diseases in humans [13]. In our study, the average age of patients presenting with itching complaints was lower post-earthquake than the pre-earthquake. This was attributed to winter conditions, the migration of elderly individuals requiring housing and medical care to safer cities, and higher mortality rates among the elderly population. The majority of refugees in our country are Syrian migrants, and over half of the Syrian population lives in provinces affected by the earthquake [14]. In our study, 68.5% of Turkish citizens diagnosed post-earthquake had scabies, while this rate was 93.8% among refugees. Although scabies rates increased in both communities, it was significantly higher among refugees. This finding can be explained by several factors. Similar to our study, a recent study partially addressed this issue [15]. Refugees often reside in closed, communal spaces, face socioeconomic challenges, and have limited access to clean water and adequate hygiene conditions. Another study has shown that scabies is not transmitted through contact such as shaking hands. It occurs more through prolonged contact and the use of shared materials [16].

Additionally, the limited housing alternatives for refugees compared to the local population explains the higher prevalence of scabies among them. The increase in scabies cases observed in our study can be attributed to the compulsory living conditions in communal shelters known as "container cities", infrastructure failures resulting in difficulties accessing clean water, disruptions in primary healthcare services, and insufficient hygiene and disease prevention education for the

TABLE 5. Multinominal logistic regression model.

Diagnostic Category	β	SE	Wald χ^2	p	Exp(B)	95% CI (Lower–upper)
Scabies						
Intercept	4.026	0.178	509.560	0.0001		
(Pre-Earthquake = 0.00)	0.440	0.380	1.343	0.2470	1.553	0.738–3.268
(Post-Earthquake = 1.00)	0[b]					
Urticaria						
Intercept	1.386	0.198	49.198	0.0001		
(Pre-Earthquake = 0.00)	1.407	0.396	12.610	0.0001	4.083	1.878–8.877
(Post-Earthquake = 1.00)	0[b]					
Xerosis Cutis						
Intercept	1.253	0.200	39.061	0.0001		
(Pre-Earthquake = 0.00)	1.223	0.401	9.309	0.0020	3.397	1.549–7.451
(Post-Earthquake = 1.00)	0[b]					
Contact Dermatitis						
Intercept	1.964	0.189	108.199	0.0001		
(Pre-Earthquake = 0.00)	0.221	0.399	0.307	0.5790	1.248	0.571–2.727
(Post-Earthquake = 1.00)	0[b]					
Pityriasis rosea						
Intercept	0.118	0.243	0.235	0.6280		
(Pre-Earthquake = 0.00)	0.250	0.497	0.253	0.6150	1.284	0.485–3.401
(Post-Earthquake = 1.00)	0[b]					

[b]: *regression coefficient; Exp(B): exponential value of B; SE: standard error; CI: confidence interval.*

