



Prevalence and Control of Intestinal Parasitic Infections in Khurja, Bulandshahr

Dr. Praveen Kumar

Department of Zoology, D. N. College, Meerut.

ABSTRACT

The intestinal parasitism is common in developing countries. Their distribution is mainly associated with poor personal hygiene, environmental sanitation and socio – economic conditions. The present study was carried from 2011 to 2013. A stool examination was performed on 791, persons from the populations of Khurja, Bulandshahr. The collected stool specimens were examined microscopically for the presence eggs, cysts and trophozoites of intestinal parasites, using simple smear in saline method. Epidemiological data were analyzed. The prevalence of intestinal parasites was significantly higher ($\chi^2 = 20.45$, $df = 3$, $P = 7.82$ at 0.05 level) in low age group, ($\chi^2 = 6.99$, $df = 1$, $P = 3.84$ at 0.05 level) in rural population, ($\chi^2 = 18.2$, $df = 3$, $P = 7.83$ at 0.05 level) in illiterate persons and ($\chi^2 = 116.9$, $df = 1$, $P = 3.841$ at 0.05 level) in males as compared to females. 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, Epidemiology, Poverty.

Introduction

Globally, two billion individuals were infected with intestinal parasites; out of these majorities were of the children [WHO, 2002]. Parasitic Infection of the gastrointestinal tract is a major cause of morbidity and mortality Worldwide; increased intestinal travel means that gastroenterologists are now likely to take care for patients suffered with parasitic disease [Noyer, and Brandt, 1999]. The usual symptoms of intestinal worms are diarrhea, foul breath, dark circles under the eyes, constant desire for food and restlessness at night with bad dreams, anemia and headaches. Roundworms may give rise to inflammation of the intestine and lungs, nausea, vomiting, loss of weight, fever, nervousness and irritability. Intestinal parasites cause a significant morbidity and mortality in endemic countries. Everyone is a part of community and every community has a specific customs and culture. Health culture is one of the most important components of a community. Health component depends upon socioeconomic status, housing hygiene i. e. water supply, food hygiene, environmental hygiene and personal hygiene, sanitation culture and education. Gastrointestinal parasitic infections are amongst the most common infection. More than 200 million people are estimated to be infected by various parasitic diseases in India. 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. [Dutta, 1962]. Intestinal Parasitic infections are governed by behavioral, biological, environmental, socio-economical and health system factors. 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 [Wang, e. t. 2009, and Yakuba, e. t. 2003]. Human gastrointestinal parasites are highly specialized, possessing numerous adaptations, many of which are associated with their host and its mode of life. The present study was undertaken to obtain an authentic data regarding the prevalence of gastrointestinal parasites and associated risk factors among the population of Khurja, Bulandshahr.

Material and Methods

In this study, a survey was carried out for human parasitic diseases, from rural and urban populations of Khurja, Bulandshahr for two years from 2011 to 2013. For this study, the stool samples of 791 persons were investigated. A questionnaire was prepared to collect the information about individual's house regarding age, sex, occupation, socio-economic and literacy status. The persons were requested to collect the specimen in the vials for microscopic investigations in laboratory. The persons having any cyst /ova/ trophozoite / 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. On the basis of the age group, literacy status, economic status and between the genders from each urban and rural population. The calculated value χ^2 have been calculated at 0.05 levels.

