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Knowledge Attitude and Practice of Schoolchildren prior and after Health Education in four villages, White Nile State/ (Sudan) during the period from (2019 – 2021).

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Abstract

Introduction: This study was conducted during the period from January 2019 to February 2021, among 800 male and female schoolchildren from four villages namely: Wakara, Alandraba, Abo Shatain and Alabasia in White Nile State, to elucidate the impact of health education on the attitude, knowledge and behavior of children towards different aspects of the disease. **Methods**: 400 schoolchildren were selected from the four Villages; simple random technique was employed to choose schoolchildren of the study villages. The effects of health education were assessed by using specific questionnaire prior and one year after launching health education campaigns. **Results**: The result of the study showed a higher level of knowledge among the children regarding Schistosomiasis after conducting the health education; Schistosomiasis was considered a dangerous disease by school children and their attitudes toward investigation, treatment and knowing about unhealthy behaviors that lead to its spread, the study showed that the problem is contact water contaminated with Cercariae for many purposes such as fishing, agriculture, washing clothes and entertainment .**Conclusion**: The study concludes that health education has a significant effect on knowledge, attitude and practice of schoolchildren.

Key words: Urinary Schistosomiasis, *Schistosomia haematobium*, Attitude, Schoolchildren, Sudan

Introduction

Urinary schistosomiasis also known as urogenital Schistosomiasis is a significant public health problem in sub-Saharan Africa, particularly in rural areas with limited access to clean water and sanitation {1}. This neglected tropical disease (NTD) caused by the parasite *Schistosoma haematobium* presents symptoms such as hematuria (blood in urine), dysuria (painful urination), and bladder wall damage, potentially leading to severe complications {2}. It was estimated in the year 2000 that there were 70 million people in Sub-Saharan Africa who experienced hematuria caused by *S. haematobium*. Schistosomiasis remains an important public health problem in sub Saharan Africa. {3}In Africa and Middle East S. haematobium is widespread with more than 110 million infected people, In addition, S.haematobium is the cause of about two-thirds of schistosomiasis cases .{4}. In Sudan schistosomiasis was discovered at the beginning of the 20th century, and it is endemic in rural areas where there are irrigated agricultural schemes located, such as, White Nile State {5}. From other hand School- age children are at highest risk of infection by Schistosomiasis so that they become contact with water for many purposes, so that early diagnosis and treatment during childhood therefore prevents the spread of the disease {6}.

Health education:

Health education is recommended as the entry point for initiating a control program. It is directed towards promoting and reinforcing desirable behavior that is coping with the requirements of sanitary and hygienic principles. However, health education is a voluntary process that encourages people to make informed decisions that will improve and maintain their health. {7}.In this context, the impact of health education strategy on the control of urinary schistosomiasis was investigated in Cameroon Schoolchildren who were found to be significantly less infected than those who did not receive health education. {8}.The role of education in a schistosomiasis control program is now emphasized from the viewpoint of cost-effectiveness {9} particularly for a case in which selective treatment or "passive chemotherapy" is recommended or applied instead of mass treatment {10}. Also health education showed a positive effect of a school-based education program specifically focusing on the retention or duration of effect. It is important to note the amplifying resonance or repercussion effect of education within the school setting. {11}

Objective

This study was conducted to elucidate the impact of health education on attitude, knowledge and behavior of children towards different aspects of the disease among schoolchildren in four villages in the White Nile State, Sudan.

Material and methods

Study design

This study was a cross-sectional epidemiological study to elucidate the impact of health education on attitude, knowledge and behavior of children towards different aspects of the disease among schoolchildren in four villages in the White Nile State, Sudan.

The Study area and population

This study was carried out in four localities in the White Nile State, namely: Al-dowiem, El Qeteena, Kosti and El Jabaleen. Al – doweim and Kosti localities are located on the west bank of the White Nile, and El Qeteena and El Jabaleen localities are on its east bank. Four villages were selected for the conduct of this study, namely: Wakara, Alandraba, Abo Shatain and Alabasia in White Nile State Alandraba, Abo Shatain, Wakara and Alabasia. Alandraba lies about 74 km southern of Rabak, Abo Shatain is about 10 km to the southern of Alkua, Wakara6 Km to the south of Al-doweim and Alabasia10 km southern of Kosti. The study population was selected due to the fact that the children are the most frequent group to come into contact with contaminated water for many purposes.