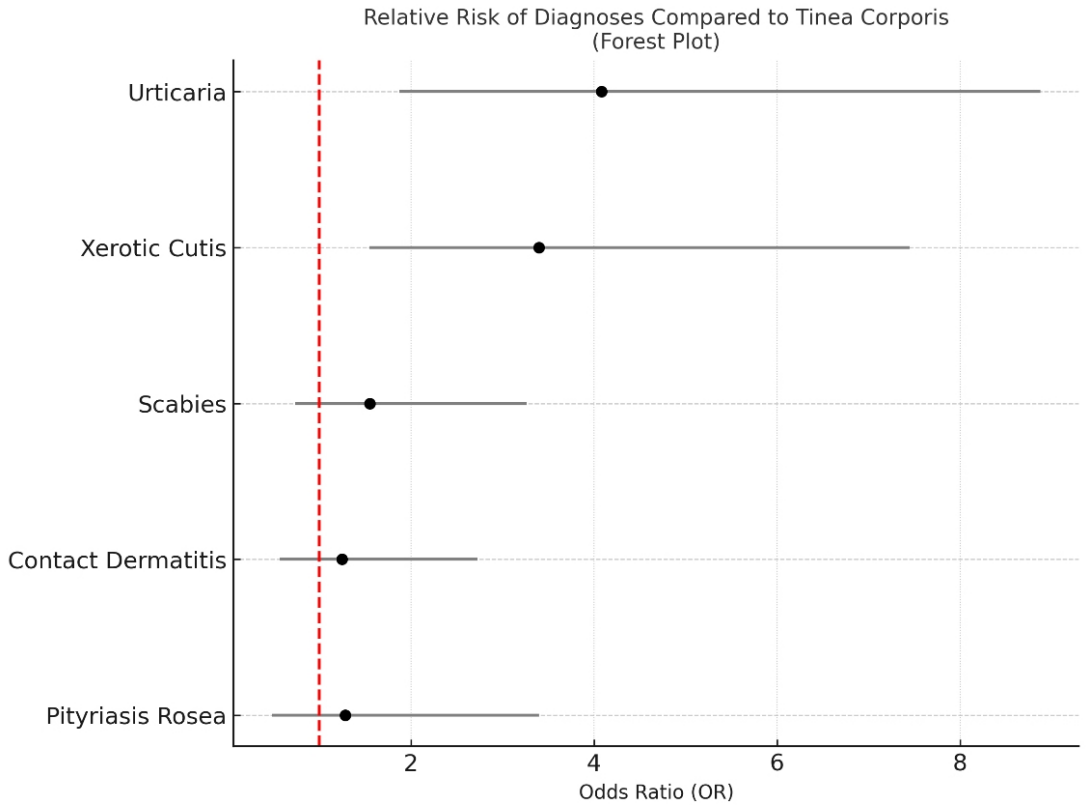

FIGURE 2. Forest plot of the odds ratios of diagnoses compared to tinea corporis.

population. Furthermore, the psychological and physiological stress experienced by earthquake survivors likely weakened their immune systems [17]. A compromised immune system is thought to contribute to the increase in infectious diseases and skin conditions.

Other diseases, such as urticaria and contact dermatitis, share similar triggers. The increase in contact dermatitis cases post-earthquake can be attributed to the harsh living conditions in non-routine shelters, exposure to heavy dust, air pollution caused by burning petroleum products for heating, clogged skin pores due to airborne microparticles, and limited access to bathing facilities, which contribute to dry skin and conditions such as contact dermatitis. Additionally, the use of wet wipes instead of water and disinfectants instead of soap has likely aggravated skin conditions. The cold weather during the winter season when the earthquake occurred may have further exacerbated urticaria. Another skin condition identified in our study was xerosis cutis, commonly known as dry skin. Although we expected an increase in xerosis cutis cases post-earthquake due to environmental pollution and living conditions, it was observed more frequently pre-earthquake in our study. This discrepancy may be explained by the challenging post-earthquake living conditions, where people likely overlooked issues like dry skin unless it progressed. Moreover, the widespread presence of air pollution and poor hygiene conditions likely normalized xerosis cutis, leading it to be underrecognized as a skin condition.

After the 2004 Indian Ocean earthquake, skin diseases recorded in a hospital showed that the most common skin problems were infections, followed by eczema and traumatic skin disorders, which were more prevalent among men [18]. The prevalence of infections/outbreaks, traumatic skin conditions, and contact dermatitis likely increased due to exposure to hazardous environments, unhealthy living conditions and contact with various objects both during and after the tsunami [18]. A study by Bayramgürler D *et al.* [19] during the 1999 İzmit earthquake reported widespread pruritus, erythematous squamous dermatoses, neurocutaneous dermatoses, and eczema, emphasizing the role of psychodermatological factors experienced post-earthquake. However, another cause of itching, pityriasis rosea, is not an infectious disease. Its frequency increased after the earthquake due to underlying stress. Post-earthquake, individuals endure intense psychological and physical stress caused by loss of life and challenging living conditions [20, 21].

