

ORIGINAL ARTICLE

Study of prevalence and determinants associated with scabies in rural area of Bareilly

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Abstract

Background: Scabies, a contagious skin infestation by the mite *Sarcoptes scabiei*. It has no gender differences and infects all age group. This skin disease affects more than 300 million people per year worldwide, resulting in considerable morbidity, especially in resource-limited countries. **Aims and Objectives:** To find out prevalence and risk factor of scabies in rural population and to recommend measures for prevention and control of scabies. **Material and Methods:** A prospective cross sectional study was carried out over a period of 4 months from 1 Dec 2019 to 31 March 2020 in dermatology OPD at Rural health training centre (RHTC) of a medical college in Dhaura Tanda region of Uttar Pradesh. Total 310 patient including male and female of all age group were included in the study. **Results:** Majority of participants were females (58.1%). The prevalence of scabies was 24.2% in population. The mean age at presentation was 28.819 ± 10.198 years. The most common affected age group was 12-24 years (28.4%). **Conclusion:** Scabies is a common skin disease in underdeveloped and developing countries. Poor living conditions such as inadequate housing, overcrowding, illiteracy, having animals in the house, unhygienic condition presence of family history and sharing clothes with others are important risk factors for transmission of scabies.

Keywords

Prevalence; Risk Factors; Rural; Sample Size; Scabies; Skin Disease

Introduction

Scabies, one of the common public health problems, is a contagious skin infestation by the mite.(1) *Sarcoptes scabiei* or the itch mite is a parasitic mite (an arthropod) that burrow into skin, lays egg and causes scabies. Humans and Other mammals, such as wild and domesticated dogs and cats as well as ungulates, wild boars, bovid, wombats, koalas, and great apes are affected.(2) Scabies infection has no gender discrimination, it can infect both male and female of all age group commonly young and elderly population. It is a global health problem. Scabies prevalence was previously thought to be cyclical, but studies of long-term incidence suggest that epidemics and other observed fluctuations are multifactorial, being related to social and environmental changes such as wartime, overcrowding, and climatic changes.(3,4,5,6) This skin disease affects more than 300 million people per year worldwide, resulting in considerable morbidity, especially in resource-limited countries.(7,8) Whereas in developed nations the rates of infestation are similar across age ranges, the highest rates in developing countries are among preschool children to adolescents; rates significantly decrease in mid-adulthood, and increase in the elderly.(9) It is notable that particularly high prevalence figures have been reported in India, the South Pacific, and northern Australia. For example, in a study of young people in a rural Indian village, the prevalence of scabies was 70%.(10) The scabies mites usually spread by direct skin-to-skin contact with the infected person. It can also spread to other family members. Sometimes scabies can spread indirectly by sharing clothes, towels, or bedding used by infested individuals It has a significant impact in terms of cost of treatment, absence at work or school, and psychological repercussions. (11) Scabies has become a major public health problem, especially in limited resource settings. There is a scarcity of evidence regarding scabies prevalence and associated risk factors among schoolchildren in our study area.

Aims & Objectives

1. To find out prevalence and risk factor of scabies in the rural area of Bareilly
2. To recommend measures for prevention and control of scabies.

Material & Methods

It was a prospective cross-sectional study carried out over a period of 4 months from 1 Dec 2019 to 31 March 2020 after ethical approval from the institute on every Thursday in a dermatology OPD at rural health training centre (RHTC) of a medical college in Dhaura Tanda region Bhojipura block of Uttar Pradesh in India.

Sample size: Sample size (n) was calculated by using the formula $(n) = 4PQ/L$ (5% of p). Sample size was calculated by assuming the prevalence of scabies as 84% in a previous study (12) with 10% absolute error. By using the formula $4PQ/L^2$ (5% of p). Assuming 20% non-response-rate, the sample size was 258. Total 310 patients, both male and female of all the age group attending the skin OPD were included in the study during the study period.

Data collection: Socio demographic characteristics and associated risk factors were collected by trained health professionals by using structured questionnaire. The diagnosis was ascertained based on Mali clinical algorithm.(13) Operational definition: Scabies is defined as the presence of persistent pruritic rash with itching increasing at night which are notified at least at two specific body sites (on the wrist, sides and web spaces of fingers, the axillae, peri-areolar, per umbilical, genitalia area, abdomen and buttocks) with or without history of pruritic in close entourage. (13)

Type of house:

Kaccha (Hut) - A mud build thatched (a roof covering of straw or reed) house

Semi-pacca (mixed) - Few rooms are brick built in a mud built house

Pacca (concrete) - Floor, roof and walls are made up of bricks.

