



Prevalence of Human Scabies at Tulamba, Abdul Hakim (Pakistan)

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Abstract: The present study was carried out to determine the overall prevalence of human scabies in patients visiting a private laboratory, located at Tulamba (a remote area), Abdul Hakim (Punjab, Pakistan). A total of 5,008 patients were examined, out of which 516 (10.30%) patients were found infected with human scabies. Prevalence of scabies was highest (28.5%) in children (1 month- 10 years) and lowest (2.23%) in patients 51-60 years of age. The difference was found statistically non-significant ($p > 0.05$) with respect to age of human population. Moreover, relationship between overall prevalence of human scabies in patients and age of patients was also carried out. [Shabana K and Tasawar A. **Prevalence of human scabies at Tulamba, Abdul Hakim (Pakistan)**. *Life Sci J* 2020;17(8):51-54]. ISSN: 1097-8135 (Print) / ISSN: 2372-613X (Online). <http://www.lifesciencesite.com>. 8. doi:[10.7537/marslsj170820.08](https://doi.org/10.7537/marslsj170820.08).

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Introduction

Human scabies is a highly contagious, globally prevalent, parasitic skin infestation caused by *Sarcoptes scabiei* var. *hominis*, also known as the itch mite. This parasite was identified in the 1687 by Bonomo and Cestoni using a light microscope; however, there is evidence of scabies as far back as 1200 BCE [1]. *Sarcoptes scabiei* is a burrowing mite that inhabits the epidermis of the skin and causes sarcoptic mange in mammals and humans. The name *Sarcoptes scabiei* is derived from the Greek words "sarx" (flesh) and "koptein" (to cut) and the Latin word "scabere" (to scratch) [2]. There have been outbreaks not only in the developing world, but also in the developed world among refugees and asylum seekers. Once infested with scabies mites, symptomatic patients, as well as asymptomatic carriers, quickly spread the disease through direct skin-to-skin contact [3]. The most common symptoms of scabies, itching and a skin rash are caused by a hypersensitivity reaction to female mites, and their eggs and scybala that are deposited in the epidermis, the proteins and feces of the parasite, about four to six weeks after infestation. Severe pruritus, especially at night, is the earliest and most common symptom of scabies. An erythematous, papular, pruritic rash with burrows on the hands, wrists, torso, and feet is also common [1, 4]. Scabies leads to delayed-type hypersensitivity reaction. Recent immunological findings such as cross-reactivity with house dust mite allergens and an altered T-helper-1/T-helper-2 pattern contribute to a better understanding of the pathomechanism [4]. The worldwide prevalence has been estimated at about 300 million cases yearly,

although this may be an overestimate. Scabies occurs in both sexes, at all ages, in all ethnic groups, and at all socioeconomic levels. In an epidemiologic study in the United Kingdom, scabies was shown to be more prevalent in urban areas and among women and children and more common in winter than in summer. Scabies is generally a nuisance on account of itching, rash, and its ability to spread among people; super infection may also occur. The risk of severe outbreaks and complicated scabies is particularly high in institutions (including nursing homes and hospitals) and among socially disadvantaged populations and immunocompromised hosts [5]. Scabies is a neglected parasitic disease that is a major public health problem in many resource-poor regions. It causes substantial morbidity from secondary infections and post-infective complications such as acute post-streptococcal glomerulonephritis. The disease is strongly associated with poverty and overcrowding, and the associated stigma can ostracize affected individuals [6]. In some areas, scabies has a much higher prevalence than diarrhea or upper respiratory disease. It is particularly a problem in situations of overcrowding, and in less developed countries and communities. Noncompliance or a lack of adequate treatment can result in scabies as a public health problem. It can be a 'marker' disease for immunocompromised patients, and the crusted form of scabies is not only difficult to treat, but is also highly contagious and presents a risk to health care workers [7]. The aim of the study was to determine the overall prevalence of human scabies in patients visiting from a remote area (Tulamba, Abdul Hakim, Pakistan).

