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A survey study of the scabies parasite in humans (*Sarcoptes scabiei*) province of Maysan

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***Abstract*---**This study relied on analyzing all the information recorded in the patient's questionnaire form and then discussing the extent of the impact of some demographic factors on the spread of scabies at the level of Maysan Governorate, where the parasite that causes scabies in humans was isolated from skin scraping and prepared on slides insides the laboratory. The study was limited to Maysan Governorate for the year 2020-2021 and for a period of about six months, through which the extent of the diseases spread in the Governorate was determined and the factors affecting the scabies epidemic were known.in this study, 602 references to dermatology consultants were examined in hospitals, the number of males was 395, while the number of females was 207, with a total number of 220 patients, including 126 males and 94 females. All information was recorded for each infected person. The rate of scabies infection varied with gender, as the infection rate for males reached 57.272%, while it reached 42.727% for females. It was also found that the highest rate of scabies infestation in the study areas was 58.62%, and this was recorded in Al-kahla district, while the lowest infection rate was in the city center, amounting to 17.72%. The rates of injury also varied on the body of the injured person. The highest percentage of injury that was recorded was 47.82% in the armpit area, while the lowest percentage of injury was in the back area, which amounted to 30.30%. It was also found through what the results mentioned that the rates of injury differ from one person to another depending on the profession they practice, the highest rate of injury recorded among the detainees was 55.55%. In contrast, the lowest rate of injury was recorded among the employees, amounting to 22.44%. Also, one of the most important things in this study is to know the source of the infection. The highest percentage of infection that was recorded came from prisons, and it amounted to 74.21%, while the lowest percentage

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of infection came from hotels, which amounted to 18.48%. The results also showed that the rates of scabies infection vary in different age groups, where the highest rate of infection for both sexes was confined to the age group between (10-19) years, and it amounted to 43.75%, while the lowest percentage of infection that was recorded was in the age group less than a year, which amounted to it contains 15.38%. The results of the study also showed the great discrepancy in the distribution of scabies infection rates during the months of the year during which it was conducted. The highest rate of scabies infection was 53.72% and it was in December, while the lowest rate of infection was in May and it amounted to 21.27%.

***Keywords*---**Scabies, Demographical factors, Maysan, Iraq.

Introduction

Scabies is a contagious skin disease that causes skin inflammation, scaling and severe itching caused by Sarcoptes scabiei var hominis. (Wall and Sheaear,2001). The Greek scientist Aristotle was the first person to describe a parasite as a lice or tick that infects the body (Walton et al, 2007). Scabies was recognized at least 3000 years ago (Roncalli, 1987). It is considered one of the most common and widespread diseases worldwide (Pearly et al, 2003). Scabies infection abounds in poor areas, prisons, schools, army barracks and crowded places that that lack constant hygiene (Van-Nest, 1988). Specialized studies have reported that the damages of the scabies parasite are not limited to one place on the skin (Nakagawa et al, 2009). Studies and statistics have shown that there are about 300 million cases of scabies every year (Feldmeier & Heukelbach, 2009). When the body is infected with the scabies parasite, it is not limited to one place, as it spreads throughout the body, especially in places between the fingers, between the thighs, below the navel and under the armpit. It has the ability to form chronic infections in the form of pustules and papillae (Galadari & Sheriff, 2006). Therefore, the disease must be detected and diagnosed early, because neglecting it may lead to its widespread spread (Yolasigmaz-unver & Turgay, 2006).

Methodology

Patients and methods

The present study was carried out in Maysan Governorate, a city in Iraq about 480 km south of Baghdad, its estimated in 2020 is 1,059,644 people, and area about 16,072 sq. km. The study period started from December of the year 2020 and ending in the month of May of the year 2021 to know the extent of the spread of scabies at the Governorate level. That is why a comprehensive objective study was conducted on scabies by making a questionnaire that includes all the patient's information. The infection was diagnosed for the auditors by examining the skin and watching the clinical symptoms, accompanied by dermatologist in hospitals and health centers. The number of patients infected with scabies was 220 out of a total of 602 people, of whom 126 males and 94 females. The laboratory diagnosis is made by taking a skin scraping from the patient's skin

and placing it in a tube containing 10% KOH. Then the tube is placed in a water bath for 15-20 minutes and then placed in a centrifuge for 3-5 minutes, after which the filtrate is left and a drop is taken from the precipitate and placed on a slide and examined under a microscope.

Statistical analysis

The Statistical Analysis System- SAS (2012) program was used to detect the effect of difference factors in study percentage. Chi-square test was used to significant compare between percentage (0.05 and 0.01 probability) in this study.
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Results and Discussion

The environment and the demographic factors it contains and the difficult conditions experienced by the population are considered among the most important factors that help the spread of scabies and the high level of epidemiology in the community due to the presence of the intermediate stages of the scabies parasite such as the egg, larva and nymph in the environment in the absence of the parasitism, which may remain for several days, which increases the persistence of infection among people gathered in a small geographical area. Therefore, this study relied on a set of bases (gender, age, months of the year, season, source of injury, profession of the injury in the body, and geographical distribution of the injured).

The prevalence of scabies according to gender

The results of the examination of 602 people suspected of having scabies showed that there were 220 cases of scabies, for both sexes, with different ages, during the period from December 2019 to the end of May 2020, where the infection rate for males 57.272%, while the infection rate for females was 42.727%. as in table (1).

