

## **Epidemiological study of patients infected with scabies caused by *Sarcoptes scabiei* in Al-Najaf Governorate, Iraq.**

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### **Abstract**

The aim of the current study was to epidemiological detection of patients infected with scabies caused by *Sarcoptes scabiei* during the period from March 2017 to February 2018 in Iraq, Al-Najaf Governorate. A total of 1112 patients were infected with scabies, 602 (54.1%) were men and 501 (45.9%) were female and 419 patients (37.7%) were lived in urban areas and 693 patients (62.3%) were lived in rural areas. Age group 31-40 y old was the most prevalent group (379 patients, 34%) infected with scabies. February 2018 was the highest month in infection (187 patients, 16.8%) and May 2017 was the lowest month in infection (25 patients, 2.2%). In conclusions: In Iraq, there are high numbers of individuals infected with scabies without any health care especially in rural areas. Scabies is more prevalent in cold and warmth seasons in males as well as females among age group 30-40 y old. Therefore, scabies is still an important health problem in Iraq as a neglected disease.

**Keywords:** Scabies, Epidemiology, Urban, Rural, Age groups, Najaf, Iraq.

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### **Introduction**

Scabies is one of the most important skin diseases worldwide particularly in developing countries, caused by mite *Sarcoptes scabiei* [1,2]. Sexually transmitted is the main way of infection and is a common between family members [3]. Patients infected with scabies suffer from skin redness and severe itching in different body parts such as arms, legs and between the thighs [4,5]. Most patients infected with this disease are lived in rural areas without health care and without health awareness [6-8]. About more than 100 million patients infected with scabies worldwide [9,10]. Diagnosis of scabies is depend on many clinical and physical parameters include; the presence of mite *Sarcoptes scabiei* or it products, strong itching and skin inflammation [11]. Scabies infect both male and female in different age groups, and it is common in tropical climate countries, in poor people who live in rural areas [12,13]. In Iraq, there is no recent studies focus on the prevalence of scabies in urban and rural areas. Therefore, this research designed to epidemiological study of patients infected with scabies caused by *Sarcoptes scabiei* during 12 months and compare between different parameters include; sex, age groups, seasons and general culture in Iraq.

### **Materials and Methods**

#### **Patients**

This is epidemiological study was done in Al-Najaf Governorate, Iraq. During the period from March 2017 to February 2018, a total of 1112 patients (male and female)

infected with scabies were included in this study, age ranges between 10 to 70 y old lived in urban and rural areas. All patients infected with scabies caused by *Sarcoptes scabiei* were diagnosed according to physical exam and inspecting the affected area of skin or removing a *S. scabiei* from the skin with a needle and take a scrape off a small section of skin to obtain a tissue sample and examined this sample under a microscope to confirm the presence of scabies mites or their eggs [14].

#### **Statistical analysis**

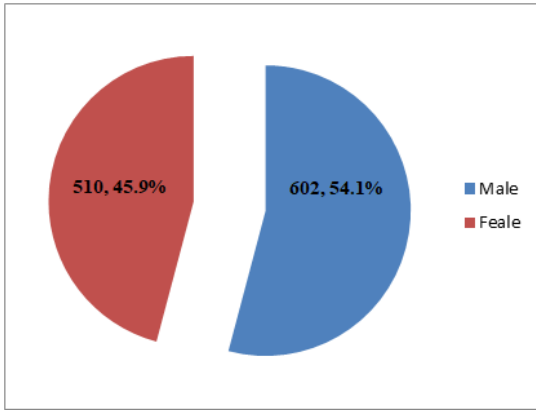
Statistical analysis was done according to percentages to compare between samples using SPSS V.9 computer software [15].

### **Results**

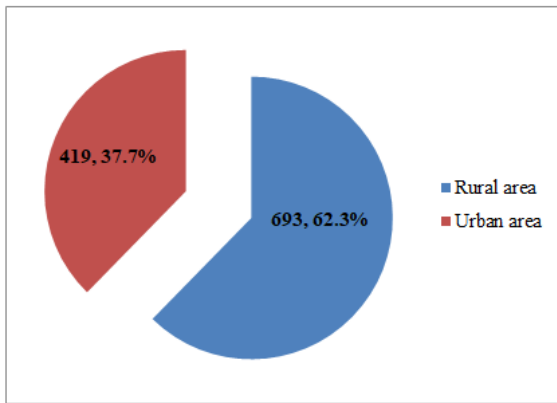
Out of 1112 patients, 602 (54.1%) were males and 501 (45.9%) were female (Figure1). According to area of infection, the results demonstrated that there were 419 patients (37.7%) were lived in urban areas and 693 patients (62.3%) were lived in rural areas (Figure 2).

