

Prevalence of *Schistosoma haematobium* Among Patients Attending General Hospital Mubi

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Abstract

Schistosomiasis is also among the neglected tropical diseases (NTDS) and also one of the most challenging health issues and a very devastating disease in many developing countries especially in the tropics and sub tropics. This research was conducted to determine the prevalence of Schistosoma haematobium among patients attending general hospital mubi within the period of November 2023 to February 2024. Routine parasitological techniques were used to analyse samples collected from patients attending the hospital within the period of the research. Out of a total of the 263 samples were examined 58(22.1%) were found to be infected with the parasite. The results from the study revealed that prevalence of the disease was highest (35.5%) among the youngest age group (0-10), while the age bracket of 31-40 recorded the least prevalence. Sex related prevalence shows that males (12.6%) were more infected than females (9.5%) of the total individuals examined. The high prevalence of Schistosoma haematobium in Mubi General Hospital might be attributed to the presence of rivers, streams and ponds that harbor the snail intermediate host in within the study area. Poor hygiene practices and lack of awareness about the disease is also a factor for the high prevalence in Mubi. Sustainable mass drug administration, and sensitization of inhabitants of the communities by relevant stakeholders in order to control the spread and possible eradication of the disease.

Key words: Prevalence, *Schistosoma haematobium*, General Hospital, Mubi

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I. Introduction

Blood flukes called *Schistosoma haematobium* are unique from other schistosomes in that they have distinct sexes and are not hermaphrodites. In portal radices are the adult worms. The bifid tail of the cercariae is utilised to pierce intact skin. The Schistosomes are distinct from other trematodes due to their unique morphology and physiology.

In many underdeveloped nations, particularly those in the tropics and subtropics, schistosomiasis is a fatal disease that is classified as a neglected tropical disease (NTDS). It is also one of the most difficult medical conditions (King, 2008). World Health Organization (WHO) stated that over 90 percent of people living in Africa that is 140 million people are suffering from schistosomiasis (WHO, 2013; Hotez, 2012). Every year, roughly 200,000 deaths are attributed to schistosomiasis infection; however, 700 million people are at risk of contracting the disease in 76 countries where it is endemic (Chistulo, 2004). Report has also shown that some African countries such as Nigeria, Tanzania, Ghana, Mozambique and Republic of Congo have the highest prevalence (Adenowo, *et al.*, 2015; Hotez *et al.*, 2009). In addition to potentially harming particular internal organs in humans, schistosomiasis can also negatively impact a community's socioeconomic development (Adenowo *et al.*, 2015).

Mubi has experienced a surge in population density in past ten years due to immigration of internally displaced persons affected by the *Boko Haram* insurgency in from the neighbouring settlements. This boost in population has exposed the residents of Mubi to high risk of transmission and spread of Schistosomiasis. A such, new studies must be conducted on the prevalence of the disease in order to support existing and new control efforts aimed at eradicating the disease. The aim of this research is to assess the prevalence of *Schistosoma haematobium* among patients attending General hospital Mubi between November 2023 to February 2024.

II. Materials and Methods

Ethical Consideration

Prior to the commencement of sample collection, a courtesy visit/call was made to the Village/District Heads of the various communities involved in this study through the Primary Health Care Development Agency of the respective Local Governments. The consent of Village heads and the participant was sought.

Samples collected were stratified by gender, age and occupational status, identification and the laboratory numbers and date to ensure individual identity. The samples collected as resolved with the participants was kept with confidentiality and solely used for the study.

Study Area

The region lies between latitude 9° 30' and 11° north of the equator and longitude 13° and 13° 45' east of the Greenwich meridian. Mubi region is bordered by Borno state, in the west by Hong and Song local government areas and in the south and east by the Republic of Cameroon. It has a land area of 4728.77 km² and a population of 759,045 in 2003 (1991 Census Projected Figure) (Adebayo, 2010).

The vegetation falls within the Sudan Savanna belt of Nigeria's vegetation zone. The vegetation type is best referred to as combretaceous woodland savanna. The temperature in Mubi region is warm which is relatively distributed throughout the year. The mean annual rainfall ranged from 900mm-1050mm (Adebayo, 2010).

Procedure

The centrifugal sedimentation method was used in this research to detect the presence of the ova of *S. haematobium* in the urine sample of the 263 individuals examined. Six to ten (6-10) tubes containing the sample were placed in the centrifuge at 1000 rpm (revolutions per minute) for 5 minutes. The supernatant was then discarded, leaving about 0.5-1 ml of sediment at the bottom of the tube.

A pipette was then used to deposit some of the sediment onto a glass slide mounted on the microscope stage, which was then carefully examined.

