

A STUDY OF KNOWLEDGE AND PRACTICE ON INTESTINAL HELMINTHIASIS AMONG RURAL TRIBAL MOTHERS OF UNDER FIVE CHILDREN IN MOHANPUR BLOCK, WEST DISTRICT OF TRIPURA: A NORTH EASTERN STATE OF INDIA.

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ABSTRACT: The overall prevalence of helminths infection in school age children in India is about 50% in Urban and 68% in rural area. Tribal populations especially the children living under low socio-economic conditions in the rural villages where poor sanitary system exist are at higher risk of worm infestation. Objectives: To assess mother's knowledge and practice towards worm infection of their under five children. **METHODS:** A cross sectional study was conducted among 117 mothers of under five children who were selected through systematic random sampling method in the year 2012 and face to face interview was performed using semi-structured questionnaire in the rural village under Mohanpur Rural Development block, West district of Tripura. **RESULTS:** 19%, 26.80% and 2.6% of respondent reported of round worm, thread worms and tape worms respectively. 23%, 19.60%, 19.60%, 23% and 14.80% reported of pain abdomen, pain abdomen and itching, perianal itching, vomiting and worms in stool or worms coming through nose respectively. About 51.60% of the respondents were unable to describe even a single helminthic infection. There were significant associations observed between helminthic infection and use of types of latrine ($p=0.000$), hand washing after defecation ($p=0.000$), regular hand wash before meals ($p=0.000$) and regular use of foot wears ($p=0.000$). **CONCLUSIONS:** Most of the respondents being literate, intestinal helminthiasis was considered harmless and normal phenomenon. A wrong idea also prevailed that eating sugary things caused worm infestation. Other risk factors that existed were lack of hygienic behavior about washing hands & using insanitary latrines. Awareness generation and behavior change programs were needed in this group of population.

KEY WORDS: Knowledge, Practice, worm infection, Mothers of under five children.

INTRODUCTION: More than 1 billion people are parasitized by soil-transmitted helminths (STHs), namely *Ascaris lumbricoides*, *Trichuris trichiura* and the hookworms (*Ancylostoma duodenale* and *Necator americanus*).⁽¹⁻⁴⁾ The overall prevalence of helminthes infection in school age children in India is about 50% in Urban and 68% in rural area.⁽⁵⁾ The World Health Organization (WHO), 2008 estimates that infection with round worm (*Ascaris lumbricoides*), whipworm (*Trichuris trichiura*) and hookworms (*Ancylostoma duodenale* and *Necator americanus*) affect approximately 250 million, 46 million and 151 million people, respectively ⁽⁶⁾ Thus, worm infestation as a public health problem needs immediate attention from policy makers in India and other South Asian countries.⁽⁷⁾ Most helminths infections, if left untreated, result in multi-year, chronic inflammatory disorders that cause both concurrent and delayed-onset pathology to the afflicted human host, ⁽⁸⁻¹⁰⁾ it is now appreciated that chronic helminths infections are also linked to more insidious persistent health

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conditions such as anemia, growth stunting, and protein-calorie under nutrition, fatigue, and poor cognitive development⁽⁹⁾. In general rural areas are expected to have higher worm load, than urban area, because of the preponderance of those factors that perpetuates the continued existence of the worm, such as poverty, poor environmental hygiene, and complete absence of municipal services.⁽¹¹⁻¹³⁾ Poor environmental sanitation in communities, improper disposal of waste, like human feces and other organic wastes, gross environmental pollution with agrochemical and industrial waste and the steady contamination with water and air.⁽¹⁴⁾ Villagers and their children are living under the risk environments and are highly exposed to intestinal helminths infection throughout their life, further a wrong idea about the spread of worm infection may leave children openly vulnerable. Tribal populations especially the children living under low socio-economic conditions in the rural villages where poor sanitary system exist are at higher risk of worm infestation.

MATERIAL AND METHODS: A cross-sectional study was conducted among the tribal mothers in the rural village under Mohanpur Rural Development Block of West district, Tripura during the period of February to march 2012. The total population in this block was about 1 lakhs and 25kms away from capital city of Agartala. The sample size $(n)=4pq/L^2=117$ was calculated where $p=80\%$,⁽¹⁵⁾ $q=20\%$, $L=10\%$ of $p=8$ with a non response rate of 20% at 95% confidence and 5% level of significance. Sick mothers and who could not be contacted on two successive visits were excluded. A structured and pre tested interview schedule was used for data collection. One hundred seventeen (117) mothers of under five children were selected randomly from the list of 554 (five hundred fifty four), from 12 (twelve) Anganwadi centers out of the three rural villages using systematic random sampling. The sampling interval (k) as 5(five) was calculated and the fourth no of house (mother of under five) out of five was randomly selected and came to be the first house in the study sample. The next consecutive houses were selected as 9, 14, and 19 and so on till the sample size was achieved. Mothers were interviewed in the local language after obtaining a verbal consent, and the statements recorded in a structured and pretested interview schedule. Local Accredited Social Health Activists (ASHA) and Anganwadi workers (AWW) were informed and their help was taken to identify the families with under- five years of age children during the full course of data collection. Ethical clearance from the Institutional Ethics Committee of Agartala Government Medical College was obtained before conducting the study. Strict confidentiality was maintained. Data were analyzed in terms of percentage and chi-square test using Epi-info version 6.0. and Microsoft Excel 2007.