Sampling technique

Schoolchildren of all ages and gender in classes (from the 1st basic level to the 8th basic level) were equally represented in participation in this study, However, the questionnaire was filled prior and one year after health education campaign.

Sample size:

A total of 800 questionnaire samples were filled from pupils from all villages as detailed in Table (1). The sample size was detected according to Schistosomiasis Control Program protocol.

Table 1: Number of schoolchildren examined from the four schools of Study villages.

Village	Number of pupils: boys (B) and girl (G)			
	(B) prior intervention	(B) after intervention	(G) prior intervention	(G) after Intervention
Wakara	50	50	50	50
Alandraba (mixed)	50	50	50	50
Abo Shatain (mixed)	50	50	50	50
Alabasia	50	50	50	50
Total	200	200	200	200
Grand Total	800			

Data collection

The data of this research was collected by using specific questionnaire designed for this purpose, and the questionnaire was filled by direct interview for each selected school child, the questionnaire filled prior and one year after intervention by health education the awareness was evaluated according to gender and age group.

Awareness of the population

Awareness of the population was investigated through a designed questionnaire to assess the knowledge, attitude and practice (KAP) study towards schistosomiasis and its determinants among the schoolchildren of the study villages, during the period from January 2019 to February 2021 The questionnaire was structured to evaluate the awareness of schoolchildren about schistosomiasis and its transmission, treatment and prevention as well as the risk of consequences of the disease. These together with the attitude, behaviour and practice related to water. The respondent children to this questionnaire were selected through personal interview.

Health education

Health education was conducted among schoolchildren of the selected villages by using different ways and means including personal meetings, counseling,

posters and lectures aided by popular means specifically posters, the life cycle of the disease during which Cercaria penetrate the skin of children while swimming and their abdomen getting enlarged as the consequence of the disease were shown and discussed with audience, the majority of which was from schoolchildren. About 100 schoolchildren from each village were selected by personal interview prior and after health education to assess the impact of health education with respect to activities responsible for water contact and hence acquisition of the disease. However, health education was intensified and sustained thereafter in the community by volunteers trained for this purpose.

Ethical Considerations

This study approved from Ethical committee of the faculty Board Council, Faculty of Medicine, Al-Neelain University, and a written consent was gained from the schools directors and teachers whom responsible from schoolchildren.

Data analysis:

The data obtained was treated by using computer (Excel and SPSS software package) (version 20) was used to test for significance between the two samples

Results:

KAP- related assessments

Towards diagnosis and treatment

The results of awareness and attitude of schoolchildren of all study villages towards diagnosis and treatment of schistosomiasis are shown in Figures (1) and (2).Awareness about the disease increased in all study villages Fig. (1).The result of intervention by health education revealed that there is a significant difference in the knowledge of children prior to and after intervention ($P< 0.05$).

The attitude of schoolchildren towards the disease was changed positively in all study villages Fig. (2).However the result of intervention by health education revealed that there is a significant difference in the attitude of children prior to and after intervention ($P< 0.05$).

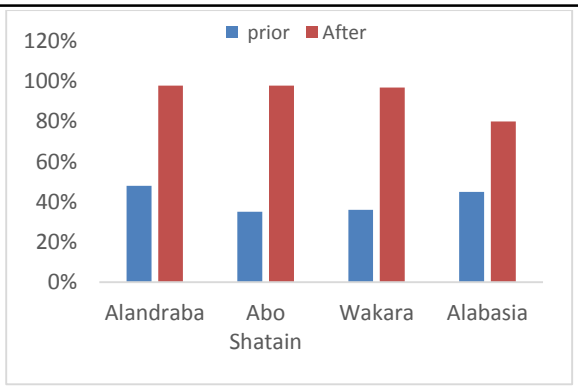

Figure 1: Comparison of awareness of schistosomiasis among children of all study villages before and one year after health education.