The *S. haematobium* ova were detected using the X10 and X40 objectives of an electron microscope, and the presence of ova was confirmed by the presence of terminally spined oval-shaped bodies.

Data Analysis

Data collected was analysed using simple percentage to determine the prevalence in all locations, while Chi-square ($p < 0.05$ level) was used to ascertain if there was any significant difference between prevalence in all the categories stated in the objectives.

III. Results

Total of 213 samples were examined for Schistosomiasis. 37 (17.4%) were positive for *Scistosoma haematobium* parasite.

Table 1. Prevalence of Schistosoma haematobium Among Patients Attending General Hospital Mubi

No. Examined	No. Infected	% Infected
263	58	22.1

The prevalence was found to be highest (9.1%) among children of 0-10 years, while age bracket of 31-40 had the least (21.7) infection, As Shown in Table 2. Although, there was no significant ($P > 0.05$) difference between ages group of the patients found to be infected with the parasite.

Table 2. Age-related Prevalence of Schistosoma haematobium Among Patients Attending General Hospital Mubi

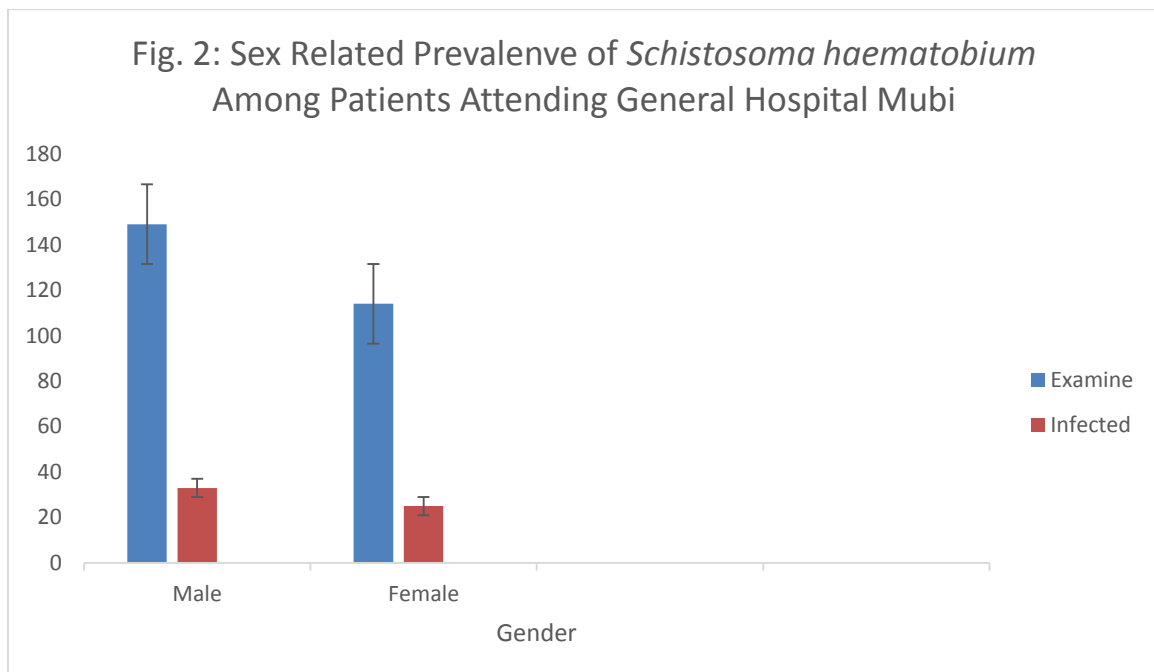
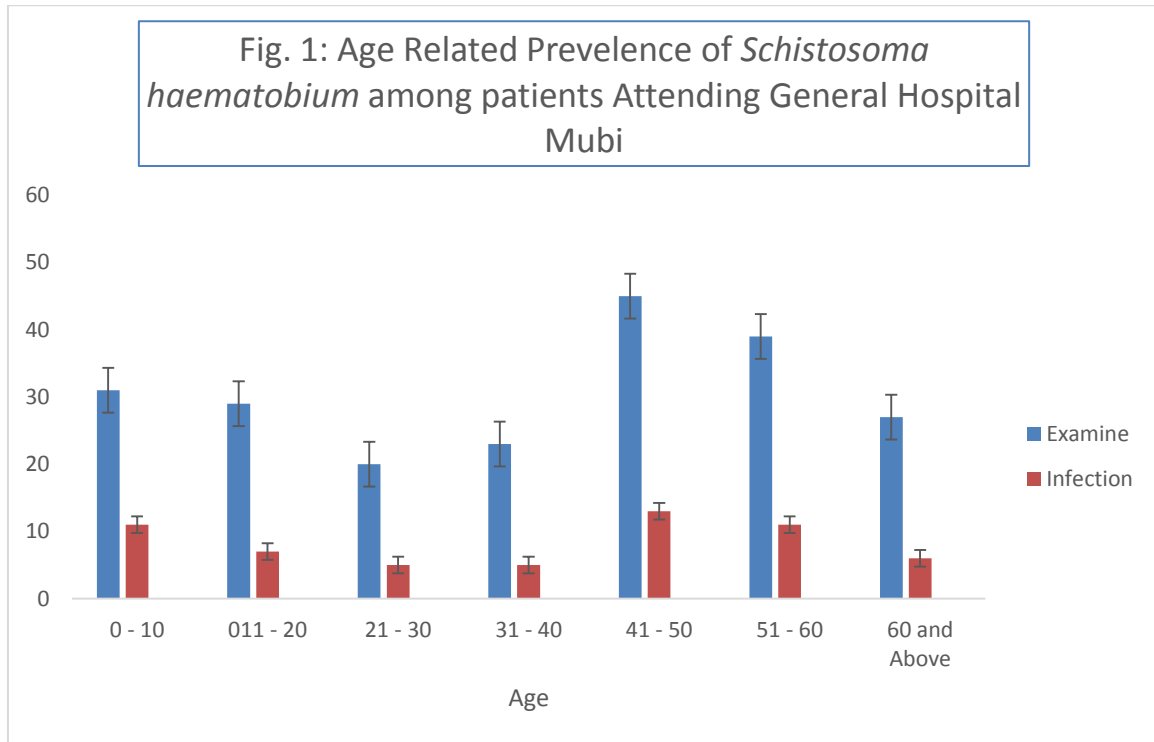
Age	No. Examine	No. Infected	% Infected
0-10	31	11	35.5
11-20	29	7	24.1
21-30	20	5	25.0
31-40	23	5	21.7
41-50	45	13	28.8
51-60	38	11	28.9
61 and above	27	6	22.2
Total	263	58	22.1