RESULTS: The present study was conducted among 117 tribal mothers in selected villages under Mohanpur block of West district of Tripura. Among which 42.7% were in the age group of 26-30 years, followed by 20-25 years (34.2%), 31-35 years (18.8%) and 36-40years (4.3%). 98.3% were Hindu and remaining 1.7% Christian. 40.2% were in the per month family income group of \leq Rs.5000/-, another 40.2% had family income Rs.5, 000/- to Rs.10, 000/-pm, 11.1% had family income of Rs. 10, 000/- to Rs.15000/-pm, 4.3% had family income of Rs. 15000/- to Rs.20000/-pm, 1.7% had family income of Rs. 20000/- to Rs. 25,000/- pm and remaining 2.5% had family income of \geq Rs. 25000/-pm.

Among the respondents 58.1% and 41.9% considered worms to be harmful and harmless respectively. It was revealed that 19%, 26.80% and 2.6% of respondent reported of knowing of round worm, thread worms and tape worms respectively. 23%, 19.60%, 19.60%, 23% and 14.80%

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reported of pain abdomen, pain abdomen and itching, perianal itching, vomiting and worms in stool or worms coming through nose respectively as the signs and symptoms of worm infestations. 1.70%, 10.30%, 52.10%, 10.30% and 11.10% reported of eating food contaminated with soil, eating with unclean hands, eating sugary foods, eating with unwashed hands and sugary foods and eating meats and sugary foods respectively were the cause of worm infestation. Among the participants 23.9% reported sugar, 19.6% human feces, 12.8% soil and 6.8% meat to be the source of worm infestations (table1). 64.96% mothers reported hand washing before eating and feedings, 58.12% reported hand washing after defecation of self and children, 57.27% regular use of foot wears by self and children, 83% reported of maintained food hygiene and 40.17% uses sanitary latrine to prevent worm infection of their children. Thirty six (40%) mothers consulted private practitioners, 31% attended government hospital 18% did home remedies and 7% went for over the counter medication for treatment of worm infections of their children (table2).

There were significant associations observed between worms infection and use of types of latrine ($p=0.000$), hand washing after defecation ($p=0.000$), regular hand wash before meals ($p=0.000$) and regular use of foot wears ($p=0.000$) (table3). 59.80% treated with anthelmintic drugs at least once during the past one year (fig 1).

DISCUSSION: The present study was conducted in a rural tribal population of Mohanpur block of west district of Tripura. A total of 117 rural tribal mothers were selected after fulfilling the selection criteria. Majorities of mothers were Hindu, in the age group of 26-30 years and within income group Rs.10, 000/-pm. Among the respondents 58.1% considered worm infection as harmful. A study conducted in Qena city reported 89.3% considered worm as harmful.⁽¹⁶⁾ The difference might be due to study setting. Another study from Abidijan, Cote d'Ivoire all the respondents considered worms as harmful.⁽¹⁷⁾ Almost similar results was reported from a study in Nepal.⁽¹⁸⁾ Among the study population 23%, 19.60%, 19.60%, 23% and 14.80% reported of pain abdomen, pain abdomen and itching, perianal itching, vomiting and worms in stool or worms coming through nose respectively were the signs and symptoms of worm infection. An almost similar results were reported by Acka CA et al (2010).⁽¹⁷⁾ Majority of the respondents lacked adequate knowledge and it was almost similar to previous reports regarding helminthic infections.⁽¹⁹⁻²¹⁾ Majority of the mothers whose children were infected with intestinal helminths had either illiterate or primary school education level, and this might be one of factors that attributed to inability to associate worm's infection with the symptoms or being unaware of the preventive measures. The above observation was common and similar observations have been reported in other countries.^(19, 22) Less than half (31%) of mothers sought treatment from hospital and this could be due to illiteracy on worm's infection which in turn might have greatly attributed to the lack of knowledge on anthelmintics. Geerts S et al (2001)⁽²³⁾ and Cioli D (2000)⁽²⁴⁾ reported almost similar results. Majority of respondents in the present study washed their hands and also for their children before eating and after defecation. Almost similar observations were reported in a study in Murhu block where mothers used soap and water for hand wash after defecation.⁽²⁵⁾ The practiced observed by mothers were higher compared to that observed from Ichhawar (22%) and Astha block (54%) in Rural Madhya Pradesh.⁽²⁶⁾ Further, 64.91% reported hand washing before eating. It was higher compared to findings from Ichhawar (8%) and 22% in Astha in Rural Madhya Pradesh.⁽²⁶⁾ The difference might be due difference in level of education and socioeconomic status between study subjects. The present study showed that 40%

