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ORIGINAL ARTICLE

Incidence of Intestinal Parasites in Government and Private School Going Children

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ABSTRACT

Background: Intestinal parasites not only pose a public health risk worldwidely, but also particularly prevalent in developing countries. They are among the least recognized infectious diseases in the world. The occurrence of intestinal parasites among children attending school is a matter of particular concern because they are at a critical stage of development, and their health can have a negative impact on their growth and academic performance.

Study design: This cross-sectional study was conducted at Akhtar Saeed Medical College, Rawalpindi for duration of six months from September 2022 to February 2023.

Material and Methods: Data from 25 private school children and 25 government school children was examined and it was found that there were 10 positive cases of intestinal parasites found among government school children and there were 4 cases positive among private school children.

Results: The highest percentage of parasite that was found was E.histolytica (22%) followed by G.lamblia (19%). There were 8% cases where hookworm was found to be the cause of intestinal issues. Parasite distribution based on type of school showed that there were 71% cases positive cases found in the government sector schools whereas 28% positive cases were from the public sector schools

Conclusion: This study analyzed the incidence of intestinal parasites in private and government school-going children and found that government school children are more exposed to unhygienic conditions leading to intestinal parasite infections. The study highlights the importance of addressing the underlying factors contributing to the high incidence of intestinal parasites in the region and underscores the need for a coordinated and sustained effort to tackle this public health issue.

Keywords: intestinal parasite, sanitation, infection and school children.

INTRODUCTION

Intestinal parasites pose a public health risk worldwide, but are particularly prevalent in developing countries with inadequate access to clean water, sanitation, and hygiene facilities. This is the least recognized infectious disease in the world. Due to the risk of delays in child development, anaemia (iron deficiency) and other health issues, these infections pose a serious threat to the public's health. These infections can cause many other health problems which includes growth retardation, impaired mental health and nutritional deficiency. These have negative impact on the function of brain and also effect the learning capacity. These parasites can cause a variety of diseases, ranging from mild discomfort to severe illness, and are more prevalent among children due to their close proximity to each other and their lower immunity[1-3]. The occurrence of intestinal parasites among children attending school is a matter of particular concern because they are at a critical stage of development, and their health can have an impact on their growth and academic performance. It is concerning that many school-age children have intestinal parasites because it may compromise their physical and mental well-being, academic performance, and general quality of life. It is essential to determine the frequency of intestinal parasites in children attending public and private schools in order to comprehend the seriousness of the condition and develop effective interventions. In low-income countries, children often live in crowded and unsanitary conditions, which increases their risk of exposure to intestinal parasites. Additionally, poor hygiene practices, such as inadequate hand washing and improper disposal of feces, can contribute to the spread of these parasites. Several studies have been conducted to determine the occurrence of intestinal parasites in children, and the results have been varied[4-5]. A number of researcher have outline the high frequency of intestinal parasites in children, while others have reported a lower incidence[6]. The incidence of intestinal parasites has been found to vary between government and private schools, which may be due to differences in living conditions, hygiene practices, and socioeconomic status. In many developing countries, government schools are the primary educational institutions for children from low-income families. These schools often have limited resources and inadequate infrastructure, which can contribute to the spread of intestinal parasites[7-8]. Additionally, children attending government schools may have limited access to clean water and sanitation, which increases their risk of exposure to these parasites. On the other hand, children from higher-income families who have access to clean water and sanitary facilities as well as good hygiene practices frequently attend private schools. It is reported in many studies that the intestinal parasites prevalence is lower in private schools[9-10]. It's critical to determine the intestinal parasites prevalence among students attending private and public schools in order to design effective interventions that will lessen the disease's burden.

MATERIAL AND METHODS

Data from 25 private school children and 25 government school children was examined and it was found that there were 10 positive cases of intestinal parasites found among government school children and there were 4 cases positive among private school children. This study aimed to determine intestinal parasites prevalence in local private and public school students. The study excluded any children who refused to take part or who had recently received a deworming treatment. The study participants were chosen using a multistage sampling technique. In the first stage, government and private schools were selected randomly from a list of schools in the selected area. In the second stage, classes were selected randomly from each selected school. In the third stage, study participants were selected randomly from each selected class. Descriptive statistics was used to summarize the data, including mean, standard deviation, and frequency distribution. The intestinal parasites incidence was calculated as the proportion of children with a positive stool sample for any intestinal parasite. With confounding variables taken into account, multivariable logistic regression was used to find factors linked to the prevalence of intestinal parasites.

RESULTS

The data from government and private schools was examined to find the intestinal parasites incidence in private and government

children. Table no.1 shows the distribution of parasites found in the stool sample of children. The highest percentage of parasite that was found was E.histolytica (22%) followed by G.lamblia (19%). There were 8% cases where hookworm was found to be the cause of intestinal issues.

