

**A Hospital Based Cross Sectional Study to Assess Clinico-Demographic Profile of Scabies in Pediatric Patients**Satya Gupta<sup>1</sup>, Suruchi Pandey<sup>2</sup>, Satish Kumar<sup>3</sup><sup>1</sup>Senior Resident, Department of Paediatrics, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar India<sup>2</sup>PG-Student, Department of Paediatrics Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar India<sup>3</sup>Assistant Professor, Department of Paediatrics, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar India

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Conflict of interest: Nil

**Abstract****Aim:** The aim of the present study was to assess the incidence and sociodemographic profile of scabies in pediatric patients with different age groups attending secondary health care hospital.**Methods:** This prospective single centre study was conducted on 200 paediatric cases attending in the Department of Paediatrics, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar India over a period of 12 months.**Results:** Out of studied 200 patients, 46 (23%); 64 (32%) and 90 (45%) found to be in age groups < 2 yr.; 2-5 yr. > 6-12 yr., respectively. Boys were more affected 120 (60%) as compared to girls 80 (40%). 66% patients had studied >10<sup>th</sup> std. and 90% had over-crowding at home. Commonest duration of symptoms while presentation less than 1 month in 176 (88%) and only 24 (12%) have more than 1 month. Itching was noted in 144 (72%) and absent in 56 (28%). More commonly associated in-patients with poor and average hygiene (99.5%) than in the good hygiene.**Conclusion:** Scabies was commonly seen in children below 6 years of age with boys affected more than girls. More commonly associated in-patients with poor and average hygiene than in the good hygiene. The important predisposing factors were overcrowding and poor hygiene. It was common in poor economic groups. Thus, improving the socio- economic conditions, hygiene, avoiding overcrowding and proper treatment of cases and close contacts are the sources of infection to children help in preventing scabies in children.**Keywords:** Children, scabies, poor socioeconomic group, overcrowding, hygieneThis is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Human scabies is an ectoparasitic infestation caused by the mite *Sarcoptes scabiei* variety *hominis* which is an obligate parasite that completes its entire life cycle on humans. Female mites burrow into the skin and lay eggs, eventually triggering a host immune response that leads to intense itching and rash. [1,2] Scabies was listed by the World Health Organization (WHO) as a Neglected Tropical Diseases (NTDs) under category A in 2017 because it fulfills four criteria: 1) it disproportionately affects populations living in poverty; and causes important morbidity and mortality including stigma and discrimination; 2) it primarily affects populations living in tropical and sub-tropical areas; 3) it is amenable to broad control, elimination or eradication by applying public health strategies; and 4) it is relatively neglected by research. Category A NTDs require

large scale action in the portfolio of WHO'S NTD Department in order to achieve control, elimination or eradication. [3]

Scabies infestation occurs in all countries, but with a high burden in developing countries and tropical areas, and among infants, children, adolescents, and older persons. [4,5] However, scabies prevalence and incidence is substantially higher in children than in adolescents and adults, and it increases sharply from five years to twenty-five years. [6] In 2015, the prevalence of scabies was from 0.2% to 71.4% in the world. [4] Findings from the Global Burden of Disease (GBD) study in 2017 reported the global prevalence and incidence cases of scabies were 175.4 million and 527.5 million, respectively, and showed that its burden is on a downward trend over the last 27 years (1990–2017). [6] The pooled

prevalence of scabies infestation was 14.5% in Ethiopia among surveyed population and it ranged from 5.5% to 23.8% among children. [7] Scabies was the most commonly reported ectoparasite in the Southwest of Ethiopia. [8]

The main feature of scabies is generalized itching that is more intense during nighttime, which may lead to absenteeism from school and work, sleep disturbance that affects the quality of life, and causes stigma. [9,10] Impetigo is skin infection caused by Staphylococcus aureus and Streptococcus pyogenes, common after persistent itching due to scabies and could complicate to severe skin and soft tissue infections, sepsis, glomerulonephritis, and acute rheumatic fever. [9-11] Immune-mediated disease and morbidity are also consequences of scabies. [12] The main route of transmission for scabies is direct skin-to-skin contact. However, crusted scabies is transmitted mainly through shared clothing or other indirect methods. [13]

The aim of the present study was to assess the incidence and sociodemographic profile of scabies in pediatric patients with different age groups attending secondary health care hospital.

**Materials and Methods**

This prospective single centre study was conducted on 200 paediatric cases attending in the Department of Paediatrics, Jawaharlal Nehru Medical College and Hospital, Bhagalpur, Bihar India over a period of 12 months.

**Inclusion Criteria**

- Patients < 12 years of age including new borns
- Symptomatology – history of contact with scabies, history of itch and rash

- Lesions on skin – confirmed with dermatologists
- Resistant cases – Already diagnosed

**Exclusion Criteria**

- Age above 12 years
- Lesions which are not of scabies confirmed with skin physician
- Patient’s already got cured with adequate treatment
- Patient’s unable / does not come during follow up

**Methodology**

All new and old registered patients attending dermatology clinics; pediatric OPD; well-baby clinics below 12 years of completed age, at secondary institution were studied. Patients were grouped for study as – 0 to less than 2 yrs., more than 2-5 yrs and 6th to 12 yrs. Income of parents is grouped as – (per capita income). E1 – less than 600 rupees/month. E2 – above 600 – 1200 rupees; E3 – more than 1200/month. Family history for total members (for overcrowding), total affected (contact history). Literacy of parents as – IL – illiterate; I – up to primary school; II up to 10th to 8th III above 10th standard. Housing; number of rooms; to see for overcrowding and mentioned as overcrowding if yes (+) and if not (-) ve.

