

## Brief Research Communication

# Epidemiological Study of Intestinal Parasitic Infestations and Malnutrition in Rural Children of Puducherry

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## Abstract

Intestinal parasitic infestations and malnutrition is highly prevalent in the rural population especially among children. A cross-sectional study was conducted among children aged 3-15 years to find the prevalence of intestinal parasitic infestations and malnutrition in rural community of Puducherry. The study sample was from the three villages which are the field practice areas of a medical college and hospital in Puducherry. Prevalence of 70% was found for parasitic infestation and 63.4% for underweight among these children. There is an underestimation of intestinal parasite infestation and Malnutrition in the Country.

**Key-words:** Parasitic infestation, malnutrition, poor socio economic condition

## Introduction

Intestinal parasitic infestations have a wide variation of prevalence across communities and are linked to poor socio-economic status and environmental hygiene, overcrowding, food and water contamination and malnutrition.<sup>[1]</sup> The South East Asian Region has the highest prevalence of protein energy malnutrition despite improvements in the health care and parasitic infestations continue to be significant health problem in the poor rural children which cause anaemia, poor physical development and impaired cognitive function and learning ability.<sup>[1,2]</sup> Hence a study was undertaken to determine the prevalence of intestinal parasitic infestations and malnutrition among children aged 3-15 years in the rural communities of Puducherry.

## Materials and Methods

Three villages were selected randomly from the communities identified for field practice of community medicine department of a medical college in Puducherry. Parents of children aged 3-15 years were contacted in these villages. After obtaining a written informed consent the socio-economic conditions, the educational status of the house hold member

member and the environmental conditions were obtained. The details of the child willing to gave a sample of stool for examination of parasites were obtained which included age, sex, any history of abdominal pain, diarrhoea and passing worms in the stools. A sterile container for stool collection was given to each of the child willing to give stool for examination of parasites. The weight of the children participating in the study was measured.<sup>[4]</sup> The stool samples were examined for consistency, presence of blood, mucus and worms. Microscopic examination for ova and cysts was done both by saline and iodine wet mount preparation of stools.<sup>[3]</sup> Prior permission to conduct the study was obtained from the institutional ethical committee.

## Results

In this study conducted over a period of six months 350 children participated, The socio-economic and housing conditions of the studied children is shown in table 1. Of the 350 children studied 222 (63.4%) children aged 3-15 years were found to be underweight for age. A significant percent of the children who were found to be underweight belonged to families where there was illiteracy and who were living in poor housing and environmental conditions ( $p < 0.001$ ). Microscopic examination of the stool samples of the 350 studied children were performed and 244 (70%) of them had intestinal parasitic infestations (table 2). *Ascaris lumbricoides* and *Ancylostoma duodenale* were the commonest ova of helminths found. In 34.1% and 22.9% of the stool samples obtained from the

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children. Cysts of *Entamoeba* and *Giardia* were found in 12.3% and 10.3% of the stool samples.

**Table 1.** Prevalence of Intestinal Parasitic infestations in children of Rural Puducherry

**Table 2.** Physico-socio economic correlation of Mal-

Parasite	Male (n)	Female (n)	Total n (%)
<i>Ascaris lumbricoides</i>	45	38	83 (34.1)
<i>Ancylostoma duodenale</i>	29	27	56 (22.9)
<i>Entamoeba histolytica</i>	17	13	30 (12.3)
<i>Giardia lamblia</i>	15	10	25 (10.3)
<i>Trichuris trichiura</i>	10	9	19 (7.8)
<i>Taenia species</i>	8	5	13 (5.3)
Mixed infestations	8	4	12 (4.9)
<i>H. nana</i>	4	2	6 (2.4)
<b>Total</b>	<b>136 (56%)</b>	<b>108 (44%)</b>	<b>244(70%)</b>

nutrition in rural children of Puducherry

\*Statistically Significant

### Discussion

Variables	No. of children (%)	Under-weight (%)
<b>Gender</b>		
Male	195 (56)	
Female	155 (44)	
<b>Parents education</b>		
Illiterate	266(76)	183(69)*
Literate	84(24)	39(46)
<b>Type of Family</b>		
Nuclear	192(55)	124(65)
Joint	158(45%)	98(62)
<b>Housing / environmental conditions</b>		
Poor	193(55)	158(82)*
Satisfactory	97(28)	46(47)
Good	60(17)	18(30)
<b>Total</b>	<b>350 (100%)</b>	<b>222 (63.42%)</b>

The prevalence of malnutrition (63.4%) and intestinal parasitic (70%) infestations were found to be high in this study when compared to other studies done in the country.<sup>[3-5]</sup> Atul Aher et al, found a prevalence of intestinal infestation among school children in the rural community of 30.4%. *Ascaris lumbricoides* was the most com-

monest intestinal infestation found in this study. Nearly one-fourth of the world's population has this intestinal parasitic infestation. It is more commonly found in those counties with poor sanitary conditions and more frequently in rural communities. The second common infestation was due to *Ancylostoma duodenale* which is known to have a wide distribution in all the tropical and subtropical countries.<sup>[6]</sup>

### Conclusion

This study shows that intestinal parasitic infestations and malnutrition may be underestimated in our country. There is a requirement of a strong quality laboratory service for better management of these conditions. There is a need for rigorous epidemiological surveillance of parasitic infestation and malnutrition to reduce their burden in the community.

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