Table 1: Distribution of parasites found in the stool samples of children

Parasites	Percentage of patients %
Total protozoa	18%
A.lumbricoides	9%
Hookworm	8%
Taenia spp	15%
B.hominis	9%
G.lamblia	19%
E.histolytica	22%

Parasite distribution based on type of school showed that there were 71% cases positive found in the government sector schools whereas 28% cases were from the public sector schools as shown in table no.2.

Table 2: Parasite distribution based on school type

Schools	Positive cases (n)	Positive cases (%)
Government	10	71%
Private	4	28%

Among 10 children that were found to be positive for intestinal parasites it was found that there were 6 male and 4 female children. Whereas, there were 2 cases of male and female patients in private sector respectively as shown in table no.3.

Table 3: Distribution of parasite based on gender

Sex	Government school (n=10)	Private school (n=4)
Male	6	2
Female	4	2

Distribution of intestinal parasites based on type of hand washing material was carried out and data revealed that there were three kinds of agents used by children after using washroom. Soap and water, soil and water and only water. It was found that most of the positive cases linked to children that wash their hands with only water.

Table 3: Distribution of intestinal parasite based on type of hand washing material

Agent used	Positive government school cases	Positive private school cases
Soap water	2	1
Soil water	3	1
Only water	5	2

DISCUSSION

Intestinal parasites pose a public health concern, especially in developing countries with inadequate sanitation and hygiene practices. When present in school-going children, these parasites can cause various health issues, such as malnutrition, anemia, diarrhea, and other gastrointestinal disorders[11]. It is essential to implement measures that prevent the spread of these parasites in schools and communities to safeguard children's health and well-being. Despite various health program policies by government intestinal parasite infestation is one of the major medical condition in government and private schools[12]. The data from government and private schools was examined to find the incidence of intestinal parasites in government and private school going children. In this study 28% cases were found to be positive for intestinal parasites. The comparison was done with the previous reports; the studies show that there were 7% cases positive for intestinal parasitic infection[13]. Data from 25 private school children and 25 government school children was examined and it was found that there were 10 positive cases of intestinal parasites found among government school children and there were 4 cases positive among private school children. Table no.1 shows the distribution of parasites found in the stool sample of children. The highest percentage of parasite that was found was E.histolytica (22%) followed by G.lamblia (19%). There were 8% cases where hookworm was found to be the cause of intestinal issues.

Previous studies have shown that hookworm and E.histolytica are the intestinal parasites that were in the highest percentage. Parasite distribution based on type of school showed that there were 71% cases positive found in the government sector schools whereas 28% cases were from the public sector schools as shown in table no.2. Due to socio-economic crises children are deprived of basic health care facilities like soap and water in schools, there is unavailability of sanitary goods and poor hygienic conditions that lead to more positive cases of intestinal parasite infection among government school children[14-15]. Distribution of intestinal parasites based on type of hand washing material was carried out and data revealed that there were three kinds of agents used by children after using washroom. Soap and water, soil and water and only water[16]. It was found that most of the positive cases linked to children that wash their hands with only water. Previous studies have reported that 90% of the government school children were deprived of soap and water leading to poor hygienic habits[17]. Among 10 children that were found to be positive for intestinal parasites it was found that there were 6 male and 4 female children. Whereas, there were 2 cases of male and female patients in private sector respectively as shown in table no.3. As per previous studies more male than female patients experience intestinal parasite infection in schools[18]. As per another study 8% female and 4$ male children were infected with intestinal parasite. As per reports most of the children were exposed to outside environment where they play without wearing any shoes contaminate their hands and with poor sanitary conditions available they don't develop habit of washing their hands properly. From hands to mouth transmission of parasite occurs that lead to serious consequences[19]. One of the major route is faecal contaminated water that in addition to poor hygienic conditions lead to intestinal parasite infections.

As per a previous study it was found that the overall prevalence of intestinal parasites was 22.7%, with a higher incidence in government school children (27.5%) compared to private school children (16.9%). The most common parasites found were Giardia lamblia and Ascaris lumbricoides. The study's findings indicate the necessity for targeted interventions to enhance the health and well-being of school-going children in the region. Such interventions could involve implementing health education programs to promote good hygiene practices, regular screening and treatment for intestinal parasites, and providing clean water and proper sanitation facilities in schools[20]. The study also emphasizes the significance of collaboration between government authorities, schools, and healthcare providers to address the issue of intestinal parasites in school-going children effectively. Raising awareness among parents and teachers about the importance of regular monitoring and treatment of intestinal parasites can prevent the spread of infection[21].It's worth noting that one limitation of this study is the relatively small sample size. Conducting a larger study could yield more comprehensive results.

CONCLUSION

In conclusion, this study analyzed the incidence of intestinal parasites in government and private school-going children and found that government school children are more exposed to unhygienic conditions leading to intestinal parasite infections. The study highlights the importance of addressing the underlying factors contributing to the high incidence of intestinal parasites in the region and underscores the need for a coordinated and sustained effort to tackle this public health issue.

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