Depressions caused by earthquakes change existing environmental conditions with their destructive effects, leading to the emergence of many infectious diseases. In addition to their direct impact on public health, earthquakes indirectly create an urgent need for housing for thousands of people by damaging essential environmental elements. Damage to healthcare facilities, in particular, leads to problems and delays in providing first aid and emergency medical care to affected individuals [22]. Temporary disruptions in transportation services hinder immediate access to essential supplies and emergency services. These impacts on vital infrastructure significantly increase the potential for infectious disease outbreaks and even mortality among earthquake survivors. Elderly individuals, patients with chronic illnesses, and young children within the affected population are more susceptible to potential infectious diseases due to weakened immune systems and their need for assistance [23]. Additionally, irregular urbanization, infrastructure issues in buildings, and the low socioeconomic status of the population in the region further exacerbate such health problems. The establishment of a disease surveillance system is essential to collect information on case numbers, analyze it, and effectively identify trends in infectious diseases before and after the disaster. Rapid, effective, and preventive measures should be prioritized to address public health problems and their solutions after an earthquake [24].

Our study has several limitations. Firstly, it was conducted as a single-center study. More comprehensive research could include other cities affected by the earthquake. Another limitation is the inability to ensure follow-up care for patients included in the study.

5. Conclusions

Environmental pollution and inadequate hygiene conditions following earthquakes increase the risk of infectious diseases. Infectious diseases can be prevented by ensuring shelter is near clean water sources, creating uncrowded living spaces, conducting regular health checks, maintaining hygiene in toilets and bathrooms, recording data, and quickly implementing isolation or treatment in cases of infectious disease suspicion. Infectious diseases can be controlled through the combined efforts of primary healthcare services, other healthcare institutions, local administrations, and social welfare services.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

AUTHOR CONTRIBUTIONS

BD—made conception and design; analysis and interpretation of data; drafting the manuscript. BD and LŞ—made analysis and interpretation of data and revising it critically for important intellectual content. KK—drafting the manuscript. MAA and LŞ—made acquisition of data. All the authors approved the final version to be published.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was initiated after obtaining ethical approval from the Ethics Committee of Malatya Turgut Özal University Faculty of Medicine (Decision No: 2024/399, dated 30 October 2024). Informed consent was not obtained from the patients included in the study. Because the requirement for ethical approval was waived by the Malatya Turgut Özal University Faculty of Medicine Ethics Committee.

ACKNOWLEDGMENT

Not applicable.

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

[1] Kizildere D. Earthquake disaster-induced urban policies: paradoxes and challenges in Turkey. Urban Research & Practice. 2024; 18: 130–141.

[2] Najafi S, Akahavan Rezayat A, Beyzaei SF, Shahriari Z, Taheri Tabar M, Ghasemi Nour M, *et al*. Incidence of infectious diseases after earthquakes: a systematic review andmeta-analysis. Public Health. 2022; 202: 131–138.

[3] Beyoğlu MM, Gokler ME. The impact of scabies in tent cities in Kahramanmaraş after the Turkish earthquakes: oral pharmacologic treatment efficacy. PeerJ. 2024; 12: e18242.

[4] Watson JT, Gayer M, Connolly MA. Epidemics after natural disasters. Emerging Infectious Diseases. 2007; 13: 1–5.

[5] World Health Organization. Earthquake response in Türkiye and Whole of Syria. 2023. Available at: https://cdn.who.int/media/docs/default-source/documents/emergencies/2023/who_flashappeal_earthquakeresponse.pdf?sfvrsn=210f845d_7&download=true (Accessed: 11 January 2025).

[6] Coordination of Humanitarian Affairs. Türkiye earthquake 2023 humanitarian response overview. 2023. Available at: https://reliefweb.int/report/turkiye/turkiye-earthquake-2023-humanitarian-response-overview-17-may-2023 (Accessed: 20 July 2023).

[7] Baran A, Özer A. Prevention of infectious diseases after an earthquake. Cam & Sakura Medical Journal. 2023; 3: 42–47.

[8] Tuna A. Infection diseases that can be seen post-earthquake. Intercontinental Journal of Emergency Medicine. 2023; 1: 4–10.

[9] Karabay O, Özcan D, Karabay A. Post-earthquake outbreak of scabies in temporary shelters in Türkiye: a call for preventive dermatologic care. Turkish Journal of Medical Sciences. 2023; 53: 321–325.

