



## Prevalence of Scabies and Associated Risk Factors Among Patients Attending General OPD of a Community Health Centre in Panna District: a Hospital Based Study

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### ABSTRACT

**Introduction:** There is a large burden of scabies in country, but it is apparent. It is responsible for significant morbidity due to secondary bacterial infection of the skin causing abscesses and cellulitis. That can lead to serious systemic complications such as septicaemia.

**Materials and Method:** This cross-sectional descriptive study was performed on patients attending OPD in devendranagar block of Panna district. The diagnosis of scabies was made on clinical basis e.g. epidemiological history.

**Result & Discussion:** In my study we found the prevalence of scabies in persons attending the general OPD was 69.48%. The maximum prevalence found in children of 5-9 yrs age. Risk factors like family history of itchy skin was significantly associated, odds ratio of 45.09, 95% CI= [34.37-59.16] with scabies. The primary contributing factors in contracting scabies seem to be poverty and poor living conditions in the rural areas.

**Conclusion:** This tremendous burden of disease at a hospital level strongly supports the need of survey at community level and to investigate the best strategies for public health control of scabies in communities.

### KEYWORDS

Scabies, itching, social conditions, overcrowding

### Introduction:

Scabies is one of the most common public health problem of skin in many developing countries. Scabies is a parasitic infection caused by the infestation with a tiny ectoparasite mite *Sarcoptes scabiei*, which burrows under the skin and is transmitted through close personal contact (Karthikeyan K, 2005). The direct effect of scabies is debilitating itching, leading to scratching, which is in turn followed by complications due to bacterial infection of the skin, ranging from impetigo, abscesses and cellulitis, through to septicaemia and even death (Karthikeyan K, 2005). Bacterial infections secondary to scabies can also lead to more serious sequelae associated with group A streptococcal infection such as rheumatic fever and glomerulonephritis (Chosidow O, 2006). Scabies affects about 300 million people worldwide yearly (Karthikeyan K, 2005). Epidemiological studies indicated that the prevalence of scabies is not affected by sex, race, or age, and that the primary contributing factors in contracting scabies seem to be poverty and overcrowded living conditions (Chosidow O, 2006, and Lassa S, Campbell MJ et al, 2011). Prevalence surveys of scabies have been conducted in localized areas of a limited number of countries (Lassa S, Campbell MJ et al, 2011). Scabies was recently added to the World Health Organization's list of Neglected Tropical Diseases (Lassa S, Campbell MJ et al, 2011). There is a large burden of scabies in country, but it is apparent. There have been very few surveys done for scabies prevalence or risk factors, so it has generally not been recognised as a public health priority in most developing countries. This study aimed with OPD-based survey to assess the prevalence of scabies and its risk factors among patients attending general OPD for treatment in CHC Devendranagar, District Panna.

### Materials and method

This cross-sectional descriptive study was performed on patients attending the general patients OPD of CHC devendranagar of Panna district in the month of February 2015 for 28 days. All the patients attending the OPD were asked for any symptom of itching. If have then examined for scabies. Thus while attending the case we separate out the patients of scabies. The diagnosis of scabies was made on clinical basis by the presence of persistent pruritic rash with itching increasing

at night, and skin lesions in the form of characteristic burrows, vesicles, and itchy papules or nodules in characteristic sites of the disease (on the wrist, sides and web spaces of the fingers, the axillae, periareolar, periumbilical, abdomen, and buttock areas), with liability to secondary infection. Then a predesigned questionnaire was used for data collection from the clinically diagnosed patients of scabies. Any patient coming for repeat treatment in the duration of study period of 28 days were not included again. A predesigned questionnaire was used, which included: Sociodemographic data name, age, sex, residence, the level of education and the occupations of their parents, number of members of their families, the type of houses, number of rooms in their houses, and presence of animals in their houses. Personal history of presence of itchy rashes in their bodies and family history of itchy rash, and sharing clothes with other members were also taken.

Statistical analysis was done by using the software package for social studies (SPSS) version 20. Factors predisposing to scabies were compared by odds ratio (OR) and 95% confidence interval (CI).