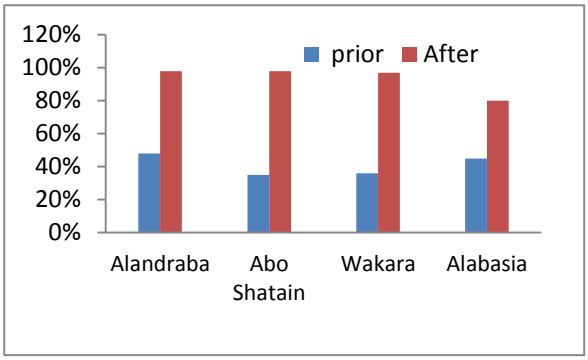

Figure 2: Comparison of the attitude of children towards diagnosis and treatment of schistosomiasis in all study villages before and one year after health education in study villages.

Community participation against the disease

Results showed a high interest in schoolchildren in all study villages to participate in schistosomiasis controlas shown in Figure (3).

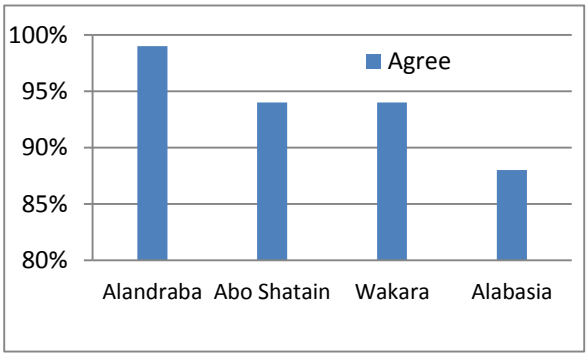

Figure 3: Percentage of schoolchildren showing interest in community participation in the control of schistosomiasis.

Swimming

Swimming practice before and one year after conducting health education among schoolchildren of study villages are shown in Figure 4, and the percentage of children who showed awareness swimming daily increased in Abo Shatain and Wakara village, while a slight decrease was recorded in the remaining villages**.** For the percentage of swimming weekly decreased in all study villages except in Alandraba and the percentage of swimming monthly was slightly increased in all villages. For those not swimming at all, the percentage was increased in all study villages except in Alabasia village.

Various practices

The percentages of schoolchildren showing awareness of various practices related to schistosomiasis before and one year after health education are shown in Figure (5), The results showed the percentage towards fishing had deceased in all study villages but it increased in Abo Shatain village. On the other hand, practice towards agricultural activities decreased slightly in Alandraba and increased in all study villages. Washing activity decreased in all villages except in Abo Shatain village where it showed slight increase. Differing from this, the percentage of cart water bringing had increased in all villages except for Abo Shatain village.

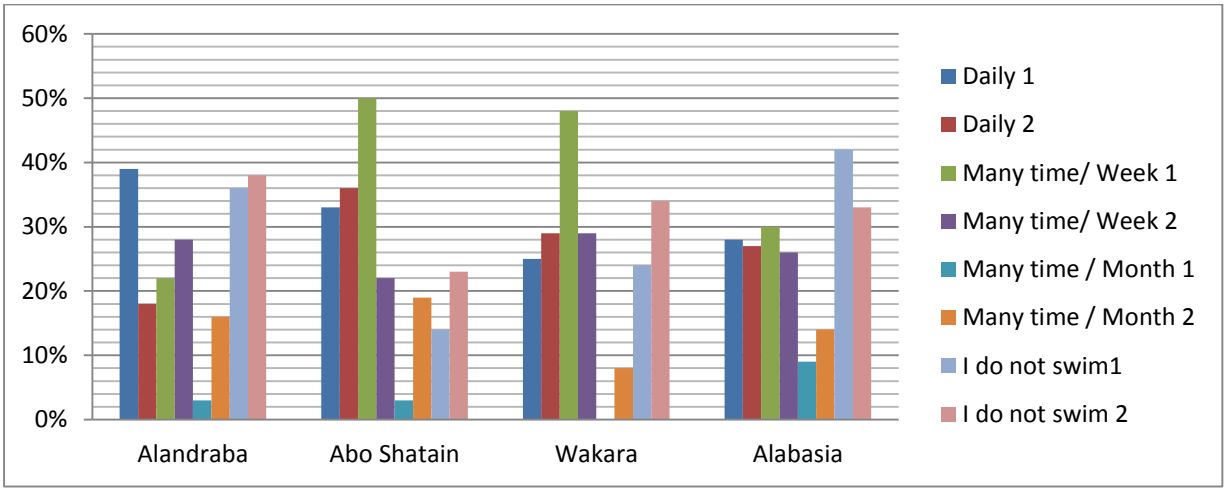

Figure 4: Daily, weekly and monthly swimming activity before (1) and one year after health education (2) in study villages.

