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Original Research Article

Effect of educational intervention on knowledge, attitude and practice about deworming and its association with anaemia among medical undergraduates in a medical college in dakshina Kannada

P. R. Suraksha^{1,*}, Robin Shetty¹, Sharath Kumar¹¹Dept. of Pharmacology, A J Institute of Medical Sciences and Research Centre, Mangaluru, Karnataka, India

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ABSTRACT

The WHO considered soil-transmitted helminthiasis and schistosomiasis among neglected tropical diseases. It has affected more than a third of the world's population. National Deworming Day (NDD) will be conducted yearly on February 10, followed by a mop-up day on February 15 in the country. According to WHO, across the world, about 24% of the population is infected with soil-transmitted helminthic infections. We used a validated questionnaire, and it included questions to evaluate the participant's knowledge, attitude, and practice of deworming and anemia. Data was collected by giving 20 minutes to students to answer the questions. After that, a 30-minute lecture was given on anaemia and deworming using PPT. Students were again told to fill in the questionnaire immediately after the lecture. Pre-test and post-test scores were compared, and a chi-square test was used to test the association of knowledge, attitude, and practice. It was observed that knowledge, attitude, and practice among medical students increased significantly after educational intervention. From the above study, we conclude that there is a significant impact on knowledge, attitude, and practice. As a result, medical student training and healthcare professionals can effectively prevent worm infestation and thus anaemia in the population, which is a major burden in a developing country like India.

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1. Introduction

Soil-transmitted helminths (STH)—Globally, the most common infections are Hookworms (*Ancylostoma duodenale*, *Ascaris lumbricoides*, and *Necator americana*) and *Trichuris trichiura*.

According to Global Burden of Disease estimates for 2013, India was estimated to have the highest number of cases (375 million).¹ In India, 258 million (or 1 in 5) individuals are estimated to be infected with STH, with 109 million hookworm infections, 148 million *Ascaris* infections, and 41 million *Trichuris* infections, indicating a higher prevalence of hookworm infection and a lower

prevalence of *Ascaris* and *Trichuris* than previous reports.

Outside environmental conditions such as soil, unsafe waste disposal systems, the absence of sanitary facilities, types of toilets, inadequacy and lack of safe water supply, high-risk practices such as walking barefoot, poverty at large, and human factors such as age, sex, socioeconomic status, and occupation all have an impact on the geographical distribution of STHs.²

According to the World Health Organization, anaemia is a condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal.³

Globally, the most important cause of morbidity and mortality is anaemia. Out of the infectious agent's

* Corresponding author.

E-mail address: raisuraksha139@gmail.com (P. R. Suraksha).

helminthic infections, which cause anaemia, are often overlooked, particularly in non-African countries and endemic countries.

Anemia is a serious global public health problem, affecting high-income, middle-income, and low-income countries. Anaemia is defined by the World Health Organization (WHO) as a hemoglobin level below 13 g/dL for males, 12 g/dL for non-pregnant women, and 11 g/dL for pregnant women. The causes of anaemia include iron deficiency, micronutrient deficiencies, inherited or Acquired disorders of hemoglobin synthesis, red blood cell production or survival, and acute and chronic infections. Helminths are often neglected as determinants of or contributing factors to anaemia.

Soil-transmitted helminth (STH) is the most common human parasitic infection worldwide, and they affect the poorest and most deprived populations.⁴

In a developing country like India, health education about deworming is critical in increasing student knowledge,⁵ while also aiming to improve health, raise hygiene awareness, and change health-related behavior in the population.

As part of the new 2030 roadmap to achieve morbidity control of STH, the World Health Organization (WHO) recommends the treatment of Women of Reproductive Age and adolescent girls (15–19 years) with one dose of 400mg albendazole.⁶

The WHO has suggested three interventions to control morbidity due to STH infections: health education and sanitation supported by personal hygiene aimed toward reducing soil- contamination; regular drug treatment of certain high-risk individuals for reduction of the worm burden;^{7,8} and the present study aimed at investigating appropriate knowledge, attitude, and practices (KAP) about deworming and its association with anemia.

2. Materials and Methods

A questionnaire-based study was performed among 89 1st-year MBBS students after obtaining clearance from the Institutional Ethics Committee. The questionnaire consisted of 12 questions framed after discussing with clinical and nonclinical staff, out of which 7 questions were on knowledge, 2 questions on attitude, and 3 questions on practice. It included seven knowledge-to be taken, duration taken to deworm for the second time, and four questions related to anemia. Attitude-based questions include 2 questions on intermittent deworming and the safety of deworming in pregnancy and lactation. Practice-based questions included 3 questions on hygiene and frequency of deworming. The questionnaire was validated by experts from the field. Initial knowledge was assessed using a pre-validated questionnaire. Students were given 20 minutes to answer the questions. A 30-minute lecture was given on anaemia and deworming using PPT.

Students were told to fill out the questionnaire again after the lecture. Pre-test and post-test scores were compared.

3. Statistical Analysis

The data was entered in MS Excel and analysed using descriptive statistics.