[10] Sharifi I, Poursmaelian S, Aflatoonian MR, Ardakani RF, Mirzaei M, Fekri AR, *et al.* Emergence of a new focus of anthroponotic cutaneous leishmaniasis due to Leishmania tropica in rural communities of Bam district after the earthquake, Iran. Tropical Medicine & International Health. 2011; 16: 510–513.

[11] Özden MG, Ertürk K, Kartal SP, Yayli S, Göktay F, Doğramacı CA, *et al*. An extraordinary outbreak of scabies in Turkey. Journal of the European Academy of Dermatology and Venereology. 2020; 34: e818–e820.

[12] Aflatoonian MR, Sharifi I, Poursmaelian S, Hakimi-Parizi M, Ziaali N. The emergence of anthroponotic cutaneous leishmaniasis following the earthquake in southern villages of Bam district, southeastern Iran, 2010. Journal of Arthropod-Borne Diseases. 2013; 7: 8.

[13] Zhang S, Lu Z, Liu H, Xiao X, Zhao Z, Bao G, *et al*. Incidence of Japanese encephalitis, visceral leishmaniasis and malaria before and after the Wenchuan earthquake, in China. Acta Tropica. 2013; 128: 85–89.

[14] Zeyrek FY, Yakut S, Korkmaz M. Vector-borne parasitic infections after the earthquake. Microbiology Australia. 2023; 44: 197–201.

[15] Louka C, Logothetis E, Engelman D, Samiotaki-Logotheti E, Pournaras S, Stienstra Y. Scabies epidemiology in health care centers for refugees and asylum seekers in Greece. PLOS Neglected Tropical Diseases. 2022; 16: e0010153.

[16] Peyravi M, Ahmadi Marzaleh M, Khorram-Manesh A. An overview of the strengths and challenges related to health on the first 10 days after the large earthquake in the west of Iran, 2017. Iranian Journal of Public Health. 2019; 48: 963–970.

[17] Aždajić MD, Bešlić I, Gašić A, Ferara N, Pedić L, Lugović-Mihić L. Increased Scabies Incidence at the Beginning of the 21st century: what do reports from Europe and the world show? Life. 2022; 12: 1598.

[18] Lee SH, Choi CP, Eun HC, Kwon OS. Skin problems after a tsunami. Journal of the European Academy of Dermatology and Venereology. 2006; 20: 860–863.

[19] Bayramgürler D, Bilen N, Namli S, Altinaş L, Apaydin R. The effects of 17 August Marmara earthquake on patient admittances to our dermatology department. Journal of the European Academy of Dermatology and Venereology. 2002; 16: 249–252.

[20] Deniz S, İnceoğlu F, Koca M. Psychological effects of earthquake on health professionals: investigation of post-traumatic stress disorder and related factors. Nigerian Journal of Clinical Practice. 2025; 28: 305–312.

[21] Öztürk HM, Daymaz D, Kocakaya H, Akkoyun AZ, Saygun M. Trauma symptoms, sleep quality and related factors in the early post-earthquake period. Journal of Medicine and Palliative Care. 2023; 4: 492–498.

[22] Uwishema O. Addressing the effects of the earthquakes on Türkiye's health-care system. The Lancet. 2023; 401: 727.

[23] Bayraktar N, Dal Yilmaz Ü. Vulnerability of elderly people in disasters: a systematic review. Turkish Journal of Geriatrics. 2018; 21: 467–482.

[24] Ozdemir R, Demir C, Catak B. Faculty members' earthquake preparedness levels and their related factors: a cross-sectional study from a university in a high-risk earthquake zone in Turkey. Journal of Injury and Violence Research. 2021; 13: 151.

How to cite this article: Bilgehan Demir, Levent Şahin, Kısmet Kaya, Merve Ayyıldız Akın. Itchy skin diseases in the emergency department before and after the earthquakes. Signa Vitae. 2025; 21(9): 35-42. doi: 10.22514/sv.2025.126.