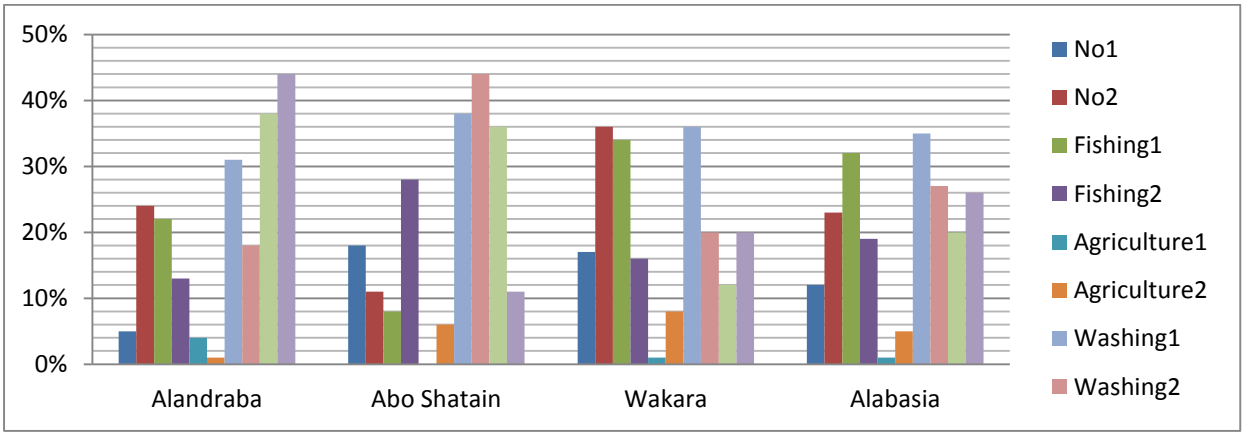

Figure 5: water contact for fishing, agriculture, washing activities and other unclassified practice with schistosomiasis before (1) and one year after health education being conducted (2).

Disposal of excreta

The percentages of schoolchildren aware of using different places for urination and bowel movement before and after one year of health education in study villages are shown in Figure (6).

The results showed that the percentages of using latrines to dispose of excreta had decreased in all study villages but remained unchanged in Alabasia village, and disposing of it far away from water sources increased in all of them except for Alabasia village. At the same time, disposing of excreta near the river increased slightly at Alandraba and Wakara villages

while decreeing at both Abo Shatain and Alabasia villages.

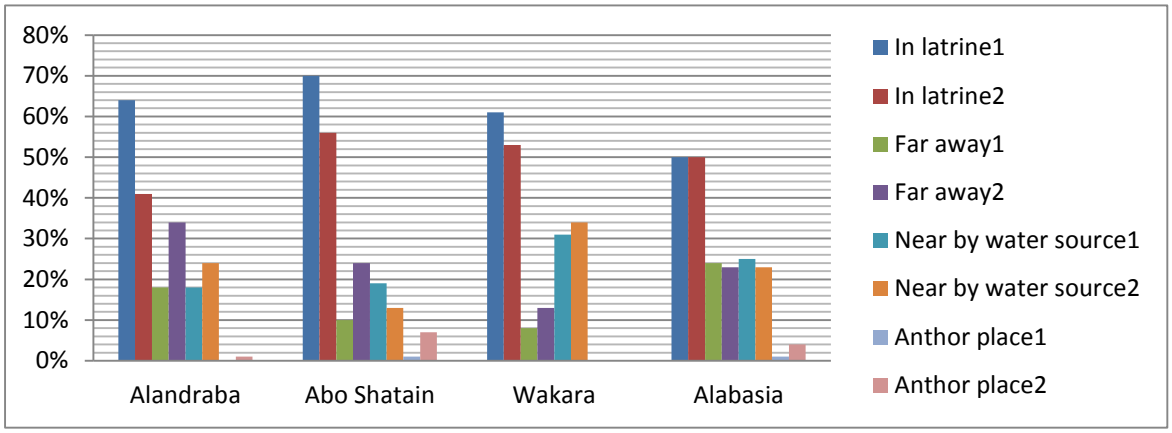

Figure 6: Percentage of schoolchildren using different places for excreta (urine and stool) before (1) and after (2) one year of health education in all study villages.

