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Scabies outbreak during 2019 in Al- Daseem, Al-Rusafa-Baghdad: A Cross-Sectional Study

DOI: https://doi.org/10.32007/jfacmedbagdad.6321833.

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JFac Med Baghdad 2021; Vol.63, No. 2
Received: April. 2021
Accepted: June 2021
Published: July 2021

Abstract:

Background: Scabies is a skin invasion by the Sarcoptes scabiei mite that is transmitted through close personal contact. Places such as hospitals, prisons and childcare centers are more vulnerable to outbreaks. Both males and females may have scabies at any age. It is most prevalent in tropical climate countries, among poor people who live in rural areas, among displaced populations and among low socio-economic groups due to crowded living conditions.

Objectives: To explore the prevalence of scabies in Al- Daseem area and identify factors associated with an increased risk of scabies among residents.

Methodology: A cross-sectional study was conducted to address the 2019 scabies outbreak in Al- Daseem area which is a poor low social class area located in Al-Rusafa side in Baghdad. Basic data was obtained from records of CDC of the public health department in Al-Rusafa health directorate and from Ali Al-Wardy School for all cases recorded during 2019, and analyzed using SPSS-23. Data analysis was done on two data sources: The first was all students of Ali Al Wardi School, and the second was residents in this area from whom 20% of the total number of residents were selected by simple random sampling method. Data collected include age, sex, and having a family member with scabies.

Results: The total number of students was 2032, of whom 216 (10.6%) were infected with scabies, 131 males and 85 females. Fifth grade students had the highest prevalence while grade four students had the lowest. Information on the 11363 residents showed that 746 (6.6%) had scabies with a significant association with age group, male gender and having another family member infected with scabies.

Conclusion: The prevalence of scabies in Al-Daseem region was (6.6%), with the associated factors being male gender, age group, and having another family member infected with scabies.

Keywords: Scabies, Al-Daseem, outbreak, mite, school.

Introduction:

Scabies is a skin invasion by the Sarcoptes scabiei mite, which burrows into the stratum corneum of the skin causing inflammatory and allergic reactions and resulting in severe itching and a papular rash. Scabies is transmitted through close personal contact, and therefore; places such as hospitals, prisons and childcare centers are more prone to outbreaks. [1]

Both males and females may have scabies at any age. It is most prevalent in tropical climate countries, poverty, rural residence [2,3,], displaced populations and low socio-economic groups due to crowded living. [4] Due to its prevalence and consequences, scabies is considered as a significant public health problem especially in the developing world and in the tropics where a higher proportion of people are poor and live in over-crowded conditions [5,6]. Worldwide, the number of infected cases is estimated to be 300 million [7]. Post-infection skin eruption is a consequence of mite infestation and a hypersensitivity reaction to the scabies mite [8]. Itching is the most apparent manifestation after scabies infection, which usually worsens at night. Symptoms usually appear within 4-6 weeks after the first infection, while recurrent infection manifests within two days. [9,10] On examination, an erythematous papulovesicular lesion, excoriation, and eczema dermatitis is found on the interdigital membranes, sides of the fingers, anchor plate of the wrist, lateral plane of the palm, elbow, axillae, scrotum and penis in males, and labia and areola in females. [11, 12,9] The head and neck are not involved in healthy

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adults, while in infants, elderly, and immunocompromised individuals any skin surface can be affected. [11,12,9] Diagnosis of scabies depends on clinical features and microscopic findings. The lesions are often difficult to spot because they are usually already covered and mixed with eczema or impetigo. The presumptive diagnosis can be made based on a typical history of itching that worsens at night, the distribution of lesions, and a history of contact with other scabies patients. [11] Scabies may cause a highly negative effect on the quality of life [13, 14]. Severe itching can cause an intense nuisance, sleep disturbance, and may affect the patient's mental state. Old patients are more influenced by this problem because they are not capable of dealing with such distress. [15] Some antigens from the body of Sarcoptes scabiei interact with house dust mites, causing an allergic response to extrinsic asthma, and this may explain the association of the acute form of scabies with atopic diseases..[16] Al-Daseem area is a sprawling agricultural area in which there is a lot of random housing with no basic services including safe water supplies and adequate sewerage system. Animals and poultry are raised within and around the houses, with many disease vectors in this region. There is no regular water supply most of the time due to the delays in the work of the Hamidiyah station feeding the area and the frequent violations of the transmission network. Therefore, it is considered as an appropriate environment for the spread of epidemics and diseases. During 2019, there were reports from the health centers unit of the primary health care sector in Sadr City indicating cases of scabies among students of Ali Al Wardi School (the only school in Al Daseem area). After taking the necessary health measures by Al Rusafa Health Directorate, the outbreak was attributed to the inappropriate environmental and health conditions, namely the overcrowded classes (70-120 students per classroom). The number of students seated on one bench was four, each two separated by not more than 10 cm. Al Rusafa Health Directorate responded with a preventive, curative and awareness campaign to people of Al Daseem area including house visits. Scabies as a common public health problem was not studied in this area. Therefore, the aim of this study was to identify the prevalence of scabies and its associated factors among patients.

