# PREVALENCE OF SCABIES AMONG REFUGEES IN CAMPS OF DUHOK PROVINCE, KURDISTAN REGION, IRAQ

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## ABSTRACT

**Background:** Scabies, a skin disease caused by Sarcoptes scabiei mite, that is highly pruritic and contagious. It's endemic in tropical regions among low socio-economic and homeless population. Scabies is a common problem among refugees and immigrants. The aim of this study is to estimate the prevalence of scabies among refugees in Duhok Province, Kurdistan Region, Iraq.

**Methods:** A cross-sectional survey was performed on 35 camps of refugees. A total of 21320 skin lesion cases attended health care centers in refugee's camps were examined and diagnosed by the physician. Data were collected from December 2015 to May 2016.

**Results:** The prevalence of scabies was 4.5% (959), the rate of male and female were 52.8% (506); 47.2% (453) respectively, more prevalent in age groups 5-14 years 35% (335), the majority of cases were found in Essian camp 38.7% (371).

**Conclusion:** The prevalence of scabies was higher in refugees than other communities. Scabies spread quickly among family members, affect both sexes and all age groups, especially among refugees because of poverty, overcrowding, bad personal hygiene, and bad housing.

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**Keywords:** Refugees, Sarcoptes, Scabies, Duhok.

Scabies, a skin lesion caused by infestation with a mite called *Sarcoptes scabiei*, that affect approximately 300 million people worldwide each year. The cardinal symptom is itching, but secondary bacterial infection with *Streptococci* and *Staphylococci* is frequent and can lead to serious complications, such as renal failure, and chronic rheumatic heart disease.[1–3]

Epidemiological studies indicated that the most predisposing factors in contracting scabies seem to be poverty and overcrowded living conditions, however the prevalence of scabies is not affected by sex, race, or age.[4]

The diagnosis of scabies in endemic areas is often easy; it could be sometimes one of the misdiagnoses in dermatology clinic. Scabies is easy to misdiagnose with other skin problems that are common among school children, such as popular urticaria, atopic dermatitis, and contact eczema. That's why the basis of the diagnosis is: family history, endemicity, presence of itching especially at night, and lesions channels.[1]

Life cycle occurs when female mites burrow under the skin and lay small number of eggs each day for several weeks. Symptoms are caused by allergic reactions of host's body to mite proteins found in mite's eggs, proteins and feces. Itching continue for few days to several weeks, after all mites are killed. Initial infections require four to six weeks to become symptomatic. Transmission occurs

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from person to person and from objects like: shared beddings, towels, and clothing, but is most often transmitted by direct skin-to-skin contact, with a higher risk after prolonged contact with an infected person. Re-infection may occur. Recommendation for disease prevention requires treatment of all affected family members and all people came in contact with patients regardless of whether symptoms are present or not, to reduce rate of recurrence.[5]

Scabies can lead to serious complications, through secondary bacterial skin infection, like septicemia, renal disease, and rheumatic heart disease.[6]

Foreign adopted children and children of asylum applicants and refugees, newly arrived in Denmark, often have lived under conditions that make the following diagnostic considerations relevant: scabies, lice, impetigo and fungal skin infections, nutritional iron deficiency or bleeding, anemia caused by hook worms in the gastrointestinal tract, malaria, tuberculosis, hepatitis B, HIV infection and various intestinal parasites.[7]

Scabies is a public health problem, delayed or misdiagnosis and delayed treatment may lead to outbreaks that may be difficult to be controlled.[8]

The highest prevalence of scabies is found in Pacific island countries.[9]

In a survey done in Fiji, found 24% of participants had scabies, with a particularly high prevalence in young children. A prospective study in Fijian school children documented scabies incidence at 51 cases per 100 people.[10]

The treatment of scabies is started with topical agents, including benzyl benzoate and permethrin cream, which was the standard of care and till now.[11]