### Result

After excluding repeat consultation, total 2156 patients were attended at general OPD of CHC Devendranagar, in the 28 day of February 2015. Among which 1498 patients were found to have scabies with a prevalence of 69.48%. (Table 1)

**Table: 1 Distribution of patients according to the sociodemographic characteristics**

variables	Total number (%)	Scabies cases (%)	OR (95% CI)
Cases examined	2156	1498 [69.48%]	
Age			
<5	256[11.9]	221[86.3]	2.95*[1.68-5.2]
5-9	253[11.7]	228[90.1]	4.27* [2.33-7.8]
10-14	270[12.5]	208[77]	1.57* [0.92-2.65]
15-24	411[19.1]	248[60.3]	0.71* [0.44-1.15]

25-44	571[26.5]	333[58.3]	0.65* [0.40-1.05]
45-64	304[14.1]	198[65.1]	0.87* [0.53-1.44]
>65	91[ 4.2]	62[68.1]	1
Sex			
Male	1012[46.9]	666[65.8]	0.72* [0.60-0.87]
female	1144[53.1]	832[72.7]	1
Residence			
Urban	748[34.7]	316[42.2]	1
Rural	1408[65.3]	1182[84]	7.15* [5.83-8.76]
Education of care givers#			
Illiterate to primary	1304[60.5]	1091[83.7]	19.1* [13.1-27.8]
middle school	355[16.5]	215[60.6]	5.73* [3.82-8.59]
Higher secondary	301[14]	151[50.1]	3.76* [2.49-5.67]
Graduation n more	194[9]	41[21.1]	1
Occupation of care givers#			
Unemployed/ Manual worker	1433[66.5]	1122[78.3]	9.6* [6.93-13.28]
Self employed/ shopkeeper	507[23.5]	317[62.5]	2.65* [1.94-3.6]
Employee/ professional	216[10]	59[27.3]	1

#Care givers for children- parents and self for adult >18years

\*Significant.

Table no. 1 showing that prevalence was highest in children aged five to nine years 90.1%, odds ratio 4.27 [2.33-7.8] and in <5 year age group 86.3%, odds ratio 2.95 [1.68-5.2] when compared to those aged over 65 years. Next most prevalent in 10-14 years age group was 77%. Rest in other age groups prevalence of scabies was in between 60-70%. The results also showed significant association with females where prevalence of scabies infestation in males was 65.8%, while it was 72.7% in females.

Regarding residence, prevalence was high in rural area cases 84% when compared to those living in urban area 42.2%. The risk of scabies infection was 7.15 times, 95% CI= [5.83-8.76] in persons reside in rural area.

Regarding education of caregivers, scabies was more prevalent in cases where caregivers were illiterate or educated up to primary was 83.7% with odds ratio 19.1, 95% CI= [13.1-27.8], when compared to those who were graduated or more educated. Also prevalence of scabies was higher in cases where caregivers were Unemployed/ Manual worker like labourer 78.3%, OR= 9.6, 95% CI= [6.93-13.28] when compared to employees and professional caregivers. It was least in cases where caregivers were graduated 21.1% and employee or professional 27.3%. In cases where caregivers were educated up to middle or higher secondary, prevalence of scabies was in between 50-60%.

**Table: 2 Distribution of patients according to the home environmental characteristics and risk factors for scabies**

variables	Total number (%)	Scabies cases (%)	OR (95% CI)
Type of house			
Kachcha	1462[67.8]	1149[78.6]	3.63* [2.99-4.41]
Pucca	694[32.2]	349[50.2]	1
Overcrowding			
Yes	1871[86.8]	1335[71.3]	1.86* [1.45-2.41]
No	285[13.2]	163[57.2]	1
Presence of pet animals			
Yes	1564[72.5]	1289[82.4]	8.59* [6.94-10.63]
No	592[27.4]	209[35.3]	
Family members with itchy rashes			
Yes	1556[72.1]	1399[90]	45.09*[34.37-9.16]

No	600[27.8]	99[16.5]	1
Sharing clothes			
Yes	1544[71.6]	1281[83]	8.87* [7.17-10.96]
No	612[28.4]	217[35.5]	1
Sleeping with other member			
Yes(with other member)	1755[81.4]	1359[77.4]	6.47* [5.12-8.18]
No(alone)	401[18.6]	139[34.7]	1

\*Significant

Table no. 2 shows that prevalence of infection was more in persons living in kachcha houses was 78.6%, OR=3.63, 95% CI= [2.99-4.41] when compared to those living in pucca houses was 50.2%. It was also more common in families where overcrowding was present. Presence of pet animal in the family was also significantly associated (odds ratio 8.59, 95% CI= [6.94-10.63] with the occurrence of scabies.