Cases and Methods

A cross-sectional study was conducted to address the scabies outbreak in Al- Daseem area; a poor area with low social class people, which is located in Al-Rusafa side in Baghdad during 2019. Basic data were obtained from records of CDC/ public health department / Al-Rusafa health directorate. All cases recorded during 2019 were included in the study, and the data was analyzed using SPSS-23. The study population and data analysis was done on two data sources: the first one was all students of Ali Al Wardi School (the only school in Al Daseem area) and the second was obtained from records of CDC of the public health department in Al-Rusafa health directorate, 56815 was the total number of residents in Al-Daseem, from which 11363 were recorded, and all the recorded residents were included in the study. The data recorded included age, sex, and family member with scabies. The presumptive diagnosis of scabies was based on the typical history of (itching that worsens at night, the distribution of lesions, and a history of contact with other family members infected with scabies) [11]

Ethical considerations

An official permission to conduct the study was obtained from Al-Rusafa Health Directorate. A written consent wasn't taken from the participants, because this study is based on a database. The data collected will remain confidential and will only be used for the purpose of the study.

Results:

Prevalence of scabies among students: The total number of students in the school was 2032, information was obtained from school records for this study. There were 216 (10.6%) students infected with scabies, 131 males and 85 females. The mean age of males was 10.0±2.16 and that of females was 10.1±2.34. No significant difference was found between the mean age of male and female students infected with scabies, P=0.79, Table1.

Table 1: The mean age of infected students by gender

Gender	Students with scabies No. (%)	Mean age/years ± SD	P value
Male	131 (60.6)	10±2.16	0.79
Female	85 (39.4)	10.1±2.34	
Total	216 (10.6) - ***% of all students***		

Table 2-A shows the distribution of infected students by grades and infection with scabies. Those in the fifth grade had the highest percentage of cases (14.3%) nearly double that for fourth graders where the percentage of cases was the lowest. The other grades fell between the two. Table 2-B shows the distribution of infected students by grade and gender. It shows that there were a higher percentage of infected males than females (60.6% vs 39.4%). When the number of those infected was related to the total number of students by gender, it was found that the percentage of infected male students to the total males was 12.2% compared to 8.9% for females.

Table 2-A: Distribution of all students by grade and infection with scabies

Grades	Scabies No. (%)	No Scabies No. (%)	Total (100%) No. (%)
First	35 (10.6)	296 (89.4)	331 (16.3)
Second	26 (8.1)	297 (91.9)	323 (15.9)
Third	41 (11.4)	320 (88.6)	361 (17.8)
Fourth	20 (7.2)	256 (92.8)	276 (13.6)
Fifth	58 (14.3)	347 (85.7)	405 (19.9)
Sixth	36 (10.7)	300 (89.3)	336 (16.5)
Total (100%)	216 (10.6)	1816 (89.4)	2032 (100.0)
P value	0.047		

Table 2-B: Distribution of infected students by grade and gender

Grades	Gender		Total No. (%)
	Male No. (%)	Female No. (%)	
First	20 (9.3)	15 (6.9)	35 (16.2)
Second	15 (6.9)	11 (5.1)	26 (12.0)
Third	30 (13.9)	14 (6.5)	44 (20.4)
Fourth	10 (4.6)	7 (3.2)	17 (7.9)
Fifth	35 (16.2)	18 (8.3)	53 (24.5)
Sixth	21 (9.7)	20 (9.3)	41 (19.0)
Total Infected	131 (60.6)	85 (39.4)	216 (100.0)
Total students	1077	955	2032
% Infected	12.2%	8.9%	10.6%
P value	0.62		

Prevalence of scabies among residents in AL-Daseem: A total of 11363 participants' information was obtained from the database of residents in Al-Daseem area. There were 746 (6.6%) participants with scabies. Age group distribution shows that scabies was highest among those between (7-12 years) (8.8%) and lowest among those ≥ 20 (4.3%) with a significant association between age groups and scabies infection, P<0.001. Of the participants with scabies, males had a higher prevalence (7%) than females (5.9%) with a significant association between gender and infection with scabies, p=0.018. Those who had a family member infected with scabies had a much higher prevalence (85%) than those who did not (1.2%), with a significant association, P<0.001, Table 3.

Table 3: Distribution of residents according to scabies infection, age groups, gender, and family members with scabies

Variables		Without scabies		With scabies		Total	%	P value
		No.	%	No.	%			
Age/years Groups	≤6	2344	93.6	161	6.4	2505	22.0	<0.001
	7-12	3471	91.2	337	8.8	3808	33.5	
	13-19	1151	93.3	82	6.7	1233	10.9	
	≥20	3651	95.7	166	4.3	3817	33.6	
Gender	Male	6032	93.0	457	7.0	6489	57.1	0.018
	Female	4585	94.1	289	5.9	4874	42.9	
Family Members with scabies	No	10507	98.8	124	1.2	10631	93.6	<0.001
	Yes	110	15.0	622	85.0	732	6.4	
Total		10617	100	746	100	11363	100	

Discussion:

Scabies is an overlooked condition in Iraq, although it is considered as an important health problem in some under-privileged areas. [17] It's highly dominant among low economic mode because skin diseases are highly correlated with higher crowding areas.[18] The finding that 10.6% of the students of the only school in Al Daseem area were found to be infected with scabies is of public health significance. The rate of scabies among residents of this area was (6.6%), with a higher percentage of cases among males than females. This result is consistent with another study done in Thi-Qar governorate/ Iraq which reported that scabies was higher among males, [19] but disagrees with a study from Saudi Arabia which found that females were more affected. [20] Prevalence of scabies was high in Tikrit/ Iraq during 2009, where the frequency was 13.5% in males and 8.6% in females. [21] While in Al-Najaf Governorate, during 2018 they reported that the prevalence of male patients infected with scabies was 54.1% and 45.9% were females and 419 patients (37.7%) lived in urban areas [22]. A study from Baghdad/ Iraq found that out of 97 patients infected

with scabies there were 59.8% males and 40.2% females [23] which is somewhat comparable to the findings of our study. Those between 7 – 12 years of age were significantly more affected than other age groups. Hamarsheh et al. from Palestinian territories found that those less than 10 years of age were more affected than other age groups (27%)[24] which is close to the results of our study. A study from Serbia[25] concluded that patients with scabies were mainly children 5-14 years old (69%), and mostly males (62.6%), which is consistent with our results. In contrast, an analysis of the data of a scabies outbreak in Saudi Arabia reported a higher prevalence of scabies (34.5%) among younger children (< 6 years)[20] While in Thi-Qar / Iraq it was reported that the highest number of scabies patients was within the age group of 11-20 years. [19] In this study 85% of all infected cases had another family member infected with scabies, which was highly significant and consistent with the results of a study from Australia which reported that household members were the main source of transmission [26].

Conclusion:

The prevalence of scabies in Al-Daseem region was (6.6%), with an increased occurrence among males, those (7-12 years) of age, and having another family member infected with scabies. Scabies remains a common and unrecognized health problem in Iraq, which must be addressed to achieve control.

Authors' contributions:

Dr. Bashar Abdul-Latief: the primary coordinator of data collection, interpretation, and writing of article.

Dr. Tuka Younis Hassan: help Dr. Bashar Abdul-Latief in statistical analysis of data and writing results.

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تفشي مرض الجرب في عام 2019 في منطقة الدسيم، الرصافة – بغداد:دراسة مقطعية

ا د.بشار عبداللطيف عبدالرزاق
د.تقى يونس حسن

الخلفية: الجرب عدوى جلدية من قبل سوس Sarcoptes scabiei ينتقل من خلال الاتصال الشخصي الوثيق. تكون المستشفيات والسجون ومراكز رعاية الأطفال معرضة بشكل أكبر لخطر تفشي المرض. قد يصاب كل من الذكور والإناث بالجرب في أي فئة عمرية. ينتشر المرض في بلدان المناخ المداري وبين الفقراء الذين يعيشون في المناطق الريفية وبين النازحين وعند الفئات ذات الوضع الاقتصادي الواطئ بسبب الازدحام العالي.
الأهداف: تقدير انتشار الجرب في منطقة الدسيم وتحديد العوامل المرتبطة بزيادة خطر الإصابة بالجرب بين المرضى.
المنهجية: أجريت دراسة مقطعية حول تفشي مرض الجرب في منطقة الدسيم الواقعة في جانب الرصافة في بغداد خلال عام 2019. تم الحصول على البيانات الأساسية من سجلات قسم الأمراض السارية / قسم الصحة العامة / دائرة صحة الرصافة - بغداد. تم تضمين جميع الحالات المسجلة خلال عام 2019 في الدراسة، ثم تمت حوسبة البيانات وتحليلها باستخدام SPSS الإصدار 23. المشاركون في الدراسة يمثلون طلاب مدرسة علي الوردي والناس الذين يعيشون في نفس المنطقة (20٪ من سكان المنطقة تم اختيارهم بشكل عشوائي). تضمنت البيانات المعلومات الاجتماعية والديموغرافية (العمر والجنس وأفراد الأسرة المصابين بالجرب).
النتائج: بلغ العدد الإجمالي للطلاب 2032 طالبًا، وبلغ عدد المصابين بالجرب 216 طالبًا (10.6٪) منهم 131 ذكورًا و 85 إناثًا. كان طلاب الصف الخامس الأعلى أصابة وطلاب الصف الرابع الأقل إصابة مع وجود دلالة احصائية.
تم الحصول على إجمالي معلومات 11363 مشترك من قاعدة البيانات. كان هناك 746 (6.6٪) من المشاركين مصابين بالجرب وكان هناك ارتباط ذو دلالة احصائية بين الإصابة بالجرب والفئات العمرية، جنس المرضى، وبين إصابة أحد أفراد الأسرة به.
الإستنتاج: بلغت نسبة انتشار مرض الجرب في منطقة الدسيم (6.6٪) في عام 2019. وكانت الإصابات مرتبطة بالفئة العمرية، كون المصاب ذكرا، وإصابة فرد اخر من الأسرة بالجرب.
الكلمات المفتاحية: مرض الجرب، انتشار، الدسيم، العثة، مدرسة