Age group 31-40 y old was the most prevalent group (379 patients, 34%) infected with scabies (Table 1) among this group, 201 males (53%) and 178 females (47%) (Figure 3).

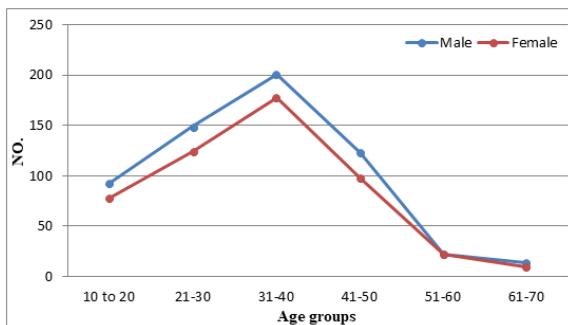
February 2018 was the highest month in infection (187 patients, 16.8%) and May 2017 was the lowest month in infection (25 patients, 2.2%) (Figures 4 and 5). Profile of 1112 patients infected with scabies is mentioned in Table 2.



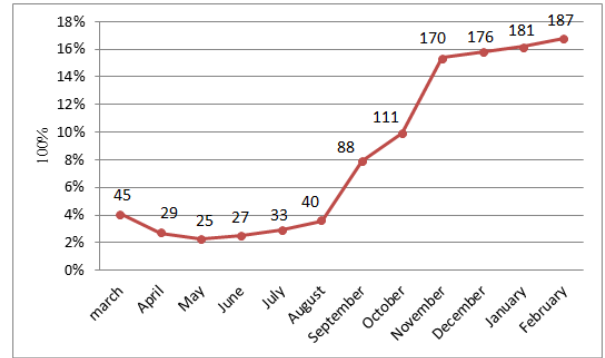
**Figure 1.** Numbers and percentages of patients infected with scabies in Al-Najaf Governorate, Iraq, during the period from March 2017 to February 2018 according to gender. N=1112 patients.



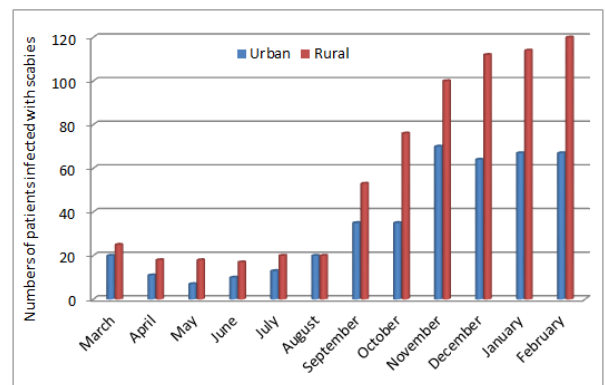
**Figure 2.** Distribution of patients infected with scabies in AL-Najaf Governorate, Iraq, during the period from March 2017 to February 2018 according to areas of residence. N=1112 patients.



**Figure 3.** Numbers and percentages of patients infected with scabies in AL-Najaf Governorate, Iraq, during the period from March 2017 to February 2018 according to areas of age groups and gender. N=1112 patients.



**Figure 4.** Numbers and percentages of patients infected with scabies in Al-Najaf Governorate, Iraq, during the period from March 2017 to February 2018. N=1112 patients.



**Figure 5.** Monthly distribution of patients infected with scabies in AL-Najaf Governorate, Iraq, during the period from March 2017 to February 2018 according to areas of residence. N= 1112 patients.

**Table 1.** Distribution of patients infected with scabies in AL-Najaf Governorate, Iraq, during the period from March 2017 to February 2018 according to age groups. N=1112 patients.

Age groups	No.	100%
44105	171	15.3
21-30	273	24.6
31-40	379	34
41-50	221	20
51-60	44	4
61-70	24	2.1
Total	1112	100

**Table 2.** Profile of 1112 patients infected with scabies in Al-Najaf Governorate, Iraq, during the period from March 2017 to February 2018.

Age groups	Urban area 419 (37.7%)			Rural area 693 (62.3%)		
	Male	Female	Total (100%)	Male	Female	Total (100%)

