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# ASSESSING THE OUTBREAK OF SCABIES IN A KNOWN INDIAN POPULATION: A PROSPECTIVE CLINICAL STUDY

*1.* Dr Tanjib Hassan Mullick, MBBS MD, Assistant Professor, Department of Community Medicine, Medical College, Kolkata, West Bengal

*2.* Dr. Pratiksha Mishra, MBBS, MD, Assistant Professor, Department Of Dermatology, Veer Chandra Singh Garhwali Government Institute of Medical Sciences & Research, Srinagar, PauriGarhwal, Uttarakhand

***Corresponding Author:***

3. Dr. Amit A. Rangari, MBBS, MD, Professor and Head, Department of Microbiology, Nandkumar Singh Chouhan Government Medical College, Khandwa, Madhya Pradesh

Email id: dr_amit123@yahoo.co.in

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## ABSTRACT

**Background:** Infestation by the mite, Sarcoptesscabiei var. hominis, leads to a skin condition termed Scabies.

**Aim:** The present study was conducted to assess the outbreak of Scabies in a known Indian population.

**Materials and Methods:** The present prospective clinical study was based on examination and data recorded over 1 year. The collected data were subjected to statistical evaluation, and the results were formulated.

**Results:** Skin lesions were present in 17.94% (n=56) subjects with scabies in the present study, whereas, the skin lesions of scabies were absent in 64.10% (n=200) subjects of scabies. The presence of the skin lesions was unknown in 17.94% (n=56) subjects. The presence of rashes was seen in 39.10% (n=122) of study subjects with scabies. The presence of scratching was seen in 20.83% (n=65) of study subjects with scabies. The itching was reported as a symptom of scabies in 40.06% (n=125) of study subjects with Scabies.

**Conclusion:** The present study concluded that there is a high prevalence of scabies in the known Indian population and was highly prevalent in females than males.

**Keywords:** outbreak, Indian subjects,Scabies, Sarcoptes scabiei var. hominis.

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## INTRODUCTION

Infestation by the mite, Sarcoptesscabiei var. hominis, leads to a skin condition termed Scabies. The pathophysiology behind scabies is that a burrow of less than 0.5mm is made in the skin where a hypersensitivity reaction is seen by the deposition of antigens on the exoskeleton of the mite along with its excreta, eggs, and saliva at the burrow site.[1]

The lesion that results from the mite infestation commonly affects feet, ankles, wrists, and hands in the affected subjects. Common scabies, also known as typical, classical, or ordinary scabies in the majority of the affected subjects, there is usually a smaller number of mites in the body nearly 5 to 15 mites.[2] Another type of scabies, known as crusted scabies, and was

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earlier known as Norwegian scabies is a rare entity that is characterized by hyperkeratotic crusted skin and the presence of thousands to millions of the mites.[3]

Transmission of scabies is by direct contact majorly, and to some extent by the fomites with an incubation period of 4 to 6 weeks in subjects who are not infested previously. Signs of scabies include nodules, burrows, and or nodules. Secondary bacterial infection can elicit a local immune response due to scratching by excoriation.[4] This bacterial infection results in the risk of rheumatic heart disease and compromised kidney function.The normal burden of the parasite is approximately 11 burrowing female adult mites seen per individual. In some individuals, crusted scabies is developed with hyperkeratotic skin lesions having more than 4700 scabies per gram.[5] Hence, the present study was conducted to assess the outbreak of Scabies in a known Indian population.

## MATERIALS AND METHODS

The present prospective clinical study was conducted to assess the outbreak of Scabies in a known Indian population. The study was conducted atafter obtaining clearance from the concerned Ethical committee. The study population was comprised of the subjects visiting the Outpatient Department of Dermatology of the Institute. After explaining the detailed study design, informed consent was taken from all the subjects in both written and verbal form.

The data collected for each study subject included clinical visits, preliminary visits, medications used, medical history, and demographic data. Characteristics of the scabies outbreak including proportions, numbers, and demographics of the affected subjects were recorded. The examination was performed for all the subjects. Skin scrapes were from all the study subjects and the scrapes collected were examined under the microscope one day after collecting the sample.

The collected data were subjected to the statistical evaluation using SPSS software version 21 (Chicago, IL, USA) and one-way ANOVA and t-test for results formulation. The data were expressed in percentage and number, and mean and standard deviation. The level of significance was kept at $p<0.05$.

## RESULTS

The present prospective clinical study was conducted to assess the outbreak of Scabies in a known Indian population. The study included a total of 312 subjects from both genders within the age range of 52-84 years and the mean age of 64.2±6.86 years. The demographic characteristics of the study subjects are listed in Table 1.