Materials and Methods

In the present work a total of 5,008 patients were examined for human scabies during the year 2007. The study was carried out at a private laboratory located at Tulamba, Abdul Hakim (Punjab, Pakistan). The parameters studied included the overall prevalence of human scabies and relationship between age and human scabies.

Diagnostic Methods

Method 1: The diagnosis of scabies was usually based on generalized and intense itching, usually sparing the face and head. The lesions were located mostly in the finger webs, on the flexor surfaces of the wrists, on the elbows, in the axillae, on the buttocks and genitalia, and on the breasts of women. Inflammatory pruritic papules were present at most sites. Primary lesions such as burrows were quite diagnostic. There were usually tunnels in the stratum corneum created by the mites and appeared as grey or skin color curved ridges ranging from a few millimeters to a few centimeters long. The extent of the lesions varied among patients. This ranged from a few lesions in the form of itchy vesicles in the finger webs to truncal involvement with rash distribution. After examining the lesions, patients were investigated for presence of history of itching (especially at night) and infection transmitted to other family members. Presence of combination of both confirmed Scabies.

Method 2: Definite diagnosis of scabies required the demonstration of mites, eggs, egg-casings or feces in the burrows or vesicles. To obtain diagnostic materials, commonly used method was applied in which the infected part of skin was examined under microscope. Multiple superficial skin samples were

obtained from characteristic lesions specifically, burrows or papules and vesicles in the site of burrows. A surgical blade was used to scrap laterally across the skin by holding the blade in thumb and first finger. Care was taken to avoid bleeding. The tunnel was slit opened by the blade. The material collected from the tunnel was transferred in a drop of mineral oil on a microscope slide for examination. The specimens were examined with a light microscope under different magnification power. The presence of mites, eggs, fragments of egg-shells or feces confirmed the diagnosis of scabies.

Statistical Analysis

The results were expressed in percentages and the values between various groups were compared by Chi Square test.

Results and Discussion

Overall Prevalence of Human Scabies

The prevalence of scabies infection was calculated and it was observed that scabies had 10.30% prevalence (Table 1). Research has been conducted on the same parameter in different parts of the world. Dia *et al.* [8] reported 11 cases of crusted scabies observed during one year in Department of Dermatology Dakar, Senegal. Andersen *et al.* [9] reported 19 persons affected with scabies in a nursing home in Oslo, Norway. Pruksachatkunakorn *et al.* [10] studied outbreaks of scabies in the orphanages in Chiang Mai, Thailand. They reported 87.3% prevalence of scabies. Ciftci *et al.* [11] studied the tendency of high prevalence rate of scabies among school and preschool children and found (0.4%) prevalence rate of scabies infection.

Table 1: Overall prevalence of Human Scabies at Tulamba, Abdul Hakim.

Name of parasite	No. of patients examined	No. of patients infected	Prevalence %
<i>Sarcoptes scabiei</i>	5008	516	10.30%

Smith [12] reported 3.3% prevalence of scabies among home workers in southern Taiwan. Poudat and Nasirian [13] conducted a survey on prevalence of scabies among prisoners in the Bandar Abbas, Homozgan province, Iran. They found the rate of prevalence of scabies (57%). Anne *et al.* [14] described epidemiology in impoverished rural community in northeast Brazil. The overall prevalence of scabies was reported as 9.8%. Samdani [15] described different dermatological problems in pilgrims, which were examined and diagnosed clinically at the department of Dermatology King Abdul Aziz Hospital, during the month of Zil-Hajja of the year 2000 and found high percentage of prevalence scabies (52%). Otero *et al.* [16] conducted a prospective 15-year (1988-2002) of 9751 STI unit attenders, investigating scabies and other STIs to