Results and Discussion

Overall 791, stool samples were examined. The age combination shows that 309 (39.1%) persons were in 0 - 15 age group, 220 (27.8%) in 16 - 25 age group and 191 (24.1%) in 26 - 35 age group while, 71 (8.9%) were the above the age of 35 years. The sex based distribution shows that out of 791 samples, the 406 (51.3%) were collected from males and 385 (48.6%) from female. According to socio - economic status 397 (50.2%) persons were belongs to low, 271 (34.2%) to medium and 123 (15.5%) to high income group. The literacy status shows that the 362 (45.7%) were belongs to illiteracy, 240 (30.3%) to high school, 107 (13.5%) to intermediate and 82 (10.4%) to graduate and above. In these 791 samples, 43.9% positive parasitic patients were from 0 - 15, 31.6% from 16 - 25, 16.9% from 26 - 35 and 4.6% from the age above 35. Further, sex wise distribution shows that 52.1% positive parasitic patients were male and 47.9% females. Their economic status shows that 52.5%, 33.9% and 13.6% positive parasitic patients were in low, medium and high income group respectively, while the literacy status shown that 46.6% positive parasitic patients were illiterate, 31.6% at high school level and 16.1% at intermediate, while the 4.9% positive parasitic patients were at graduate or above level. The results of present study shows that the gastrointestinal parasitic infection was found statistically more significant higher ($\chi^2 = 20.45$, $df = 3$, $P = 7.82$ at 0.05 level) in low age group, ($\chi^2 = 6.99$, $df = 1$, $P = 3.84$ at 0.05 level) in rural population, ($\chi^2 = 18.2$, $df = 3$, $P = 7.83$ at 0.05 level) in illiterate persons and ($\chi^2 = 116.9$, $df = 1$, $P = 3.841$ at 0.05 level) in males as compared to females. Our findings are the consonance with socio-economic indicators. [Rao, and Puri, 1973, Udani, and Patel, 1983]. The unsanitary conditions and low age group increased the risk factors for developing intestinal parasitic infections [Hall, et. al. 2008 and Mengistu, et. al. 2007]. In other study revealed that the prevalence of intestinal parasites was high in low age group as compared to other age group. In the continuation of this study, another study also revealed that the high prevalence of intestinal helminthes shown in the low socio – economic group [Bhandari, et. al. 1985, Aschalaw, et. al. 2013, Kumar, P. and Rajesh, P. 2017, Kumar, et. al. 2013 and Kumar, et. al. 2015, Kumar, P. 2018., Kumar, P. 2018., Kumar, P. 2018 and Kumar, P. 2021].

CONCLUSION

The present result shows that the infection of gastrointestinal parasitic diseases can reduced greatly by social awareness of associations, sustained education and improvement in the environmental/nutritional status. Nevertheless the above results indicate that a nationwide integrated gastrointestinal parasitic control programme involving chemotherapy, improvement in nutrition with the participation of the community to maintains a clean environment to all. It is necessary to reduce possible mortality due to gastrointestinal parasitic diseases.

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Table: 1 – Prevalence analysis for positive patients in urban and rural population.

Population	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Urban	366	124	242	40.4
Rural	425	183	242	59.6

* $\chi^2 = 6.99$, df = 1, P = 3.84 at 0.5 level

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

Characteristic Age Group	Total Number	Positive (+)	Negative (-)	Prevalence (%)
0 – 15	309	135	174	43.9
16 – 25	220	97	123	31.6
26 – 35	191	61	130	19.9
Above 35	71	14	57	4.6

* $\chi^2 = 20.45$, df = 3, P = 7.82 at 0.5 level

Table: 3 – Prevalence analysis for positive patients according to age gender.

Characteristic Gender	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Male	406	160	246	52.1
Female	385	147	238	47.9

* $\chi^2 = 116.9$, df = 1, P = 3.84 at 0.5 level

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

Characteristic Economic Status	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Low income group	397	161	236	52.5
Medium income group	271	104	167	33.9
High income group	123	42	81	13.6

$\chi^2 = 1.65$, df = 2, P = 5.59 at 0.5 level

Table: 5 – Prevalence analysis for positive patients according to education status.

Characteristic	Total Number	Positive (+)	Negative (-)	Prevalence (%)
Education Level				
Illiterate	362	143	219	46.6
High School level	240	97	143	31.6
Intermediate	107	52	55	16.1
Graduate & Above	82	15	67	4.9

* $\chi^2 = 18.9$, df = 3, P = 7.82 at 0.5 level

Fig: 1 – Graph showing the prevalence analysis for positive patients in urban and rural population.