Discussion:

Judging on its impact on other aspects rather than the rate of *S. haematobium*, health education was found to raise the awareness of the population towards the disease, its distribution and its endemic levels had proved effective as it raised the knowledge, attitude of schoolchildren, and this result agree with a previous studies which found that the role of education in a schistosomiasis control program emphasized from the viewpoint of cost- effectiveness {8} particularly for a case in which selective treatment or "passive chemotherapy" is recommended or applied instead of mass treatment {9}.This improvement in attitude, knowledge and practice towards the disease was evident in the positive response of interviewed volunteer participants being reflected in difference in behavior and practice before and one year after launching the campaign of health education and this result agrees with a previous study in Mozambique shows there is improvement on the schistosomiasis knowledge and self reported behavior after intervention with health promotion {11}. However, the increase of swimming practice among schoolchildren one year after the conduction of health education may be due to the lack of alternatives for entertainment and the absence of an official policy towards spending leisure for schoolchildren and teenagers and it seemed swimming and playing in water is the most enjoyable entertainment particularly during school vacations, and this result corresponds with a previous study which reveals that there is a difficulty in translating knowledge into action, in regarding practicing safer behaviors.{9}. Presumably, this intensification of this was enhanced by poor sanitary conditions in some villages such as lacking latrines and pipe-borne water together with privacy secured for defecation and urination by bushes and herbs adjacent water stretches. The results showed that the percentages of schoolchildren using latrines to dispose of excreta had decreased insignificantly in study villages and that due to the fact that children behavior needs a repetition of health education massages to be changed.

Conclusion:

The study concludes that health education has a significant effect on the Knowledge and Attitude of schoolchildren, so practice needs further interventions and efforts from local governments and decision-makers.

Recommendations:

More efforts must be done to fight schistosomiasis among schoolchildren in the White Nile state village, .like conducting of mass treatment by using Praziquantel to protect the targeted population from the infection and provision of clean safe drinking water to targeted population., support entertainment activities by finding places for football playgrounds, building clubs equipped with libraries, TVs and screens to display international competitions of different sport matches and raising awareness of the population by combating illiteracy and improper unhealthy behaviors. Also construction of toilets at homes for dwellers and at markets for the public must be considered.

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Appendix

استبيان لتقييم مدى معرفة ومواقف وممارسات اطفال المدارس تجاه مرض البلهارسيا

الرقم ( ) النوع : ذكر ( ) انثى ( ) السكن :.....

1. هل تعرف ما هو مرض البلهارسيا : نعم ( ) لا ( )

2. ينتقل مرض البلهارسيا عن طريق الاستحمام والاحتكاك بالمياه الملوثة : نعم ( ) لا ( )

3. يمكن الوقاية من مرض البلهارسيا عن طريق تجنب الاستحمام والدخول في المياه الملوثة

نعم ( ) لا ( )

4. القضاء على القواقع من اهم عوامل مكافحة البلهارسيا : نعم ( ) لا ( )

5. حسب رايك هل الفحص الطبي واخذ جرعات العلاج عوامل مهمة لعلاج مرضى البلهارسيا :

نعم ( ) لا ( )

6. حسب رايك هل مرض البلهارسيا من الامراض الخطرة : نعم ( ) لا ( )

7. هل السلوك الصحي للتلاميذ يمكن ان يقلل انتشار مرض البلهارسيا : نعم ( ) لا ( )

8. هل لديك استعداد للمشاركة في حملات القضاء على مرض البلهارسيا : نعم ( ) لا ( )

9. كم مرة تسبح في النهر او الترعة :

أ. بصورة يومية ( ) ب. عدة مرات في الاسبوع ( )

ج. عدة مرات في الشهر ( ) د. لا اسبح نهائيا في النهر او الترعة ( )

10. هل لديك انشطة اخرى او عمل مرتبط بالمياه : نعم ( ) لا ( )

11. اذا كانت الاجابة بنعم ، فهل هي :

أ. صيد اسماك ( ) ب. عمل زراعي ( )

ج. غسل ملابس ( ) د. اخرى حدد : .....

12. اين تقضي حاجتك عادة ' (التبول والتبرز) :

أ . في المرحاض ( ) ب. في الخلاء ( )

ج. بالقرب من النهر او الترعة ( ) د. اخرى حدد : .....