JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

A study to assess the effectiveness of an informational booklet on knowledge regarding worm infestation and its prevention among mothers of under-five children in selected villages of Rahuri Taluka

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Abstract

Introduction: Worm infestations are among the most common parasitic infections worldwide, particularly in low- and middle-income countries. They significantly contribute to childhood morbidity and mortality, with soil-transmitted helminths (STH) affecting nearly one-fourth of the global population. In India, the prevalence of STH ranges between 12.5% and 85%, placing many regions in moderate to high-risk categories as per WHO.

Aim; The aim of the study was to assess was to assess the effectiveness of an informational booklet on knowledge regarding worm infestation and its prevention among mothers of underfive children.

Methods: the design of the study was pre-experimental one-group pre-test post-test design among 150 mothers of under-five children in selectedvillage of Rahata Taluka Participants were selected using systematic random sampling. Data were collected using a structured questionnaire (15 items, reliability coefficient = 0.80). After the pre-test, an informational booklet was administered, followed by a post-test. Data were analyzed using descriptive and inferential statistics including paired *t* test and chi-square test.

Results: Pre-test findings revealed that 52% of mothers had adequate knowledge, 41% moderate knowledge, and 7% inadequate knowledge. Post-test results showed significant improvement, with 71% demonstrating adequate knowledge, 26% moderate, and only 3% inadequate knowledge. The mean knowledge score increased from 10.09±3.01 to 11.50±2.48, yielding a mean difference of 9.43% ($p \leq 0.001$). Significant associations were found between post-test knowledge scores and mother's occupation, type of housing, child's defecation practices, and hygienic conditions ($p < 0.05$).

Conclusion: The informational booklet was effective in enhancing knowledge of mothers regarding worm infestation and its prevention. Such structured educational interventions can empower mothers to adopt preventive practices, thereby reducing the burden of parasitic infections in under-five children.

Keywords: Worm infestation, prevention, informational booklet, knowledge, mothers, under-five children

Introduction

Worm infestation refers to the condition resulting from parasitic infections acquired by humans when they act as a primary or intermediate host in the life cycle of worms. These infestations are of major public health concern, as they contribute significantly to preventable childhood morbidity and mortality. Therefore, it is essential for pediatricians, general practitioners, community health specialists, and primary care workers to understand the epidemiology, prevention, and impact of worm infestations.[1]

This review focuses on the most commonly prevalent intestinal nematodes of public health importance: roundworm (*Ascaris lumbricoides*), whipworm (*Trichuris trichiura*), hookworms (*Ancylostoma duodenale* and *Necator americanus*), and pinworm (*Enterobius vermicularis*). The first three are transmitted through contaminated soil and are collectively referred to as "Soil-Transmitted Helminths (STH)" or geo-helminths. Nearly one-fourth of the world's population is affected by one or more intestinal helminths, with the burden being particularly high among children in low- and middle-income countries.[2]

Globally, intestinal parasites (IP) remain a major public health problem, accounting for an estimated 1.5 billion infections with one or more intestinal parasitic agents. Of these, approximately 700 million people are infected with hookworm and 807 million with ascariasis.[3] The prevalence is particularly high in developing countries, especially in sub-Saharan Africa.[4]

In India, pooled data from 127 surveys conducted between 1999 and 2007 (Global Atlas of Helminth Infections: GAHI) indicate that the combined prevalence of STH is over 20%, classifying the country as a moderate-risk area according to WHO guidelines.[5] The Ministry of Health and Family Welfare, in collaboration with the National Centre for Disease Control (NCDC), has carried out STH mapping across the country, revealing prevalence rates ranging from 12.5% to 85%. Based on these findings, states have been categorized into high (>50%), moderate (20–50%), and low (<20%) prevalence zones.[6]

Young children are particularly vulnerable, with high infestation rates of *Ascaris lumbricoides*, *Trichuris trichiura*, and *Schistosomes*.[7] These infections contribute to impaired nutrient utilization, reduced growth, and hindered physical and educational potential among children.[8,9]

Objectives

1. To assess the knowledge of mothers regarding worm infestation and its prevention.
2. To evaluate the effectiveness of an informational booklet.
3. To determine the association between post-test knowledge and selected demographic variables.

Hypotheses

- **H1:** Post-test knowledge scores will be significantly higher than pre-test scores.

H2: Post-test knowledge scores will be significantly associated with selected demographic variables.

Materials and Methods

Design: Pre-experimental one-group pre-test post-test design.
Setting: Selected villages of Rahuri Taluka (Songoan, Satral, and Dhanore), Ahmednagar District, Maharashtra.
Sample: 150 mothers of under-five children, selected using systematic random sampling.
Tool: Structured questionnaire with 15 knowledge items (score range 0–15). Validity established by experts; reliability confirmed by test–retest method (r=0.80).
Procedure: After obtaining ethical clearance and informed consent, pre-test knowledge was assessed. Mothers were then provided with an informational booklet, followed by a post-test.
Analysis: Data analyzed using descriptive statistics, paired *t* test, and chi-square test.

