



## Relationship of Scabies and Iron Deficiency Anemia in Children of 3-12 Year Age Group: A Hospital Based Survey

Authors

**Dr Jagriti Narayan<sup>1</sup>, Dr Ichchhit Bharat<sup>2</sup>, Dr Indrani Mandal<sup>3</sup>, Dr Arky Saha<sup>4</sup>,  
Dr Avneet Singh Sandhu<sup>5</sup>, Dr Satya Prakash Shankaram<sup>6</sup>**

<sup>1,3,4,5</sup>Junior Resident, Department of Paediatrics, Mata Gujri Memorial Medical College & LSK Hospital, Kishanganj, Bihar, India

<sup>2</sup>Junior Resident, Department of Dermatology & Venerology, Mata Gujri Memorial Medical College & LSK Hospital, Kishanganj, Email: [ichchhit@yahoo.co.in](mailto:ichchhit@yahoo.co.in)

<sup>6</sup>Senior Resident, Department of Radiodiagnosis, Mata Gujri Memorial Medical College & LSK Hospital, Kishanganj

Corresponding Author

**Dr Jagriti Narayan**

Room No 107, D-Block, Doctors quarter, MGM Medical College & LSK Hospital, Kishanganj, Bihar, Pin-855107 India

Email: [spshankaram58@gmail.com](mailto:spshankaram58@gmail.com)

### Abstract

**Introduction:** Scabies and iron deficiency anemia is quite common in developing countries like India.

**Objectives:** The prime objective of the study is to evaluate the potent relationship of scabies and iron deficiency anemia in children age group of 3-12 years.

**Materials and Methods:** This study was done on infants and children aged between 3 to 12 years presenting in Outpatient department (O.P.D.) of Mata Gujri Memorial Medical College & L.S.K. Hospital in Kishanganj from June 2015 to November 2015.

In this study, we had 270 patients; 120 were clinically diagnosed scabies (case) while 150 age and socioeconomically matched children were not having scabies (control). We routinely followed the patients with majority returning on follow up. Finally we compared the development of iron deficiency anemia in both groups at the end of two year.

**Results:** There was statistically significant difference between the development of iron deficiency anemia in two groups (20% VS 10.4 % of case and control group respectively,  $P < 0.05$ ).

**Conclusion:** There is significant relationship between scabies and the development of iron deficiency anemia in children age group of 3-12 years

**Keywords:** Scabies, anemia, iron deficiency anemia, low socioeconomic status.

### Introduction

Human scabies is an intensely pruritic skin infestation caused by the host-specific mite *Sarcoptes scabiei hominis*. Scabies is a frequent condition,

recently listed by the World Health Organization as one of the main neglected diseases, affecting ~300 million people worldwide each year.

Scabies in infants and children has distinct clinical features. The diagnosis of scabies can often be made clinically in patients with a pruritic rash and characteristic linear burrows.

Iron-deficiency anemia is anemia caused by a lack of iron. Anemia is defined as a decrease in the number of red blood cells or the amount of hemoglobin in the blood. Its presentation widely varies ranging from asymptomatic to heart failure.

### Objectives

The prime objective of the study is to evaluate the potent relationship of scabies and iron deficiency anemia in children age group of 3-12 years.

### Materials and Methods

This study was done on children having age group of 3-12 years presenting in Outpatient department (O.P.D.) of Mata Gujri Memorial Medical College

& L.S.K. Hospital in Kishanganj from June 2015 to November 2015.

In this study, we had 270 patients; 120 were clinically diagnosed scabies (case) while 150 age and socioeconomically matched children were not having scabies (control). We routinely followed the patients with majority returning on follow up. Finally we compared the development of iron deficiency anemia in both groups at the end of two years. The criteria for iron deficiency anemia were taken as: Hb<12g/dl, MCV<70fl, RDW>16%, MCH<30pg, MCHC<33g/dl.

### Results

Total 270 patients were enrolled, 120 in case and 150 in control group. Main characteristics of enrolled children in case and control group is summarized in table 1.

**Table 1 : Main Characteristics of Enrolled Children Having Scabies (N=270)**

Variables	Case group (n=120)	Control group (n=150)	P value
Age (years)	4.0 ± 1.8	4.12 ± 1.70	p>0.05 (not significant)
Birth Weight (kg)	16 ± 2.80	16.4 ± 2.70	p>0.05 (not significant)
Sex	Male=66(55 %)	Male =81(54 %)	p>0.05 (not significant)
	Female=54(45 %)	Female=69(46 %)	
Socioeconomic status of enrolled children	Low =96 (80 %)	low=118(78.67 %)	p>0.05 (not significant)
	Middle=23 (19.2%)	Middle=30(15%)	
	High=1(0.8%)	High=2(1.33 %)	

Most of the enrolled children belonged to low socioeconomic status (80% VS 78.67 % of case and control group respectively, P<0.05).

We routinely followed the patients for two years. Out of case group (n=120), 105 returned on

follow up at the end of two years, while in control group (n=150), 125 returned on follow up at the end of two years. In both groups, iron deficiency anemia was noted at the end of two years based on the findings of Hb, rdw, MCH, MCHC, MCV.

**Table 2: iron deficiency anemia in follow up (N=230)**

Variables	Case group (n=105)	Control group (n=125)	P value
Iron deficiency anemia	21(20%)	13 (10.4 %)	P<0.05 ( significant)

There were statistically significant difference between the development of iron deficiency anemia in two groups (20% VS 10.4 % of case and control group respectively, P<0.05).

### Discussion

Scabies is a common and annoying disorder widely prevalent in developing countries. Infestation by the mite *Sarcoptes scabiei* var.

*hominis* causes intractable pruritus, and the disease burden is heavy.<sup>1</sup> Scabies is more prevalent in patients who live in crowded environments and those with lower socioeconomic status. Children are infected most commonly with a peak occurring at 5–9 years. There are concerns about the long-term impacts of scabies.

**Iron-deficiency anemia** is anemia caused by a lack of iron<sup>2</sup>. Anemia is defined as a decrease in the number of red blood cells or the amount of hemoglobin in the blood.<sup>3,4</sup> When onset is slow, symptoms are often vague, including feeling tired, weakness, shortness of breath, or poor ability to exercise.<sup>2</sup> Anemia that comes on quickly often has greater symptoms, including: confusion, feeling like one is going to pass out, and increased thirst.<sup>2</sup> There needs to be significant anemia before a person becomes noticeably pale.<sup>2</sup> Problems with growth and development may occur in children.<sup>3</sup> There may be additional symptoms depending on the underlying cause.

### Conclusion

There is significant Relationship between scabies and the development of iron deficiency anemia in children below 16 yr.

### Limitations

One limitation of our study is the small study population (hospital based survey).

### References

1. Chosidow O. Scabies. *N Engl J Med*. 2006;354(16):1718–1727. [PubMed]
2. Janz, TG; Johnson, RL; Rubenstein, SD (Nov 2013). "Anemia in the Emergency Department: Evaluation and Treatment". *Emergency Medicine Practice*. 15 (11): 1–15; quiz 15–6. PMID 24716235.
3. "What Is Iron-Deficiency Anemia? - NHLBI, NIH". *www.nhlbi.nih.gov*. 26 March 2014. Archived from the original on 16 July 2017. Retrieved 17 July 2017.
4. *Stedman's Medical Dictionary* (28th ed.). Philadelphia: Lippincott Williams & Wilkins. 2006. p. Anemia. ISBN 9780781733908.