44105	31	23	54 (12.8)	62	55	117 (16.9)
21-30	61	49	110 (26.5)	88	75	163 (23.5)
31-40	78	63	141 (33.6)	123	115	238 (34.3)
41-50	53	39	92 (21.9)	70	59	129 (18.7)
51-60	9	5	14 (3.3)	13	17	30 (4.3)
61-70	5	3	8 (1.9)	9	7	16 (2.3)
Total	237 (56.5)	182 (43.5)	419 (100)	365 (52.7)	328 (47.3)	693 (100)
<b>Months</b>	<b>Urban area 419 (37.7%)</b>			<b>Rural area 693 (62.3%)</b>		
	<b>Male</b>	<b>Female</b>	<b>Total (100%)</b>	<b>Male</b>	<b>Female</b>	<b>Total (100%)</b>
March 2017	15	5	20 (4.7)	15	10	25 (3.3)
April 2017	5	6	11 (2.6)	10	8	18 (2.6)
May 2017	4	3	7 (1.6)	8	10	18 (2.6)
June 2017	8	2	10 (2.3)	8	9	17 (2.5)
July 2017	8	5	13 (3.2)	14	6	20 (2.9)
August 2017	12	8	20 (4.7)	7	13	20 (2.9)
September 2017	23	12	35 (8.4)	28	25	53 (7.7)
October 2017	20	15	35 (8.4)	41	35	76 (11)
November 2017	34	36	70 (16.8)	54	46	100 (14.5)
December 2017	33	31	64 (15.3)	52	60	112 (16.2)
January 2018	37	30	67 (16)	59	55	114 (16.5)
February 2018	38	29	67 (16)	69	51	120 (17.3)
Total	237 (56.5)	182 (43.5)	419 (100)	365 (52.7)	328 (47.3)	693 (100)

## Discussion

Scabies is considered as one of the most prevalent skin infections in third worlds countries. About more than 350 cases occurring every year; most these cases are incidence in developing countries in poor peoples who live in rural and crowded areas characterized with tropical climate. In this study, out of 1112, there were 602 patients (54.1%) were men and 501 patients (45.9%) were female infected with scabies. Almost, males were equally affected as females in this study approximately ratio of 1:1. These results are in agreement with Nair et al. [8] that they are proved there were 52 patients (50.98%) were males and 50 patients (49.01%) were females in Gujarat, India. Also, Mason et al. [7] demonstrated that out of total 515870 patients infected with scabies in Solomon Islands there were 51.3% males and 48.7% females. In Iraq, in Tikrit Governorate in 2009, Alsamarai [16] proved that out of total 11194 patients infected with scabies there were 13.5% and 8.6% were male and female, respectively. While, Sharquie [17] found in his study in Baghdad, Iraq, out of total 97 patients infected with scabies there were 58 (59.8%) males and 39 (40.2%) females. Almost, rural areas are the most infected regions with different bacterial and parasitic infections; this may be due to the absence of health awareness and enough

health care [18,19]. Our results indicated that rural areas were more than urban areas in scabies infection with percentage 62.3% and 37.7%, respectively. These results are in agreement with Hegab et al. [20] when they are proved that out of total of 2104 school children were infected with scabies there were 862 (41%) were lived in urban areas and 1242 (59%) were lived in rural areas in Kafr El-Sheikh in Egypt. Recently, Walker et al. [21] in southern Ethiopia showed that peoples who lived in poor quality and crowded areas were more infected with scabies as compared with those lived in good quality areas. The incidence of skin disease such as scabies in poor and low middle income communities in different countries are a significant public health problem because of the poor health awareness, absence of personal hygiene and general culture [3,9]. In the current study, the most common age group infected with scabies was 31-40 y old 379 patients (34%) in urban area and 141 patients (33.6%) and in rural area 238 patients (34.3%). This result is in agreement with Alsamarai [16] in Iraq when he showed that there were 42 patients (31.8%) infected with scabies were among age group 30-44 y. Also, Ramachandra et al. [22] in India showed that 30-40% of patients were infected with scabies were in age group >30 y old. While, Hamarsheh et al. [23] found that <10 y group was the more prevalent among age groups in Palestinian territories

with percentage 27%. We can explain the result of this study, is may be due to contact between married men and women in same family lead to transfer this mite during sexually contact from husbands to wives. Climate is one of the most important factors that play an important role in scabies incidence worldwide [24]. Iraq is a tropical country characterized by high temperature between 30°C to 40°C throughout the year. Our results proved that scabies was most prevalent in February (187 patients, 16.8%) when temperature range between 35°C to 20°C. These results are in agreement with many studies [25-27]. There are positive association between temperature and humidity and incidence of scabies, because of these conditions provide suitable factors for parasite growth and survival in different parts of the human body [28,29]. Scabies is consider as a one of the most prevalent skin disease in tropical areas particularly in developing countries suffering from poverty and a significant increase in the population [30-32]. Although the World Health Organization (WHO) classified scabies as a neglected disease, but until now it has not developed formal programs for scabies control in developing countries [33]. Therefore, we need more health awareness programs and health care in developing countries particularly in rural areas to prevent spreading this disease.

## Conclusion

In Iraq, there are high numbers of individuals infected with scabies without any health care especially in rural areas. Scabies is more prevalent in cold and warmth seasons in males as well as females among age group 30-40 y old. Therefore, Scabies is still an important health problem in Iraq as a neglected disease.

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