Results

Demographics characteristics Significant findings revealed that mothers' education was associated with knowledge, as 39% with primary and 32% with secondary education showed lower awareness compared to 10% with a degree or above. Occupation was significant, with 40% housewives having poorer knowledge than 30% laborers, 17% in business, and 13% home maids. Family income showed an effect, where mothers from higher-income groups reported better awareness than those from low-income groups. Housing type was significant, as 37% of mothers living in pucca houses had better knowledge compared to 28% in kuccha houses and 11% in slums. Hygiene practice was significant, with 64% of mothers maintaining satisfactory hygiene reporting higher awareness compared to 36% with unsatisfactory hygiene. Handwashing practice also showed significance, as 85% using soap and water demonstrated better knowledge than 15% who used only water.[11]

- **Knowledge improvement:** Pre-test – 52% adequate, 41% moderate, 7% inadequate. Post-test – 71% adequate, 26% moderate, 3% inadequate.

Adequate	52%	71%
Moderate	41%	26%
Inadequate	7%	3%
Total	100%	100%

- **Statistical findings:** Mean knowledge score improved from 10.09±3.01 to 11.50±2.48 ($t = 4.44$, $p \leq 0.001$).
- **Associations:** Significant association of post-test scores with mother's occupation, housing type, child's defecation practice, and hygienic condition ($p < 0.05$). No significant association with religion, education, family type, diet, body build, or waste disposal method.

Discussion:

The present study evaluated the effectiveness of an informational booklet on knowledge regarding worm infestation and its prevention among mothers of under-five children in selected villages of Rahuri. A total of 150 mothers participated, selected through systematic random sampling. Socio-demographic analysis revealed that the majority of mothers were Hindu (46%), had primary (39%) or secondary (32%) education, and were predominantly housewives (40%). Most of them lived in concrete (pucca) houses (37%), used tap water for drinking (43%), and practiced good hygiene such as handwashing with soap and water after defecation (85%). Nearly three-fourths (77%) belonged to nuclear families, and almost half (45%) reported a mixed dietary pattern. These findings are consistent with previous demographic studies conducted in rural India, where mothers of young children commonly belonged to low or middle socio-economic groups, had modest levels of education, and practiced variable hygiene behaviors (Patil et al., 2019; Singh & Verma, 2020).[12]

In terms of knowledge assessment, the pre-test results revealed that 52% of mothers had adequate knowledge, which improved significantly to 71% in the post-test following the intervention. Statistical analysis using the paired 't' test confirmed a significant increase in mean knowledge scores (pre-test: 10.09±3.01; post-test: 11.50±2.48) with a mean difference of 9.43% at $p \leq 0.001$, thus demonstrating the effectiveness of the informational booklet. This finding aligns with earlier studies where educational interventions significantly improved knowledge and practices regarding worm infestation and its prevention among mothers of under-five children (Kumar et al., 2018; Thomas et al., 2020).

The study also found significant associations between post-test knowledge scores and selected demographic variables such as mother's occupation, type of housing, child's defecation practices, and hygienic conditions. Mothers who were employed, living in pucca houses, practicing sanitary child defecation, and maintaining good hygiene demonstrated higher post-test knowledge scores. These results are in agreement with similar research, where socio-demographic factors like education, occupation, sanitation facilities, and hygiene were found to influence awareness and practices related to worm infestation (Sharma & Gupta, 2017; World Health Organization, 2019).[13]

Overall, the findings of the present study provide further evidence that structured, community-based educational interventions, such as informational booklets, are effective in enhancing mothers' knowledge about worm infestation and its prevention. Improved maternal knowledge is crucial, as it directly contributes to better child health outcomes by reducing the risk of parasitic infections through improved hygiene, sanitation, and preventive practices.

Conclusion

The present study was undertaken to evaluate the effectiveness of an informational booklet on knowledge regarding worm infestation and its prevention among mothers of under-five children in selected villages of Rahuri. The findings clearly demonstrated that the informational booklet was effective in significantly improving the knowledge levels of mothers. This highlights the value of simple, structured, and culturally appropriate educational tools in enhancing awareness about preventable health conditions.

The significance of the study lies in its contribution to public health practice: by empowering mothers with adequate knowledge, it indirectly supports the reduction of worm infestation prevalence, thereby improving the overall health, growth, and development of children. For health care professionals, the use of such informational booklets provides a cost-effective, practical, and sustainable strategy to deliver complex information in a clear, concise, and accessible manner. These findings reinforce the importance of integrating health education interventions into routine maternal and child health programs to promote long-term behavioral change and improved community health outcomes.

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