determine epidemiology and trends of infestation among attenders at a Spanish STI unit. They found that 147 patients (1.5%) had scabies. Romani *et al.* [17] observed the efficacy of mass drug administration with ivermectin for control of scabies and impetigo, with coadministration of azithromycin: a single-arm community intervention trial Lucia. 1662 people living in the first ten villages had their skin examined among them 261 (18.7%) were found infected with Scabies during September, 2015, over 4 weeks scabies. Marks *et al.* [18] conducted a prevalence survey for scabies and impetigo in 10 villages in Choiseul Province of the Solomon Islands, 36 months after a single round of ivermectin and azithromycin mass drug co-administration. At 36 months, the prevalence of scabies was found 4.7%. The prevalence of *Sarcoptes scabiei* depends on various factors like poverty, poor

personal hygiene, overcrowding, and ignorance [19]. Such high prevalence of scabies during the present study may be explained on the basis that hosts examined belonged to a rural area and had more exposure to parasite because of poor hygienic conditions, poverty as well as overcrowding which is

considered a major factor for the rapid transmission of infection among family members.

Relationship between Age and Human Scabies

In the present study, the prevalence of scabies was found highest (28.5 %) in young children of age group (1 month to 10 years) while lowest (2.23%) in patients of 51 to 60 years, as presented in Table 2.

Table 2: The relationship between age and humans scabies at Tulamba, Abdul Hakim

Name of the parasite	Age groups	No. of patients examined	No. of patients infected	Prevalence (%)
<i>Sarcoptes scabiei</i>	I month-10 years	1227	351	28.5%
	11-20 years	747	40	5.35%
	21-30 years	809	27	3.33%
	31-40 years	621	31	4.99%
	41-50 years	811	33	4.06%
	51-60 years	493	11	2.23%
	61-70 years	153	9	5.88%
	71-80 years	147	14	9.52%

The difference was statistically significant ($P < 0.05$).

Various researchers have conducted studies on the relationship between age and *Sarcoptes scabiei* in different parts of the world. Dia *et al.* [8] reported 11 cases of crusted scabies observed during one year in department of Dermatology Dakar, Senegal. The mean age of the patients was 33 years with extremes at 14 and 49 years. Landwehr *et al.* [20] (1998) observed the prevalence rates of scabies compared in bamako, Mali Karoga district, Malawi and Bottambang province, Cambodia. The highest rate (1.1 %) was found among children 0-9 year of age. Hegazy *et al.* [21] accessed the epidemiology and the control of scabies 3147 residents of Moaned village in Dakahlia Governorate, Egypt. The Children younger than 10 years showed the highest prevalence. Terry *et al.* [19] investigated the prevalence of scabies among 125 children (15 years) and displacement camp in Sierra leone. The prevalence was age dependent, children under 5 years accounted for 77%, peaked at 86% among the 5 to 9 year olds and steadily declined with an increase in age. Marks *et al.* [18] conducted a prevalence survey for scabies and impetigo in 10 villages in Choiseul Province of the Solomon Islands, 36 months after a single round of ivermectin and azithromycin mass drug co-administration and found the highest prevalence of scabies among children aged <5 years. The most vulnerable populations to scabies infestations are young children, the elderly, and the immunocompromised. These populations are especially susceptible to secondary complications of infestation. Given transmission is favored in conditions of crowding and poor sanitation, outbreaks have been seen in refugee camps and asylum seeker shelters [22]. Scabies can affect anyone, regardless of Gender and age. However, the disease is more

commonly seen in children, as they are more susceptible to acquiring the causative parasitic mites (by frequently interacting with other kids on the playground, in Kindergarten and the school, with domestic animals especially furry animals and with various insalubrious object that might be contaminated with scabies mites, children are more likely to develop scabies than adult [23]. The prevalence of scabies in present study is higher in children and it may be due to the low immunity in children. Other reasons could be that children are more exposed to overcrowded conditions (schools, nurseries, Play Station etc.) they don't take care of their personal hygiene. Infants and younger children are more exposed to infestation due to their association with infested parents and siblings.

Conclusion

The results of the present study showed that prevalence of Human Scabies is effected by age of patient and decreases with age, this might be due to improved personal hygiene or acquired immunity with age.

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Conflict of Interest

Authors declare that there is no conflict of interest associated with this work.

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