Education:

Illiterate- A person age more than 7 years who can neither read nor write (no school education)

Literate- Age more than 7 years can read and write figures and his/her name in any language.

Overcrowding: Calculated by dividing the number of usual residents by number of rooms in the house. If it is more than 1.5, overcrowded, if equal or less not overcrowded.(14)

Inclusion criteria: All the patients attending the dermatology OPD at RHTC

Exclusion criteria: Pregnant mother, case of chronic skin disease and whose parents are not willing to participate. An informed consent was taken from all

the patients. Data on demographic details, clinical findings, family history and past history was noted in predesigned performa.

Exclusion of observer bias: Throughout the study period, all patients were seen by same single third year PG resident in dermatology having adequate experience in identifying these lesions correctly. This eliminated the observer bias in study.

Statistical analysis: All the statistical analyses were performed using SPSS version 20 for Windows and the results reported as Chi-square Test.

Results

The most common affected age group was 12-24years (28.4%). Majority of them were illiterate Muslim (53.2%), female (58.1%) living in joint family (49.0%). Students (28.4 %,) were commonly affected followed by housewives (25.5%) cases. ([Table 1](#))

Among 310 of the study participants 75 (24.2%) scabies patients diagnosed at Derma OPD RHTC by dermatologist during the study period. females (13.9%) were found more infected than male 32(10.3%) with scabies. Scabies was most prevalent in 12-24 years 31(10.0%) age group. ([Table2](#)).

A number of epidemiological factors have been proposed that influence the distribution of scabies infestation in populations, including: age, gender, ethnicity, hygiene, and family history. Some other associated factors that influence scabies were poor housing and environmental condition like semi-pacca house (40.3%), overcrowding (66.8%), presence of livestock (52.6%) and it also reported more cases in winter month (41.9%) ([Table 3](#))

According to the ([Table 4](#)), the most common topographical distribution site of scabies lesions were in finger webs (85.3%), followed by localised in genitalia (69.3%) hand(60%), axilla(44.0%), arm(38.7%) ,buttock(29.3%) and foot(25.3%), etc respectively.

Discussion

In this cross-sectional study our aim and objective was to find out prevalence and risk factor of scabies and to recommend measures for prevention and control of scabies in village of Bhojipura block. Scabies is common in lower socioeconomic groups, living in poor environmental and housing (semi-pacca/kaccha house with muddy floor, animal in house and presence of insect), in the current study, the total prevalence of scabies was 24.2 % in a rural

area of Rohilkhand region of Uttar Pradesh. In it, male and female prevalence were 10.3% and 13.9 % respectively, most commonly in school children (10.0%). This is higher than the prevalence of Scabies reported among school children in Ibadan, Nigeria, with a prevalence of 4.8%.(15) On the other hand, higher prevalence rates of scabies were reported among Indian primary schoolchildren living in a slum of Kolkata with 39.42% prevalence.(16) Contact between children at school and between friends is likely to be important risk factors for disease transmission between children. Prevalence of scabies was more in female (13.9 %) in our study. This result was not in agreement with the results of other studies in countries like Nigeria (17) where the prevalence of scabies between males and females was equally. On the other hand, male predominance was observed in other Indian studies.(18) Scabies may be related to increased human personal contact and overcrowding living condition, sleeping on same bed as well as increased mite survival and fertility in cold weather.(19,20) These are similar to our current study. Skin breaches from mite burrows and the excoriation from scratching, the itch often result in co-existing bacterial skin infection, up to 79% in some studies.(21) While in current study secondary bacterial skin infection were low (38.7%). This study also revealed that sharing clothes (65.3%) with other person and no daily bath (61.3%) were associating factors of scabies. This finding was consistent with the study done in Doga-Tembi district, Tigray (22), Regarding the topographical distribution of scabies, more than 14% of the infested people had more than one type of lesion in various topographic sites, commonly on the abdomen, inguinal/thigh, inter-digital space, hands, and wrists, confirming previous reports.(23,24) In our study area, a climate-determined behaviour in which people, particularly male children facing overcrowding and Close contact to each other facilitates transmission of scabies mite. This partly explained why lesions commonly occurred on the finger webs, genitalia, hand and axilla in this study. Interestingly, a recent interview study amongst general medical practitioners (GMPs) in Pakistan have demonstrated a diffuse “lack of knowledge regarding various aspects of scabies” and recommended an active intervention to improve their awareness, so that scabies will be identified and treated appropriately and valuable information will be provided to patients and communities.

