

ORIGINAL ARTICLE

Prevalence of Intestinal Parasitic Infections in Meerut District

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ABSTRACT

The intestinal parasitism is common in developing countries. Their distribution is mainly associated with poor personal hygiene, environmental sanitation and socio – economic conditions. A stool examination was performed on 105, randomly selected persons from rural and urban populations of Meerut District. The collected stool specimens were examined microscopically for the presence eggs, cysts and trophozoites of intestinal parasites, using simple smear in saline method. The prevalence of intestinal parasites was significantly higher ($\chi^2 = 21.42$, $df = 2$, $P = 5.99$ at 0.05 and 9.21 at 0.01 level) in illiterate patients of low age and very low income groups as compared to high income, education and age groups. The present study indicates that a nationwide parasite control project is necessary to reduce the possibility of morbidity and mortality due to parasitic diseases in the country.

Key Words: - Intestinal Parasites, Prevalence, Poverty, Epidemiology.

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INTRODUCTION

The intestinal parasitic infections caused by intestinal parasites are among the most prevalent infections in human in developing countries. Intestinal parasites cause a significant morbidity and mortality in endemic countries. These infections are the most prevalent in tropical and sub – tropical regions of the developing world where adequate water, sanitation facilities and poor economic conditions are lacking [16, 3, 14, 11]. The worldwide prevalence of intestinal parasites is estimated in more than 3.5 billion with around 4.5 million clinical cases [12]. It is observed that about 60 – 80 percent population of certain areas of West Bengal, Uttar Pradesh, Bihar, Orissa, Punjab, East Coast of Tamil Nadu and Andhra Pradesh is infected with parasites [4]. Intestinal parasitoses are common both in general population and in people residing in institutions in tropical and sub – tropical regions [6, 10]. The conditions required for transmission and aqusion of intestinal parasitism are favored in institutions where large number grouped together for a long period of time and poor sanitary conditions prevail. This is evidenced by studies on the prevalence of intestinal parasites in school, day care centers and institutions [15, 8, 12, 7, 9, 5, 13]. Local conditions such as quality of domestic and village infrastructure, economic, occupation and social factors such as education influence the risk of infections, diseases transmission and associated morbidity and mortality [17, 19]. The objective of this study was to perform an epidemiological survey to determine the prevalence of intestinal parasitic infections in the populations of Meerut District.

MATERIAL AND METHODS

The present study was conducted on human intestinal parasitic patients and few healthy subjects as control. In this study, a survey was carried out for human parasitic diseases, from rural and urban populations of Meerut District. For this study, an interview technique was performed to collect the information of subjects regarding their age, sex and family background. For the present study, a total of 105, samples of stool for both rural and urban populations were collected for microscopic investigations in laboratory. The Simple Smear in Saline method [18] was used to determine the stool samples. The persons having any cyst/ova/trophozoit/whole parasite were treated as parasitic positive patients. During the Demographic study of persons, the age group, sex, socio-economic and literacy status were

included in this study. The Chi –Squared tests were performed to test for an association between all possible pairs of parasitic infections and between the genders of each age group. The calculated χ^2 value was more than P – value (at 0.01 and 0.05 levels).

RESULTS AND DISCUSSION

Overall 105, stool samples were examined by Simple Smear in Saline method. The age combination shows that 26 persons were in 0-15 age group, 46 in 15-35 age group and 33 were the above the age of 35 years. The sex based distribution shows that out of 105 samples, the 43 were collected from males and 62 from female. According to socio-economic status 20 persons were belongs to low, 52 to medium and 33 persons to high income group. The literacy status shows that 51 persons were belong to illiteracy, 25 to high school, 13 to intermediate and 16 to graduate and above. In these 105 samples, 46.2% positive parasitic patients were from 0 -15, 21.7% from 15-35, 16 and 18.2% from the age above 35. Further, sex wise distribution shows that 23.3% positive parasitic patients were male and 29.9% females. Their economic status shows that 50.0%, 25.0%, and 15.0% positive parasitic patients were in low, medium and high income group respectively, while the literacy status shown that 35.2% positive parasitic patients were illiterate, 32.0% at high school level and 7.6% at intermediate, while the 6.2% positive parasitic patients were at graduate level. The results of present study shows that the gastrointestinal parasitic infection was found statistically more significant ($\chi^2 = 8.26$, $df = 3$, $P = 7.86$ at 0.05 level) in illiterate patients of low age and income group. The statistically analysis in gender, no significant association was observed between male versus female. The unsanitary conditions and low age group increased the risk factors for developing intestinal parasitic infections [1, 5, 7]. In other study revealed that the prevalence of intestinal parasites was high in low age group as compared to other age group [2].

Table: 1 – Prevalence analysis for positive patients according to age group.

Characteristic Age Group	Total Number	Positive (+)	Negative (-)	Prevalence (%)
0 – 15	26	16	10	46.2
15 – 35	46	07	39	21.7
Above 35	33	05	28	18.2

* $\chi^2 = 21.42$, $df = 2$, $P = 9.21$ at 0.01 level and 5.99 at 0.05 level

Table: 2 – Prevalence analysis for positive patients according to age gender.

Characteristic Gender	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Male	43	08	35	18.0
Female	62	20	42	32.0

Table: 3 – Prevalence analysis for positive patients according to economic status.

Characteristic Economic Status	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Low Income group	20	10	10	50.0
Medium Income group	52	13	39	25.0
High Income group	33	05	28	15.0

* $\chi^2 = 7.86$, $df = 2$, $P = 5.99$ at 0.05level and 9.21 at 0.01 level

Table: 4 – Prevalence analysis for positive patients according to education status.