Treatment of close contacts is also adviced because *Sarcoptes scabiei* is transmitted by contact or shared objects. Oral treatment, ivermectin (IVM), has been used as a single dose, repeated at two weeks if symptoms persist.[12]

Ivermectinis as effective as permethrin in the treatment of scabies. In comparison to other medications such as lindane, benzyl benzoate, crotamiton and malathion. Ivermectin was more effective in the treatment of scabies.[13]

Application of 1% lindane topically daily lasting at least 2 weeks is required to clear scabies, safe and effective to evaluate the efficacy of scabies treatment, and to follow up the patients.[14]

Other study in Netherlands indicates that a single dose of ivermectin was as effective as two applications of lindane lotion 1% in 2-week follow-up.[15]

## MATERIALS AND METHODS:

This study was conducted in refugee's camps of Duhok province, Kurdistan Region of Iraq. Data were collected from December 2015 to May 2016. A total of 21320 skin lesion cases attended health centers in 36 refugee's camps were enrolled in the study.

A questionnaire was used for data collection, which includes:

Age, sex, occupation. Family history: number of members of their families, number of rooms in their houses or cabinets or tents, number of children who sleep together in the same bed. History of itching, and sharing clothes with others.

In cooperation with a dermatologist to diagnose the scabies. The diagnosis of scabies was done clinically, continuous itching especially at night, and skin burrows (visualized with mineral oil), and itchy papules or nodules. In case of doubt, definite diagnosis was done by microscopic identification of mites or their eggs from skin scraping.[6, 16]

## RESULTS:

The prevalence of scabies was 4.5% (959), the rate of male and female were 52.8% (506); 47.2% (453) respectively as shown in table 1, more prevalent in age groups 5-14 years 35% (335) as shown in the figure. Majority of cases were found in Essian camp 38.7% (371) as shown in table 2.

**Table 1: Sex distribution of scabies among refugee's camps.**

| Sex | Scabies | % |
|---|---|---|
| Male | 353 | 46.5 |
| Female | 406 | 53.5 |
| Total | 759 | 100.0 |