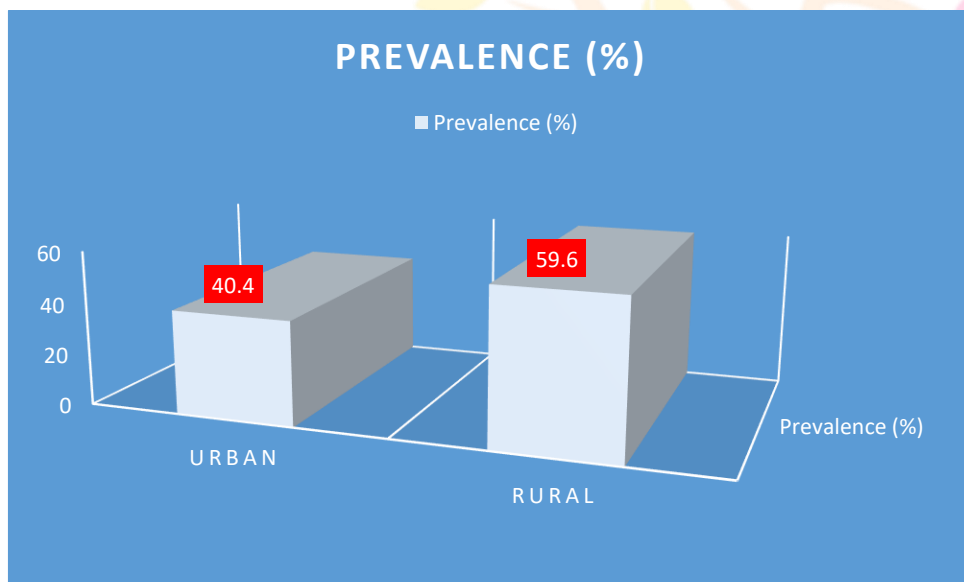


Fig: 2 – Graph showing the prevalence analysis for positive patients according to age in urban and rural population.

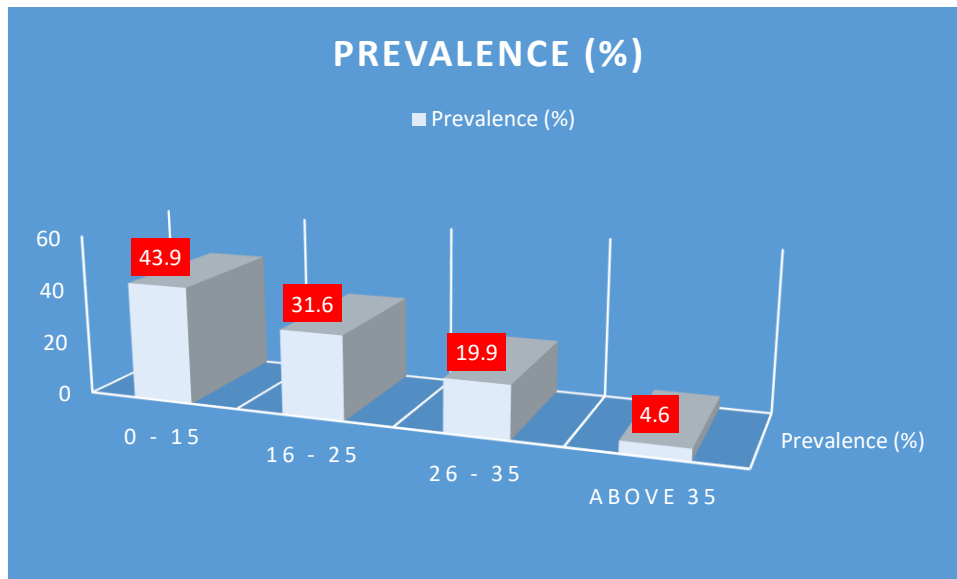


Fig: 3 – Graph showing the prevalence analysis for positive patients according to sex in urban and rural population.