Statistical analysis: All collected data was arranged in tabulated form. A computer based statistical analysis was done and chi-square test whenever indicated was used. Tables were made and graphs were plotted and results were obtained.

**Results**

**Table 1: Distribution of the cases by sociodemographic variables**

| Variables                   | No.          | Percentage |    |
|-----------------------------|--------------|------------|----|
|                             | < 2          | 46         | 23 |
| Age in years                | 2to 5        | 64         | 32 |
|                             | 6 to 12      | 90         | 45 |
| Gender                      | Female       | 88         | 44 |
|                             | Male         | 112        | 56 |
| Literacy Level of Parents   | Primary      | 2          | 1  |
|                             | Upto 10 Std. | 66         | 33 |
|                             | > 10 Std.    | 132        | 66 |
| Total No. of members        | 2            | 6          | 3  |
|                             | 3            | 6          | 3  |
|                             | 4            | 50         | 25 |
|                             | 5            | 80         | 40 |
|                             | 6            | 40         | 20 |
|                             | 7            | 10         | 5  |
| Family members affected Y/N | 8            | 4          | 2  |
|                             | 9            | 2          | 1  |
|                             | 10           | 2          | 1  |
|                             | No           | 120        | 60 |
|                             | Yes          | 80         | 40 |
| Over Crowding               | Absent       | 20         | 10 |
|                             | Present      | 180        | 90 |

Out of studied 200 patients, 46 (23%); 64 (32%) and 90 (45%) found to be in age groups < 2 yr.; 2-5 yr. > 6-12 yr., respectively. Boys were more affected 120 (60%) as compared to girls 80 (40%). 66% patients had studied >10<sup>th</sup> std. and 90% had over-crowding at home.

**Table 2: Distribution of the cases by various scabies infestation related variables**

| Variables             |           | No. | Percentage |
|-----------------------|-----------|-----|------------|
| Duration of Infection | < 10 days | 80  | 40         |
|                       | > 10 days | 96  | 48         |
|                       | >1 month  | 24  | 12         |
| Hygiene               | Good      | 1   | 0.5        |
|                       | Average   | 100 | 50         |
|                       | Poor      | 99  | 49.5       |
| Itching               | Absent    | 144 | 72         |
|                       | Present   | 56  | 28         |
| Contact history       | Absent    | 120 | 60         |
|                       | Present   | 80  | 40         |
| Rx of contacts        | Yes       | 200 | 100        |

Commonest duration of symptoms while presentation less than 1 month in 176 (88%) and only 24 (12%) have more than 1 month. Itching was noted in 144 (72%) and absent in 56 (28%). More commonly associated in-patients with poor and average hygiene (99.5%) than in the good hygiene.

#### Discussion

Scabies is a commonly encountered cutaneous infestation caused by the human itch mite, *Sarcoptes scabiei* var. *hominis*, an organism that was identified with the disease over 300 years ago. [14] It is a highly contagious infestation among close contacts and occurs in all ages. Although the presentation in adults follows a fairly distinctive pattern (but is also frequently missed), infants and young children have a more varied presentation and so are more easily misdiagnosed. [15] It is essentially a disease of children. Among children, the prevalence is highest in the age group below 5 years. The incidence of scabies has been found to vary from time to time. There is a decreasing prevalence with increasing age. [14] Though earlier workers had reported higher incidence in different sexes, more recent studies have shown that there is no preponderance in either sex. [14,16] As human scabies is contracted mainly by direct human contact, a pruritic rash in a family member should be pursued, keeping in mind that only one half to two thirds of family members become clinically infected. [17]

Wakhlu et al [18] in their study mentioned that 81.8% were less than 6 years of age and 54% were less than 2 years of age. Results are similar in both the studies showing incidence common in early age. The slight difference of results may be due to method of study (present study was carried as passive survey while other were active surveys). Out of studied 200 patients, 46 (23%); 64 (32%) and 90 (45%) found to be in age groups < 2 yr.; 2-5 yr. > 6-12 yr., respectively. Boys were more affected 120

(60%) as compared to girls 80 (40%). According to the current study, scabies infestation is higher in males than females. This is similar to the previous studies conducted in Cameroon and Solomon Islands. [19,20] However, it contradicts the findings in Iran. [21] Socio-cultural practices could be the possible reasons for the differences. This indicates that male children spent most of their daytime at the field playing through touching each other and handling contaminated handling articles with the scabies mite.

66% patients had studied >10<sup>th</sup> std. and 90% had over-crowding at home. Commonest duration of symptoms while presentation less than 1 month in 176 (88%) and only 24 (12%) have more than 1 month. Itching was noted in 144 (72%) and absent in 56 (28%). More commonly associated in-patients with poor and average hygiene (99.5%) than in the good hygiene. Scabies is a contagious disease mainly spread by direct and prolonged skin-to-skin contact. [22] Children share clothing with their family, family members, or friends. From the researchers' experience, most of the body parts are not covered with a cloth during the day and night time, irrespective of the weather condition (dry or raining). This could be a possible reason for high risk of scabies in children. In overcrowded or poor families, creating community awareness regarding scabies case detection to seek immediate healthcare service is better to reduce the burden of the disease in both family and the community.

#### Conclusion

Scabies was commonly seen in children below 6 years of age with boys affected more than girls. More commonly associated in-patients with poor and average hygiene than in the good hygiene. The important predisposing factors were overcrowding and poor hygiene. It was common in poor economic groups. Thus, improving the socio-economic conditions, hygiene, avoiding overcrowding and

proper treatment of cases and close contacts are the sources of infection to children help in preventing scabies in children.

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