SCHISTOSOMIASIS: KNOWLEDGE, ATTITUDE, AND PRACTICES AMONG SCHOOL – AGED CHILDREN OF SAPAD DISTRICT

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An Action Research

Schistosomiasis: Knowledge, Attitude, and Practices Among School – Aged Children of Sapad District

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ABSTRACT

Sapad is one the four municipalities in the province of Lanao del Norte which have *Schistosomiasis* infestation. The said infection can be acquired by having contact with infested water. This study aimed at gathering information about the level of knowledge, attitude, and practices among school – aged children of Sapad District on the issues of *Schistosomiasis.* The method used was descriptive research design and employed random sampling method in the selection of respondents of the study (N = 300) coming from three different schools. Data gathered revealed that the respondents appeared knowledgeable of the infection with an average mean of 2.80. They are very knowledgeable when it comes to the importance of using proper toilet when urinating or defecating and its acquisition when walking or playing on the ground barefoot. Gaining an average mean of 2.64, the respondents were identified to have positive attitude towards *Schistosomiasis.* They strongly agreed that taking Praziquantel is effective in treating the infection and observing precautionary measures is a must when going outside for health concerns. It was also found out that with an average mean of 2.36, the respondents seldom practice activities which are related in having infested with *Schistosomiasis.* They always drank safe water and never touched snails whenever they see them and took a bath using stagnant water. From these results of the study, there is call for an intervention to be conducted in a form of a campaign drive to raise awareness about *Schistosomiasis* among the children in school and encourage the community members to work hand in hand in protecting the young ones from the infection and strengthen the health programs implemented by different local bodies.

Keywords: Health Education, *Schistosomiasis,* Social Science, Environmental Awareness, Descriptive Research Design, Sapad, Lanao del Norte, Philippines

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Daina

CONTEXT AND RATIONALE

In the Philippines where agriculture is abundant, the most probable infected areas of Schistosomiasis are said to be those places in rural. One of those areas is the province of Lanao del Norte in which this type of infection is rampant in its municipalities including the Municipality of Sapad since the main source of living of the residents is more on agriculture related works such as rice/corn fields. In fact, the province of Lanao del Norte ranked fifth in the survey conducted on prevalence of *Schisotosomiasis* for year 2005 – 2008 and remains one of the endemic provinces for Schisotosmiasis in Mindanao area (Leonardo, et. al, 2011).

As stated by (Imperial College London, 2015), Schistosomiasis, also known as bilharzia or “snail fever”, is a parasitic disease carried by fresh water snails infected with one of the five varieties of the parasite *Schistosoma*. Found predominantly in tropical and sub-tropical climates, Schistosomiasis infects 240 million people in as many as 78 countries, with approximately 90% of the burden occurring in Africa. Schistosomiasis ranks second only to malaria as the most common parasitic disease. However, is the most deadly neglected tropical disease (NTD), killing an estimated 280,000 people annually.

According to (Centers for Disease Control and Prevention, 2012), there are five species of schistosomes namely *S.mansoni, S. mekongi, S. interca*latum and, *S. japonicum* that causes Intestinal Schistosomiasis and *S. haematobium* that causes Urinary Schistosomiasis. Infection with Schistosoma mansoni, *S. haematobium*, and *S. japonicum* causes illness in humans; less commonly, *S. mekongi* and *S. intercalatum* can cause disease.

The infection is transmitted by human contact with contaminated fresh water

(lakes and ponds, rivers, dams) inhabited by snails carrying the parasite. Swimming, bathing, fishing and even domestic chores such as washing clothes and herding livestock can put people at risk of contracting the disease. Larvae emerge from the snails and swim in the water until they come into contact with an individual and penetrate the skin. Once inside the body, the larvae develop into male and female worms that pair up and live together in the blood vessels for years. Female worms release thousands of eggs, some of which are passed out of the body in the urine and feces. If people urinate or defecate in bodies of freshwater, the eggs migrate to snails where they eventually hatch and begin the cycle again (ICL, 2015).

Additionally, some *Schistosoma* eggs remain trapped in the body and migrate to specific organs (depending on the variety of parasite) where they can inflict major damage to internal organs. Urinary Schistosomiasis causes scarring and tearing of the bladder and kidneys, and can lead to bladder cancer. Intestinal Schistosomiasis develops slowly, causing abdominal bleeding; enlargement of the liver, lungs and spleen; and damage to the intestines. A major indicator of the disease is blood in the urine and/or feces (ICL, 2015).

Moreover, symptoms vary depending on the species of *Schistosoma* worm involved and can include: initial itching and rash at infection site (“swimmer’s itch”), frequent, painful or bloody urine, abdominal pain and bloody diarrhea, anemia, fever, chills and muscle aches, inflammation and scarring of the bladder, lymph node enlargement, enlargement of the liver or spleen, secondary blood disorders in cases of colon damage, where infection persists, bladder cancer may develop, and children can develop anemia, malnutrition and learning disabilities (ICL, 2015).

In connection with this, Praziquantel is the primary form of treatment. A single dose of the drug has been shown to reduce the burden of infection and severity of

symptoms. For now, the Department of Health in coordination with the Department of Education is administering Mass Drug Administration (MDA) for elementary children in school as a health program in fighting Schistosomiasis. Other forms to control the spread of infection include education campaigns about risks of getting infected by bathing in fresh water lakes and ponds; improved water and sanitation, and breaking the life cycle of the disease by encouraging the use of latrines and standpipes (ICL, 2015).