4. Results

Table 1: Questions related to basic knowledge on deworming and anemia (Pre-test)

S. No Questions	Correct responses
When is national Deworming day celebrated	41
Tablet to be taken for Deworming	63
What do you know by the term anemia	79
Total iron content in the body	82

Table 2: Questions related to attitude on deworming

S. No Questions	Correct responses
Do you think there are benefits in intermittent Deworming	57
Do you think Deworming is safe in pregnancy and lactation	27

Table 3: Questions related to practice on deworming

S. No Questions	Correct responses
1. Do you have any practice of washing your hands with soap after defecation	73
2. How frequently you deworm	39

Table 4: Questions related to basic knowledge on deworming and anemia (Post-Test)

S. No Questions	Correct responses
When is national Deworming day celebrated	89
Tablet to be taken for Deworming	89
What do you know by the term anemia	89
Total iron content in the body	89

Table 5: Questions related to attitude on deworming

S. No Questions	Correct responses
Do you think there are benefits in intermittent Deworming	88
Do you think Deworming is safe in pregnancy and lactation	34

Table 6: Questions related to practice on deworming

S. No	Questions	Correct responses
1.	Do you have any practice of washing your hands with soap after defecation	89
2.	How frequently you deworm	89

In this study based on knowledge, it was observed that only 46.06% were aware of "when is the annual national deworming day." After the lecture, there was a 53.93% (100%) increase in the post-test score. It was also observed that only 70.78% knew the tablet taken for deworming. After the lecture, there was a 29.21% (100%) increase in the post-test score. Also, 88.76% knew the proper WHO definition of anemia. After the lecture, there was a 11.23% (100%) increase in the post-test score. There were also 92.13% of known causes of anaemia after the lecture, with a 7.86% (100%) increase in post-test score. (Figure 1)

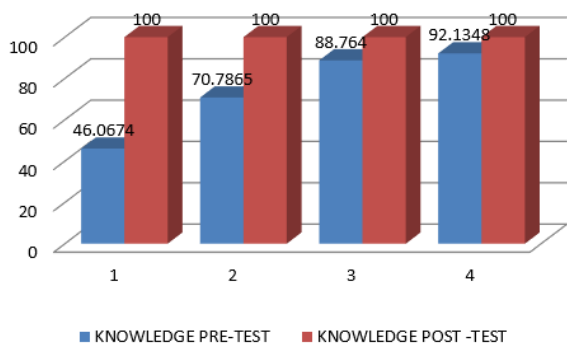


Fig. 1: Knowledge questions

In a pre-test among 89 students, 57 students (64.04%) knew that there are benefits to intermittent deworming and after education, the post-test score increased to 88 (98.87%), and it was also observed that 27 students (30.33%) were aware of the safety of deworming in pregnancy and lactation, and after education, the post-test score increased to 34(38.20%). (Figure 2)

In the pre-test, only 73 students (82.02%) had practiced washing their hands with soap after Defecation and after the lecture, there was an improvement in the post test score to 89 (100%) and it was also observed that 39 students (43.82%) knew about the frequency of deworming and after the lecture post-test the score has risen to 56.18%. (Figure 3)

Hence, it was observed that knowledge, attitude, and practice among medical students increased significantly after post-educational intervention.

5. Discussion

Deworming is safe after the first trimester. WHO has analysed published and confidential unpublished reports of

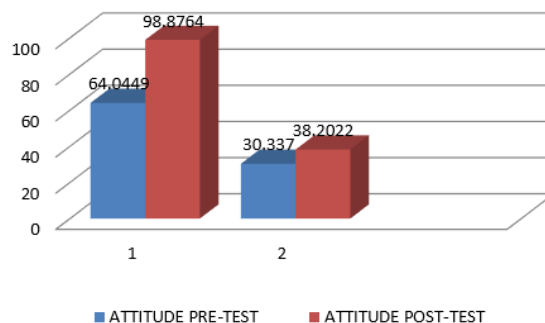


Fig. 2: Attitude questions

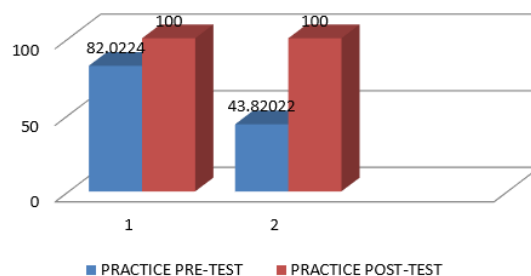


Fig. 3: Practice questions

women receiving anti-helminthic drugs during pregnancy and concluded that there is no increased risk of harm to the fetus. Deworming after the first trimester is beneficial and several studies found that deworming resulted in a 15% reduction in the risk of neonatal mortality and a 3–11% reduction in low birth weight.⁸88.76% of students exhibited overall knowledge about anaemia and 92% knew about the causes of anaemia before educational intervention and 46.06% knew about National Deworming Day, and 92.13% knew about tablets taken for deworming. Once the educational intervention was done, knowledge increased significantly. 64.04 percent of students exhibited an overall nice attitude about intermittent deworming and 30.33% of students knew about the safety of consuming deworming tablets during pregnancy and lactation. Their overall attitude improved significantly after education. 82.022% of students were aware that washing hands with soap after defecation is a good practice and after education, their attitude improved significantly, and 43.82% had a practice of deworming frequently, and after education, it improved significantly.

From the above study, it's clearly understandable that implementing a comprehensive educational programme is an effective strategy for improving knowledge, attitude, and practice among adolescents. Previous studies conducted in Egypt and Palestine have shown that three Months of educational intervention showed significant score improvements from pre-tests to the post-tests. Furthermore,

studies conducted in India for 7 to 10 days of educational interventions and showed a significant improvement in scores.⁹ So, it was observed that knowledge, attitude, and practice among medical Students increased significantly after educational intervention, and the above results highlighted the need to extensively educate students about anaemia and frequency of Deworming so that anaemia can be prevented.

6. Conclusion

1. From the above study it is concluded that there is a significant impact on knowledge, attitude and practice following educational intervention.
2. Training of medical students and health care professionals can effectively prevent worm infestation thus anaemia in population which is a major burden in developing countries like India.

7. Acknowledgments

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8. Source of Funding

None.

9. Conflict of Interest

None.

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Author biography

P. R. Suraksha, Post Graduate

Robin Shetty, Assistant Professor

Sharath Kumar, Professor

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