The results of the study show that there were 5.12% (n=16) subjects who were less than 60 years of age with scabies, 6.08% (n=19) subjects from the age range of 61-70 years, 54.80% (n=171) subjects from the age range of 71-80 years, and 33.97% (n=106) subjects who were more than 80 years old. There were 66.02% (n=206) females and 33.97% (n=106) males with scabies in the present study (Table 1).It was seen that the maximum subjects with scabies were in the age range of 71-80 years.

On assessing the presence of skin lesions in the subjects with Scabies, it was seen that the skin lesions were present in 17.94% (n=56) subjects with scabies in the present study, whereas, the skin lesions of scabies were absent in 64.10% (n=200) subjects of scabies. The

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presence of the skin lesions was unknown in 17.94% (n=56) of subjects of the present study with scabies as depicted in Table 2.

The present study also assessed the type of skin lesion and their associated characteristics in the study subjects with scabies and the results are described in Table 2. It was seen that the presence of rashes was seen in 39.10% (n=122) of study subjects with scabies. The presence of scratching was seen in 20.83% (n=65) of study subjects with scabies. The itching was reported as a symptom of scabies in 40.06% (n=125) study subjects with Scabies as shown in Table 2.

## DISCUSSION

The present prospective clinical study was conducted to assess the outbreak of Scabies in a known Indian population. The study included a total of 312 subjects from both genders within the age range of 52-84 years and the mean age of 64.2±6.86 years. The results of the study show that there were 5.12% (n=16) subjects who were less than 60 years of age with scabies, 6.08% (n=19) subjects from the age range of 61-70 years, 54.80% (n=171) subjects from the age range of 71-80 years, and 33.97% (n=106) subjects who were more than 80 years old. There were 66.02% (n=206) females and 33.97% (n=106) males with scabies in the present study. It was seen that the maximum subjects with scabies were in the age range of 71-80 years. These results were consistent with the studies of Swe Reynolds PM et al[6] in 2014 and Romani L et al[7] in 2015 where authors have assessed subjects with comparable demographics.

On assessing the presence of skin lesions in the subjects with Scabies, it was seen that the skin lesions were present in 17.94% (n=56) subjects with scabies in the present study, whereas, the skin lesions of scabies were absent in 64.10% (n=200) subjects of scabies. The presence of the skin lesions was unknown in 17.94% (n=56) of subjects of the present study with scabies. These results were in agreement with the studies of Chung SD et al[8] in 2014 and Roberts LJ et al[9] in 2005 where authors have depicted the comparable presence of skin lesions in the study subjects with scabies.

The present study also assessed the type of skin lesion and their associated characteristics in the study subjects with scabies and the results have shown that the presence of rashes was seen in 39.10% (n=122) study subjects with scabies. The presence of scratching was seen in 20.83% (n=65) of study subjects with scabies. The itching was reported as a symptom of scabies in 40.06% (n=125) of study subjects with Scabies. These findings were similar to the studies of Mc Carthy JS et al[10] in 2004 and Heukelbach J et al[11] in 2005 where authors have reported the presence of rashes, scratching, and itching in subjects with Scabies.

## CONCLUSION

Within its limitations, the present study concludes that there is a high prevalence of scabies in the known Indian population and was highly prevalent in females than males. However, the present study had a few limitations including a small sample size, short monitoring period, and geographical area biases. Hence, more longitudinal studies with larger sample size and longer monitoring period will help reach a definitive conclusion.

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**TABLES**

| **Characteristics** | **Percentage (%)** | **Number (n=312)** |
|---|---|---|
| **Meanage (years)** | 64.2±6.86 | |
| **Age Range (years)** | | |
| <60 | 5.12 | 16 |
| 61-70 | 6.08 | 19 |
| 71-80 | 54.80 | 171 |
| >80 | 33.97 | 106 |
| **Gender** | | |
| Females | 66.02 | 206 |
| Males | 33.97 | 106 |

**Table 1: Demographic characteristics of the study subjects**

| **Characteristics** | **Percentage (%)** | **Number (n=312)** |
|---|---|---|
| **Skin Lesions** | | |
| Present | 17.94 | 56 |
| Not present | 64.10 | 200 |
| Not known | 17.94 | 56 |
| **Type** | | |

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| | | |
|---|---|---|
| Rash | 39.10 | 122 |
| Scratching | 20.83 | 65 |
| Itch | 40.06 | 125 |

**Table 2: Signs and symptoms of Scabies in the study subjects**