Table (1)
Distribution of injury rates according to gender

Gender	Suspected cases	No. of infected	Percentage of infected (%)
Male	395	126	57.272 %
Female	207	94	42.727 %
Total	602	220	100 %
(Chi-square) x^2	---	---	5.284*
) *P≤0.05(			

Table (1) shows the relationship between the rates of people with scabies and gender. Through the results, it appeared that the highest infection rate occurred in males, where the number of infected people was (126) with a rate of 57.272%, and it appeared that the lowest infection rate was in females. Which amounted to 42.727% of the (94) injured. The statistical analysis showed that there were significant differences between sex and its relationship to scabies, which amounted to 5.284 at (P≤0.05). These results were in agreement with some

researchers and disagree with others. It was in agreement with (Amro et al., 2012). Who indicated in his study that the incidence of males is higher than that of females, and it reached (52, 48)% respectively. These results are also in agreement with the study (Mahmood and Noor, 2008). Who indicated in their study that the incidence of males was 54%, while that of female was 46%, but it did not agree with the study (Dehghani et al,. 2009). When he indicated that the male infection rate was 74.6%, while that of females was 25.4%.

The spread of scabies according to areas of the body

The body of the person with scabies was divided into several areas from which samples were taken (the back, armpits, trunk, genital area, hand and other areas) for both sexes. Where the highest percentage of injury was recorded in the armpit area, amounting to 47.82%, while the lowest percentage of injury was in the back, amounting to 30.30%. it was noted that there were significant differences of 6.83 at the level of significant 0.01 as in the table (2).

Table (2)
Shows the distribution of the injury according to the places of its appearance on the body

Injury area	Suspected cases	No. of infected	Percentage of infected (%)
Back area	99	30	30.30
Armpit	92	44	47.82
Trunk	89	37	41.57
Hands	140	46	32.85
Genital	78	27	34.61
Other areas	104	36	34.61
Total	602	220	36.54
(Chi-square)x^2	--	--	6.83**
) **P≤0.01(			

Through the results, it was found that this study agreed with some researchers and disagreed with others. It agreed with Al-Dulaimi, (2015)., in the area of the hands when he indicated that the rate of infection in it was 29.78%. but it differed with the results of Al-Musawi, (2013). When he indicated in his study that the percentage of injuries (armpits, hands, trunk, genitals and other areas) reached (96.15, 94.3, 100, 86.85 and 3.55)%, respectively. I also disagreed with (Hengge, *et al*, 2006). Which indicated that all areas of the body are susceptible to scabies except for the face, neck and scalp. This difference may be attributed to several environmental and health factors, the most important of which is the prevailing cultural among societies, especially advanced European countries.

Spread of scabies according to the source of infection

Infection with scabies is closely related to the source of the infection, and for his reason, a search was conducted in this study for a group of sources that play a

major role in the spread of the disease and its increase in its epidemic. The most important of them are (markets, relatives, prisons, hotels and we confiscates unknown). The study showed that the highest rate of scabies infestation was affiliated with the source of prisons, reaching 74.21%. in contrast, the lowest rate of infection was at the source of hotels, which amounted to 18.48%. it was found that there were significant differences amounting to 14.279 at the level of significance 0.01 as in the table(3).

Table (3)
Shows the rates of injury by source of injury

Source of injury	Suspected cases	No. of infected	Percentage of infected (%)
Prisons	128	95	74.21
Relatives	116	41	35.34
Markets	134	38	28.35
Hotels	119	22	18.48
Unknown	105	24	22.85
Total	602	220	36.54
(Chi-square) x^2	--	--	14.297**
) **P≤0.01(			

The results of this study agreed with the results of the study of (Alsamarai, 2009). Which indicated that the highest rate of scabies infestation came from prisons, reaching 83.3%. as for the source of the markets, the results agreed with (Amro*, et al,* (2012). Which indicated that the infection rate was 19.3%. while this study did not agree with the results mentioned by (Najem, et al, 2009). When he indicated that the incidence of scabies, which is from relatives, was 15%.

Prevalence of scabies by age group

This study showed, through its results, that the incidence of scabies differs in different age groups, as the age group were divided into six groups. It was noted that the highest incidence of scabies was in the age group (10-19) years, which amounted to 43.75%, but in contrast, the lowest rate of infection was in the age group less than a year ago, it was 15.38%. as shown in table (4).

The study agreed with the results of (Al-Musawi, 2013), who indicated that the highest rate of infection was in the age group (10-19) years, which amounted to 41.7%, while this study did not agree with (Najem, *et al*, 2009), for the age groups (10-19, 20-29, 30-39) years old, as it was mentioned that the rate of their injuries was (25, 15, 10)%, respectively. Also did not agree with (Pearly, et al, 2003), as for the age group (1-9) years, the percentage of infection in the study was 50%. The study showed that scabies infection spreads in all age groups and is not determined by ethnic tendency and includes all ages from infancy to adulthood and even old age (Galadari, *et al*, 2006).

Table (4)
Shows the incidence rates by age group

Age group	Suspected cases	No. of infected	Percentage of infected (%)
Less than 1 year	26	4	15.38
1-9 years	64	24	37.50
10-19 years	96	42	43.75
20-29 years	136	53	38.97
30-39 years	182	70	38.46
More than 40 years	98	27	27.55
Total	602	220	36.54
Chi-square (x^2)	--	--	11.94**
) **P≤0.01(			

Conclusion

Scabies is a common skin disease on a large scale, but it is possible to limit its further spread through continuous education of the community and improvement of the economic situation with the development of the health situation by providing the most efficient health services. .

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