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In males examined 12.6% were infected while 9.5% of the females sampled were positive for *Schistosoma haematobium* Table 3. Statistically there was no significant ($P>0.05$) association between genders of the infected patients.

Table 3: Sex-related Prevalence of *Schistosoma haematobium* Among Patients Attending General Hospital Mubi

Age	No. Examine	No. Infected	% Infected
Male	149	33	12.6
Female	114	25	9.5
Total	263	58	22.1



IV. Discussion

Schistosomiasis is endemic in south Cameroun irrigation project area of Adamawa state Northern Nigeria (Manu et al, 1973) *Schistosoma haematobium*. In this study a general prevalence of 22.1% was recorded among patients attending general hospital Mubi between November 2023 to February 2024. This finding shows a decline in prevalence when compared with 35.2% prevalence earlier reported by Gadzama (1984). Perhaps, this decline in prevalence might be related to the effort of the Nigerian government and a coalition of foreign and local partners in adopting mass (MDA) drug administration policy in endemic areas. Despite the decline, the prevalence falls short of the WHO target of <5% prevalence global prevalence by 2020. Overcrowding due to migration of internally displaced persons from neighboring LGA's and communities into Mubi has increased the rate of transmission and spread of the disease. This is coupled with the inadequate water hygiene and sanitation facilities that have been destroyed or mismanaged by the inhabitants. Lack of awareness about the disease has not helped matters in control efforts by dedicated authorities and developmental partners. Age related prevalence in this study shows that younger people are more vulnerable to infection than the older ones. The high presence of schistosomiasis among school aged children has been largely reported to be caused by lack of good hygiene and negligently swimming/ playing in contaminated ponds and rivers for long periods of time during the day (WHO, 2017). The results from this research also showed a higher prevalence in males than females, which is in agreement with the findings of Filgona, (2019). This high prevalence in males may be attributed to the high outdoor activities of men such as farming in swampy areas, fishing, washing, bathing and cattle rearing.

V. Conclusion

Momentarily, there is a high prevalence of *Schistosoma haematobium* in Mubi and it is related to presence of rivers, streams and ponds that harbor the snail intermediate host. Additionally, lack of proper awareness about the disease and means of control might be a serious factor in aiding the transmission and high prevalence. In this regard, emphasis on wearing protective clothing and rain boots should be prioritized, including mass drug administration and chemotherapy for vulnerable persons and confirmed patients respectively.

VI. Recommendation

It is therefore recommended that regular clinical studies of this nature should be extended to other medical facilities around and beyond the study area to ascertain the prevalence of the disease in order to generate a baseline data for relevant authorities to sustain and step-up interventions targeted at eradicating the diseases.

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