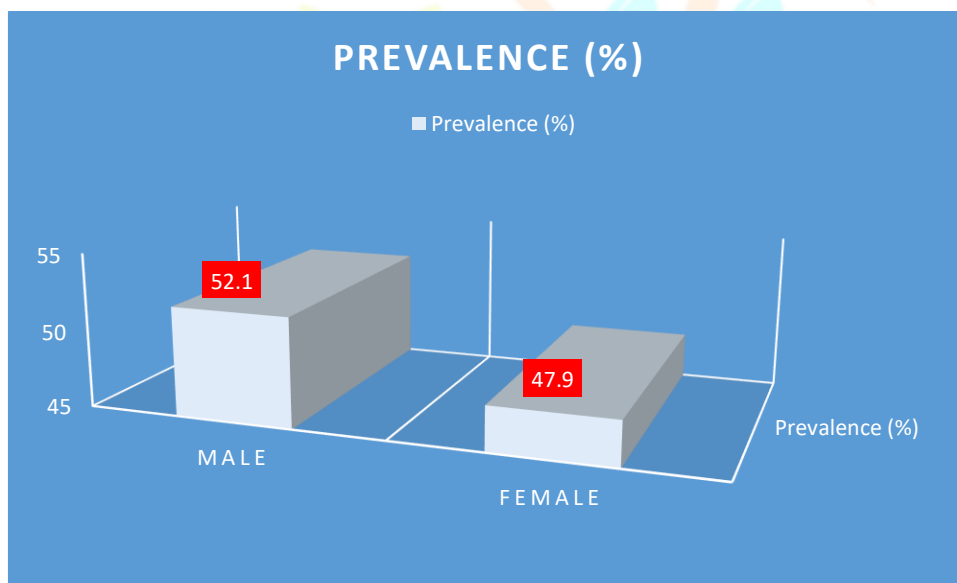


Fig: 4 – Graph showing the prevalence analysis for positive patients according to economic status in urban and rural population.

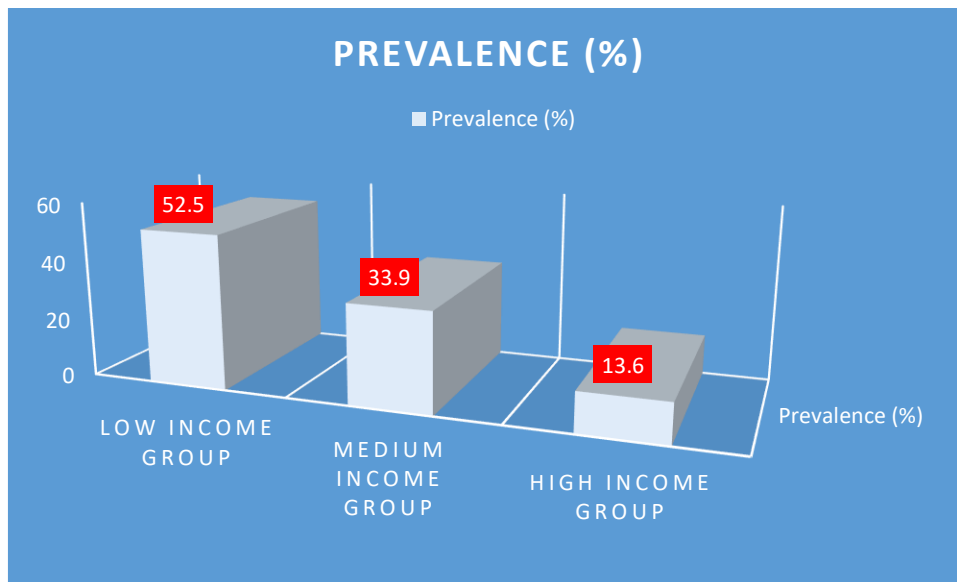


Fig: 5 – Graph showing the prevalence analysis for positive patients according to education status in urban and rural population.