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of mothers consulted private practitioners and 31% attended government hospitals for the worms' treatment of their children whereas in a study in Kep District, Kingdom of Cambodia 55.6% of mothers sought Private medical treatment and 22.2% sought Public Medical Services.⁽²⁷⁾ The use of sanitary latrine was significantly associated to be protective from worm infection compared to those using insanitary latrine ($p = 0.000$). A similar observation was reported from a study in Gurez Valley.⁽²⁸⁾ The hand washing practiced after defecation was protective for worm infestation ($p = 0.000$). Almost similar results were reported from the studies in selected blocks of Uttar Pradesh and Jharkhand.⁽²⁵⁾ Personal hygiene practiced of hand washing after defecation, regular hand wash before eating and regular use of foot wears were significantly associated with lower infection. A similar finding was reported from a study in Kashmir.⁽²⁹⁾

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Table 1: Mothers' knowledge on intestinal worms

Characteristics	Total (n=117)	Percentage
Type of Worms		
Round worm	22	19%
Thread worm	32	26.80%
Tape worm	3	2.60%
No idea	60	51.60%
Symptoms of Worm infestation		
Pain abdomen	27	23%
Pain abdomen and itching	23	19.60%
Perini itching	23	19.60%
Vomiting ,worms in stool or worms coming through nose	27	23%
No idea	17	14.80%
Cause of Worm infestation		
Eating food contaminated with soil.	2	1.70%
Eating with unwashed hands.	12	10.30%
Eating sugary foods.	61	52.10%
Eating with unwashed hands and sugary foods.	12	10.30%
Eating meats and sugary foods.	13	11.10%
No idea.	17	14.50%
Source of worm infestations		
Animal feces	04	3.4%
Human feces	23	19.6%
Meat	08	6.8%
Soil	15	12.8%
Water	10	8.5%
Don't know	29	24.8%
Sugar	28	23.9%

Table 2: Mothers' practice on prevention of worm infection (n=117)

Variables Characteristics	Total*	Percentage (%)
Hand washing before eating and feedings	76	64.96%
Hand washing after defecation of self and children	68	58.12%
Regular use of foot wears by self and children	67	57.27%
Food hygiene	97	83.0%
Use of sanitary latrine	47	40.17

*multiple Response

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Table 3: Association between types of latrine, hand washing after defecation, before meals and use of foot wears with reported worm infestation.

Variables determinants		Worms infestation		P value
		Present	Absent	
Type of latrine	Sanitary latrine	10 (8.55%)	37(31.62%)	0.000
	Insanitary latrine	55(47.01%)	15(12.82%)	
Hand washing after defecation	Yes	24(20.51%)	44(37.61%)	0.000
	No	39(33.33%)	10(8.55%)	
Regular hand wash before meals	Yes	32(27.35%)	44(37.61%)	0.000
	No	33(28.20%)	8(6.84%)	
Regular use of foot wears	Yes	21(17.95%)	46(39.32%)	0.000
	No	44(37.61%)	6(5.12%)	

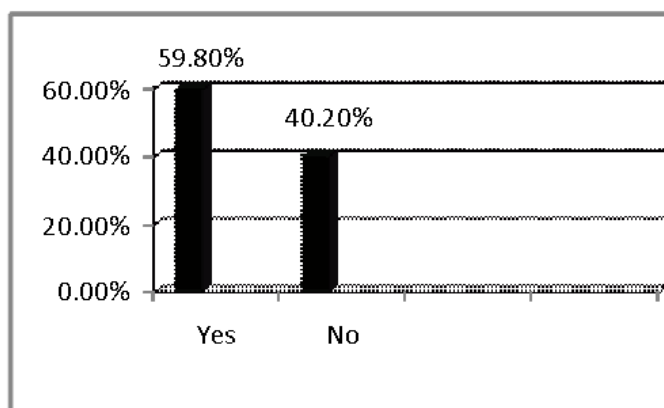


Fig. 1: Children treated with anthelmintic drug.

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