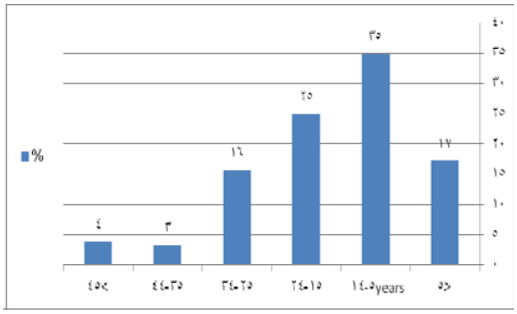


**Figure: distribution of Scabies among refugee's age groups.**

**Table 2: Distribution of scabies among refugee's camps.**

| Camp/ Mobile Team | Total skin lesion | Scabies | % |
|---|---|---|---|
| Bajet Kandala 1 | 486 | 6 | 0.6 |
| Bajet Kandala 2 | 77 | 13 | 1.4 |
| Bersive 2 | 571 | 0 | 0.0 |
| Chamishku | 3007 | 100 | 10.4 |
| Dawanesh | 5 | 0 | 0.0 |
| Dawodia | 1297 | 2 | 0.2 |
| Domiz 1 | 226 | 12 | 1.3 |
| Domiz 2 | 1067 | 2 | 0.2 |
| Essian | 700 | 371 | 38.7 |
| Garmawa | 434 | 116 | 12.1 |
| Gawilan | 570 | 4 | 0.4 |
| IMC MT Al Mumi | 48 | 0 | 0.0 |
| IMC MT Garsur | 7 | 0 | 0.0 |
| IMC MT Jazronea | 18 | 1 | 0.1 |
| IMC MT Tal Al-Hawa | 44 | 1 | 0.1 |
| Kabarto 1 | 360 | 3 | 0.3 |
| Kabarto 2 | 264 | 0 | 0.0 |
| Kadia | 262 | 0 | 0.0 |
| Khanke | 406 | 0 | 0.0 |
| Mam Reshan | 3 | 1 | 0.1 |
| Mamilian | 784 | 8 | 0.8 |
| Medair MB | 2272 | 87 | 9.1 |
| MedairO.Khaled | 25 | 4 | 0.4 |
| MedairWana | 558 | 8 | 0.8 |
| MMU Khanasor | 5 | 0 | 0.0 |
| MMU Sardashti 2 | 12 | 0 | 0.0 |
| MMU Sharfadeen | 28 | 0 | 0.0 |
| MMU-Seage | 38 | 0 | 0.0 |
| MMU-Segea | 427 | 0 | 0.0 |
| MMU-Sejea | 35 | 1 | 0.1 |
| MusharafAbeet | 26 | 0 | 0.0 |
| PUAMI Mobile | 1551 | 0 | 0.0 |
| Rabiaa Clinic | 171 | 5 | 0.5 |
| Shariya | 5446 | 127 | 13.2 |
| Sheikhan | 90 | 87 | 9.1 |
| Grand Total | 21320 | 959 | 100.0 |

## DISCUSSION:

The housing nature is very important for disease transmission that's why refugees get the disease and spread within the family members easily because of close contact as they sleep in one cabinet or tent.

Our results were close to a study done in France in 2015 the prevalence of scabies was 6.5% in individuals sleeping in public places.[16]

Regarding the sex and age a similar results showed in a study done in a primary school in Nigeria in 2015 for400 pupils, 153 males and 247 females, 6-12 years old. The prevalence of scabies was10.5%.More cases occurred among males than females 80.4%, 67.2% respectively.[17]

Because of rapid transmission, misdiagnosis, and mistreatment outbreaks can occur like a study done in 2015 on a large outbreak of scabies in three health care centers in a university teaching hospital in the Netherlands. The outbreak potentially affected 460 patients and 185 health care workers who had been exposed to the primary patient.[15]

Another study done in Bangui in 2014 for 376 cases of scabies were identified from a total of 6391 patients (a hospital prevalence of 5.88%) with high frequency.[18]

Scabies is considered as a re-emerging disease after it has been controlled like our country and others like Sierra Leone in 2001, the prevalence of scabies was investigated among 125 children between the ages of 1-15 years. Children under five years accounting for 77%, while 86% among the 5-9 years, and declining with an increase in age. The prevalence of scabies was high in children in the displacement camps, which is a public health problem not only in these camps, but also in the entire country. The reason may be due to overcrowding, poor personal hygiene, and poverty that spread the disease among the camp residents. Control and prevention protocols are recommended, by reducing overcrowding, health education, personal hygiene, and treatment of patients.[19]

A retrospective study in Athens in 2012 for 4071 children, the most frequent disease was dermatitis/eczema (34.7%), scabies (4.8%).[20]

The incidence rates of scabies were four times higher in immigrants than in persons with Belgian nationality, with no difference between male and female.[21]

A study done in Egypt in 2015 the results were close to our study, the prevalence was 4.4%, male and female students 3.9%, 4.8%respectively, with no statistical significance.[22]

In conclusion the prevalence of scabies was higher in refugees than other communities. Scabies spread quickly among family members, affect both sexes and all age groups, especially among refugees because of poverty, overcrowding, bad personal hygiene, and bad housing. In our locality, scabies is still a re-emerging disease affecting schoolchildren, especially in rural areas.

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## پوختە

### بەلاڤبوونا کوریاتیێ دناڤ کەمپێن ئاوارە و پەنابەرندا ل پارێزگەها دهوکێ – هەرێما کوردستانێ عیراق

**پێشەکی:** گوریبوون نەخوشیەکا پیستیە ئەکەرێ وێ مشەخورێ Sarcoptes scabiei، ئەو ژی گەلەك یا ب خوریانە وڤەگرە. یا بەربەلاڤە ل دەڤەرێن گەرم وکێم دەرامەت ووەلاتیێن بێ خانی. گوریبوون ئاریشەکا بەربەلاڤە لناف ئاوارە وپەنابەرا دا.