Characteristic Education Status	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Illiterate	51	18	33	35.2
High school	25	08	17	32.0
Intermediate	13	01	12	7.6
Graduate & Above	16	01	15	6.2

* $\chi^2 = 8.26$, $df = 3$, $P = 7.82$ at 0.05 level and 11.35 at 0.01 level

Fig. 1 – Prevalence analysis for positive patients according to age group

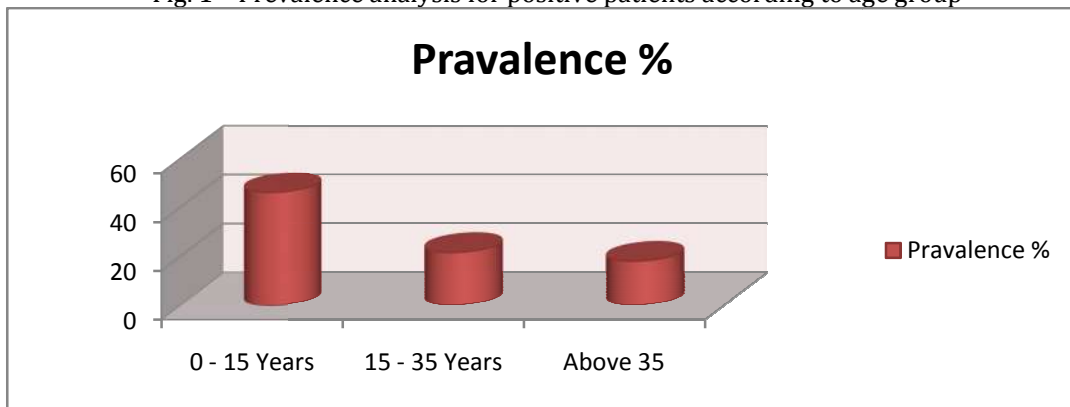


Fig. 2 – Prevalence analysis for positive patients according to economic status

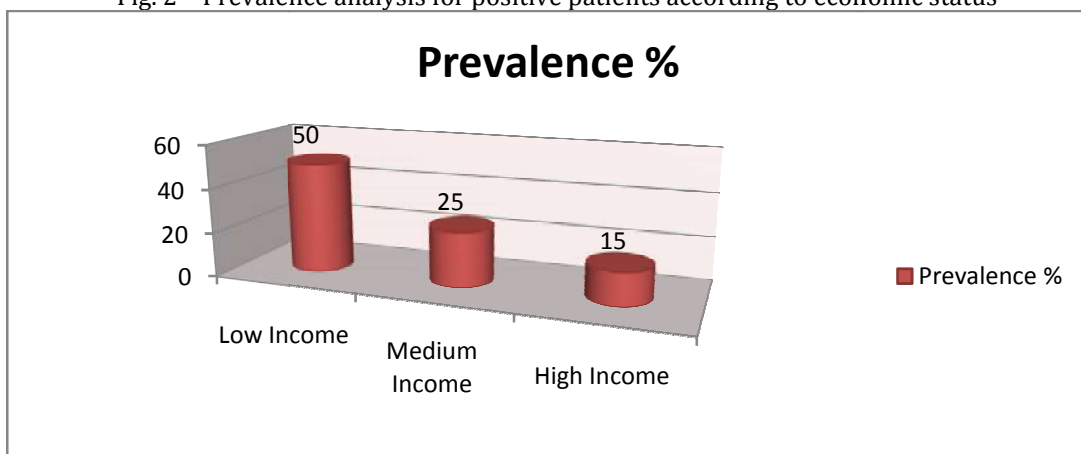
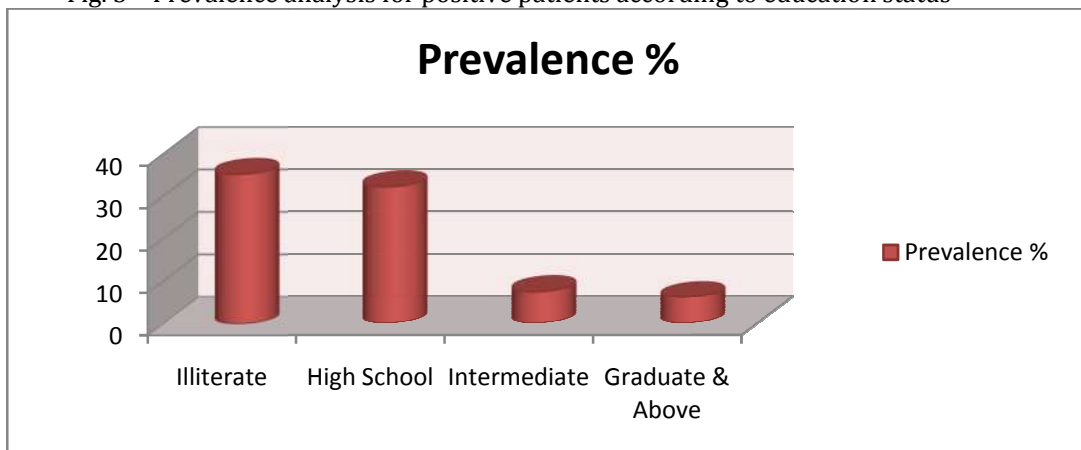


Fig. 3 – Prevalence analysis for positive patients according to education status



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