Regarding family history, about 90% of the cases had a history of a family member complaining of itchy skin lesions with highly significant odds ratio of 45.09, 95% CI= [34.37-59.16]. Habit of Sharing clothes like towels with other family members was reported by 83% of cases, was found to be significantly increase the risk of scabies infection (OR =8.87, 95% CI= [7.17-10.96]). Also around 77.4% of cases gave history of Sleeping with other members with 6.47 times increased risk of infection among them.

**Discussion**

Scabies is one of the common parasitic infestations that are still considered as one of the health problems in the world. In our study we found the prevalence of scabies in persons attending the general OPD was 69.48%.

In our study, the prevalence of scabies between males and females was statistically significant and more in females. This might be related to social factors in Indian families. Lee K-J, et al have declared higher incidence in women rather than men (Lee I-Y, Lee K-J, et al. 2003). The prevalence of scabies between males and females was statistically not significant in other studies by Sambo MN et al, 2012. Sehgal VN, Rao TL et al. 1972 was observed male predominance also.

Amro in Palestine, 2012 reported maximal incidence of disease in under 10 years old. A study done by Nanda A et al. 1999 on paediatric dermatology clinic patients in Kuwait, the prevalence of scabies was 4.8% and 3%, respectively. On the other hand, in our study high prevalence rates of scabies were reported among children. It was 90% in 5-9yrs and 86% in <5years. And this could be attributed to density of population, overcrowding, and poverty in the villages of this block.

We found that the prevalence of scabies was higher among persons from rural areas than among those from urban ones. Sehgal VN, Rao TL et al. 1972 and Ali A, Kaliyadan F et al. 2011 also demonstrated this finding. This finding could be explained by larger family size in rural areas, leading to overcrowding, sharing clothes and bed. In our study overcrowding was also significantly association with the prevalence of scabies. Landwehr et al, 1998 and Wendel and Rompalo, 2002 reported that overcrowding is one of the predisposing risk factors for the transmission of scabies. Johnston and Sladden 2005 also demonstrated that overcrowding is believed to have a significant effect on the spread of scabies Many other studies from other countries also explained more prevalence in families having pet animals.

The prevalence of scabies in this study was higher among persons whose caregivers were illiterate or only primarily educated, and also among those whose caregivers were unemployed or manual workers. It could be stated that educated caregivers are aware for disease prevention and health care services. A study by Anwar KS, Khan MA, et al. 2007 and Stanton B., et al, 1987 also found that illiteracy of adult household members was a very good predictor of the presence of scabies in devel-

oping and industrialized countries.

In the present study, it was found that living in kachcha houses, having animals in the house have a significant impact on the prevalence of scabies. Hegazy AA, Darwish NM et al. also demonstrated same findings. Feldmeier et al, 2009 reported that illiteracy, low income, poor housing (absence of a solid floor, no access to electricity, no toilet in the compound), and sharing clothes and towels with other family members were all significant risk factors for the presence of scabies. In this study we found that having a family history of itchy skin lesions, and sharing clothes with others were all significant risk factors for scabies infestation. Studies by Hegazy AA, Darwish NM et al. 1999 and Chouela E, Abeldano et al. 2002 also support these findings. Wendel K et al. 2002 demonstrated that a history of itching in several family members over the same period is almost pathognomonic.

We found that sharing of beds was important factor in the transmission of the scabies mite. Karim et al demonstrated that children who slept with other children having scabies get infected also and contracted more severe infection and became reinfected in greater proportions, as it is reported by Chouela E, Abeldano et al. 2002 also. While, Hay et al 2012 reported that blankets and clothing do not appear to be important in the transmission of scabies, as mite is an obligate parasite and is highly susceptible to dehydration when off the host.

## Conclusion

Our data suggest that Scabies is an important health problem affecting all age groups and both sex. Children were affected more especially from rural areas. In the risk of scabies infestation, factors such as age, residence, education and occupation of caregivers, type of house, overcrowding, sleeping with others, family history of itchy rash, sharing clothes with others, and having animals at home all are significantly associated with the occurrence of scabies. There is a large burden of scabies in country, but it is apparent and maximum numbers of cases are hidden. Scabies was recently added to the World Health Organization's list of Neglected Tropical Diseases. There have been very few surveys done for scabies. This study is the first survey of scabies in our hospital. On concluding, this tremendous burden of disease at a hospital level strongly supports the need of survey at community level. Also there is the need for investment into research to investigate the best strategies for public health control of scabies in communities where resources are limited and scabies and its complications due to bacterial infection of the skin, like impetigo, abscesses and cellulitis, are endemic.

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