**ئارمانج:** بو ئاشکراکرنا ڕێژا گوریبوونێ لناف ئاوارەیێن باژێرێ دهوکێ.

**هوکار:** ڤەکولینەکا ڕێژەیی هاتە ئەنجامدان لسەر ٣٥ کەمپێن ئاوارەیان. ژ کوژمێ 21320 نەخوشێن پیستی قەستا سەنتەرێن ساخلەمیێ کرین ل کەمپێن ئاوارا هاتینە تاقیکرن وشلوڤەکرن ژلایێ دختوران ڤە. داتا هاتنە خرڤەکرن ژ بەراوری کانونا دووێ ٢٠١٥ هەتا ئەیارێ ٢٠١٦.

**ئەنجام:** ڕێژا گوریبوونێ ٤.٥٪ (٩٥٩) بو، ڕێژا ڕەگەزێ نێر ومێ ٥٢.٨٪ (٥٠٦)" ٤٧.٢٪ (٤٥٣) لدیف ئێدا بوو. ڕێژا پتر هەبو ل کووما تەمەنێ ٥–١٤ سالی ٣٥٪ (٣٣٥)، پترپا نەخوشان ل کەمپا ئیسیان بوون ٣٨.٧٪ (٣٧١).

**دەرئەنجام:** ڕێژا گوریبوونێ لناف ئاوارەیان داپتر بوو ژ جڤاکێ دی. گوریبوون زوی بەلاڤ دبیت لناف ئەندامێن خێزانێ دا، هەر دوو ڕەگەزا هەمی کووما تەمەنی ڤەدگریت، ب تایبەتی ئاوارەیان ژبەر هەژاریێ، قەرەبالغ، کێم ساخلەمیا کەسایەتی، وکێماسیا جهێن ئاکنجیبوونێ.

## الخلاصة


### انتشار الجرب بين النازحين في المخيمات في محافظة دهوك – إقليم كوردستان العراق

**المقدمة:** داء الجرب, مرض جلدي يسببها طفيلي Sarcoptes scabiei، ذو حكة عالية ومعدية. ومنتشر كثيراً في المناطق الاستوائية بين السكان ذوي الدخل القليل وعديمي المأوى. داء الجرب مشكلة شائعة بين اللاجئين والمهاجرين.

**الهدف:** لقياس نسبة داء الجرب بين اللأجئين في محافظة دهوك.

**طريقة العمل:** اجريت احصاء على ٣٥ مخيم اللاجئين. مجموع ٢١٣٢٠ اصابات جلدية ممن زاروا المراكز الصحية في مخيمات اللاجئين وفحصهم وتشخيصهم من قبل الطبيب. اخذت البيانات من تاريخ كانون الاول ٢٠١٥ حتى أيار ٢٠١٦.

**النتائج:** نسبة داء الجرب كانت ٤.٥% (٩٥٩)، نسب الذكور والاناث كانت ٥٢.٨% (٥٠٦)؛ ٤٧.٢% (٤٥٣) على التوالي، النسبة كانت عالية في فئات العمر ٥–١٤ سنة ٣٥% (٣٣٥)، اثرية الاصابات كانت في مخيم ئيسيان ٣٨.٧% (٣٧١).

**الاستنتاج:** نسبة داء الجرب بين اللاجئين كانت اعلى من بقية المجتمع. داء الجرب تنتشر بسرعة بين افراد العائلة، تصيب كلا الجنسين وجميع الفئات العمرية، خاصة بين اللاجئين وذلك بسبب الفقر، الازدحام، سوء النظافة الشخصية، وسوء السكن.