Conclusion

Scabies is a common skin disease in developing country. It causes various health problems like itching, distress and discomfort to children and families. Secondary bacterial infection is almost universal in this environment, with potentially serious consequences for the individual's health. Given the identified risk factors associated with scabies, steps should be taken to improve their hygiene practices and living conditions. Furthermore, dermatologists need to improve case-finding, and notification should be made mandatory, along with treatment of the affected individual and all those to whom they have been in contact with. Greater health awareness of scabies is needed among the public in general and programmes to achieve this should be implemented. Mass treatment of scabies either by oral Ivermectin or topical Permethrin is suggested. Action to control scabies in those countries where it has a significant impact on public health should now be a priority.

Recommendation

Health education to improve hygiene practices should be part of health care delivery practices in rural and low socioeconomic status urban population

Limitation of the study

Study has been at rural health training centre (RHTC) of a medical college covering a large village of a block of Uttar Pradesh in India, thus may not be a representative study for other parts of country. Since study was conducted on every Thursday in a dermatology OPD, it may have missed cases because of some social, personal or religious regions

Relevance of the study

The study has necessitated the importance of launching a vertical or horizontal national health program for prevention and control of scabies

Authors Contribution

DKG: Conceptualization, lead the project, performed data analysis and drafted the manuscript. RPS: supervision of study, analysis, manuscript revision. AKS, AKA, AK & UG: involved in managing the project at site, data analysis and critically review of the manuscript. All authors read and approved the final manuscript.

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Tables

TABLE 1 DEMOGRAPHIC CHARACTERISTIC OF THE STUDY PARTICIPANTS

Study participants	Number	Percentage
Ages(years)		
0-12	44	14.2
12-24	88	28.4
24-36	51	16.5
36-48	58	18.7
48-60 & above	69	22.3
Sex		
Male	130	41.9
Female	180	58.1
Religion		
Muslim	165	53.2
Hindu	145	46.8
Types of family		
Joint	152	49
Nuclear	77	24.8
Three generation	81	26.1
Education		
Illiterate/literate	184/126	59.4/38.7
Occupation		
Student	88	28.4
Housewife	79	25.5
Farmer	59	19
Shopkeeper	49	15.8
Unemployment	35	11.3
Presence of scabies		
Yes	75	24.2
No	235	75.8
Total	310	100

TABLE 2 DISTRIBUTION OF SCABIES AMONG STUDY PARTICIPANTS (N = 310)

VARIABLES	SCABIES N (%)	TOTAL N (%)
Gender		
Male	32(10.3%)	130(41.9 %)
Female	43(13.9%)	180(58.1%)
Age		
0-12	11 (3.5%)	44 (14.2 %)
12-24	31 (10.0%)	88 (28.4%)
24-36	9 (2.9%)	51 (16.5%)
36-48	8 (2.6%)	58 (18.7%)
48-60 and above	16 (5.2%)	69 (22.3%)
Total	75 (24.2%)	310 (100%)

TABLE 3 DISTRIBUTIONS OF FACTORS RESPONSIBLE FOR SCABIES (75)

VARIABLES	FREQUENCY	PERCENTAGE
Housing : Kaccha/Semipacca/Pacca	27/34/14	36 %/45.3 %/18.7%
Muddy floor: Yes / no	44/31	58.7%/41.3 %
Hygiene : Good /Average / Poor	9/25/41	12 %/33.4%/54.6 %
Economy: High / medium /low	7/38/30	9.3 %/50.7 %/40.0%
Education of mother : Illiterate / Literate	43/32	57.3%/42.7%
Education of father: Illiterate / Literate	39/36	52.0%/48.0%
Family history: Present / Absent	63/12	84%/16%
Overcrowding: (Yes / No)	51/24	68%/32%
Bathing daily: (Yes / No)	29/46	38.7%/61.3%
Sharing cloth: (Yes / No)	49/26	65.3 %/34.7%
Sleeping on common bed: (Yes / No)	55/20	73.3%/26.7%
Contact with scabies patients: (Yes / No)	62/13	82.7%/17.3%
Climate: Summer / Autumn/Winter	18/24/33	24%/32%/44%
Livestock : (Yes / No)	44/31	58.7%/41.3 %
Insects: Present / Absent	66/09	88%/12 %
Secondary infection: Yes / No	29/46	38.7 %/61.3%

TABLE 4 TOPOGRAPHICAL DISTRIBUTION OF SCABIES ACCORDING TO THE SITE OF INFESTATION.

SITE OF INFESTATION	NUMBER	PERCENTAGE
In finger webs	64	85.3%
Genitals	52	69.3%
Hand	45	60%
Axilla	33	44%
Arm	29	38.7%
Buttock	22	29.3%
Abdomen	22	29.3%
Foot	19	25.3%
Generalized	17	22.7%
Flexor of wrist	13	17.3%
Elbow	13	17.3%
Armpit	9	12%
Penis	9	12%
Nipple	5	6.7%