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Prevalence and Risk Factors of Schistosomiasis Among School-Aged Children in Northern Nigeria: A Cross-sectional Study

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Abstract:

This cross-sectional study aims to assess the prevalence of schistosomiasis and identify associated risk factors among school-aged children in Northern Nigeria. Schistosomiasis, a neglected tropical disease caused by parasitic worms, poses a significant public health burden in the region. The study involved a representative sample of school-aged children from multiple schools in the selected area. Stool and urine samples were collected and examined for the presence of Schistosoma eggs using microscopy techniques. A structured questionnaire was administered to collect information on potential risk factors such as water contact activities, sanitation practices, and knowledge about schistosomiasis. The results revealed the prevalence of schistosomiasis and its distribution among different age groups and genders. Additionally, risk factors associated with schistosomiasis transmission were identified. These findings have implications for targeted interventions and public health strategies to control and prevent schistosomiasis among school-aged children in Northern Nigeria.

Keywords: Schistosomiasis, prevalence, risk factors, school-aged children, Northern Nigeria, cross-sectional study, neglected tropical disease, parasitic worms, water contact activities, sanitation practices, public health.

Introduction:

Schistosomiasis, also known as bilharzia, is a neglected tropical disease caused by parasitic worms of the genus Schistosoma. It is a major public health concern in many parts of Africa, including Northern Nigeria. School-aged children are particularly vulnerable to schistosomiasis due to their increased exposure to contaminated water sources and limited access to adequate sanitation facilities. Understanding the prevalence of schistosomiasis and identifying associated risk factors among school-aged children are crucial for developing effective control and prevention strategies. This cross-sectional study aims to assess the prevalence of schistosomiasis and explore the risk factors associated with its transmission among school-aged children in Northern Nigeria.

Methods:

Study Design and Sample Selection: A cross-sectional study design was employed to collect data from school-aged children in Northern Nigeria. The study area was selected based on its known high prevalence of schistosomiasis. Multiple schools were randomly chosen from the selected area to obtain a representative sample. Ethical approval and informed consent were obtained before conducting the study.

Data Collection:

- Stool and Urine Sample Collection: Stool and urine samples were collected from each participant. These samples were processed and examined using microscopy techniques to detect the presence of Schistosoma eggs, which serve as an indicator of infection.

- Questionnaire Administration: A structured questionnaire was administered to collect information on potential risk factors associated with schistosomiasis transmission. The questionnaire covered areas such as water contact activities (e.g., swimming, bathing, fishing), sanitation practices (e.g., access to clean water sources, availability of sanitation facilities), and knowledge about schistosomiasis transmission and prevention.

Laboratory Analysis:

- Microscopic Examination: Stool and urine samples were examined under a microscope by trained laboratory technicians to identify and quantify Schistosoma eggs. The results were recorded as the presence or absence of infection and the intensity of infection.

Data Analysis:

- Prevalence Calculation: The prevalence of schistosomiasis among school-aged children was calculated by dividing the number of positive cases by the total number of participants.

- Statistical Analysis: The data collected from the questionnaires were analyzed using appropriate statistical methods. Descriptive statistics were used to summarize the demographic characteristics and risk factors. Chi-square tests or logistic regression analysis were performed to identify significant associations between risk factors and schistosomiasis infection.

Ethical Considerations: The study adhered to ethical guidelines, ensuring participant confidentiality, informed consent, and proper handling of samples.

By employing these methods, this cross-sectional study aims to provide valuable insights into the prevalence of schistosomiasis and identify the associated risk factors among school-aged children in Northern Nigeria. The findings will contribute to the development of targeted interventions and public health strategies to control and prevent schistosomiasis in this vulnerable population.

Results:

Prevalence of Schistosomiasis: Among the school-aged children in Northern Nigeria, the prevalence of schistosomiasis was determined through microscopic examination of stool and urine samples. The overall prevalence of schistosomiasis was found to be X%, with variations observed among different age groups and genders.

Risk Factors: The study identified several risk factors associated with schistosomiasis transmission among school-aged children in Northern Nigeria. These risk factors included:

- Water Contact Activities: Children engaging in activities such as swimming, bathing, or fishing in contaminated water sources had a higher risk of schistosomiasis infection.

- b. Sanitation Practices: Lack of access to clean water sources and inadequate sanitation facilities were associated with an increased risk of schistosomiasis.

- c. Knowledge Gaps: Limited knowledge about schistosomiasis transmission and prevention measures was found to be a risk factor for infection.

Discussion:

The findings of this cross-sectional study highlight the significant burden of schistosomiasis among school-aged children in Northern Nigeria. The prevalence rate underscores the urgent need for targeted interventions to control and prevent schistosomiasis in this vulnerable population. The identification of specific risk factors provides valuable insights for designing effective strategies.

Water contact activities emerged as a significant risk factor, indicating the importance of reducing exposure to contaminated water sources. Improving access to clean water and promoting safe water practices can help mitigate the risk of infection. Inadequate sanitation facilities were also associated with an increased risk, highlighting the need for improved sanitation infrastructure and hygiene practices.

The knowledge gaps observed among school-aged children regarding schistosomiasis transmission and prevention emphasize the importance of health education initiatives. Increasing awareness about the disease, its transmission, and the importance of adopting preventive measures can empower children to protect themselves and reduce the spread of schistosomiasis.

Conclusion:

This cross-sectional study demonstrates a high prevalence of schistosomiasis among school-aged children in Northern Nigeria. The identified risk factors, including water contact activities, inadequate sanitation practices, and knowledge gaps, provide valuable insights for designing targeted interventions. Implementing comprehensive control strategies such as improved access to clean water, sanitation facilities, and health education programs can contribute to the reduction of schistosomiasis transmission and its associated burden among school-aged children in Northern Nigeria. Continued efforts and collaboration between the government, healthcare providers, and communities are crucial for the effective control and prevention of schistosomiasis in this population.

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