In the study of (Kitalile, 2011) that was conducted among 400 primary school children in Mtera Dam area ward has demonstrated an intermediate level of knowledge of urinary schistosomiasis. The result showed that majority of the school children have ever heard about Urinary Schistosomiasis and the most important source of information was school. Very few school children mentioned health center as the source of information. Other respondents acknowledged that information about Urinary Schistosomiasis was conveyed to them through family members (home). Since the transmission of the disease is associated with water contact, majority of the respondents suggested that avoiding water contact from the dam, lakes, and ponds can prevent one from acquiring the infection.

Furthermore, provision also of safe tap water can reduce water bodies contact frequency and thus prevent the spread of the disease. Provision of Praziquantel was also mentioned by the respondents as among the preventive and control measures of urinary schistosomiasis. Mass drug administration of Praziquantel to primary school children takes place after every six months in all regions of Tanzania as one of its stategy to control Urinary *Schistosomiasis* (Kitalile, 2011).

Briefly, the method of avoiding this infectious disease is to acquire clean environment that caters the necessary health needs such proper toilet sanitation, safe and clean water, personal hygiene and way of behaving towards illnesses.

Participating also in the programs of Department of Health in cooperation with the Regional Health Center Units in treating *Schistosomiasis* is a big one step in reducing the effect of it in your body. It cannot be cured completely; the assurance of having longer life span is still provided for the reason that having regular medication, follow up check-ups of the doctors and consumption of Praziquantel makes the *Schistosomes* paralyzed resulting of its lack in attacking the proper functioning of human body. It is also noted from one of the studies cited earlier that the main source of knowledge acquisition about Schistosomiasis among the school children has to do with their school environment. This is reliable and genuine since having eight hours in the four corners of the classroom is enough to gain information about the disease and the community members especially the family which is absolutely an agent in the ways on how one has to deal with it.

On the other hand, it is commonly known among the residents in Sapad, Lanao del Norte that the locality is infested with *Schistosomiasis*, a parasitic disease in which its effect on mankind is greatly severe when not diagnosed in early years of existence. It gives huge impact on the lives of victims all throughout by affecting the proper functioning of the mind and body and bringing struggles in dealing with everyday life and its rapid increase of heath cases made it to be alarming among the community members as it is considered one of the major public health concerns.

Based on the observations of the researcher on the behavior of children who are living in Sapad, Lanao del Norte and discerning their experiences such as swimming in the rivers or dams, going to rice/corn fields to help their parents in

harvesting, defecating or urinating anywhere they want, and playing barefoot in the school ground especially during rainy days, the researcher is motivated to conduct a study and its results will serve as basis for positive act. Moreover, the recently conducted Mass Drug Administration for *Schistosomiasis* in Sapad District last January 2018 revealed that only 67% of the total enrolment of pupils in the district have participated in the health program.

Hence, it is a universal notion that personal hygiene should be practiced in early years of life in order to have healthy living, the respondents of this study will be children in school since at their ages the attainment of ways of having good health condition starts. There is growing evidence that very young children become infected with *Schistosomiasis* when taken to water contact sites and the prevalence of the infection in these young children is very high. The chronic stage of the infection can cause anemia, stunting and a reduced ability to learn among the children (World Health Organization, 2002).

In the same way, school-aged children especially those in rural areas are needed to be aware and knowledgeable of Schistosomiasis at a young age; in order for them to keep their selves away from the infection and maintain a strong and fit physique and be free from sicknesses that may at some point affect their proper mind and body functioning resulting to deprivation of having good nutrition and performance particularly in school.

With these, there is a call to conduct a study among school-aged children of Sapad District because they are at high risk of acquiring *Schistosomiasis*. This study will aim to determine and improve the level of knowledge, attitude, and practices of school-aged children on the infection with the aid of an awareness campaign drive as an intervention.

INNOVATION, INTERVENTION, AND STRATEGY

AWARENESS CAMPAIGN DRIVE ON *SCHISTOSOMIASIS* FOR SCHOOL - AGED CHILDREN

Rationale

At this awareness campaign, varied information about *Schistosomiasis* will be presented and disseminated to the school-aged children of Sapad District in relation to their knowledge, attitude, and practices toward the infection. Schistosomiasis has been defined by the respondents as a disease that can be acquired from having contact with infested water such as water bodies like river and dam, cultivating in rice/corn fields, and not having proper waste disposal when urinating or defecating.

Prevention, control, and treatment on this type of infection are relatively known worldwide. By having good personal hygiene, healthy habits at home and school, making the environment clean and free from dirt, one can surely prevent and control Schistosomiasis.

In addition, taking Praziquantel regularly can surely treat the infected person as it is the only medicine which is discovered to be proven in paralyzing the schistosomes inside the human body. Moreover, it depends on the people on how they will protect themselves from the infection and deal with the information they will gather from different programs and interventions by the health agency.

Objectives

The main objective of this campaign is to make the school-aged children of Sapad District aware of Schistosomiasis and to contribute to the improvement of their perception toward the infection. More specifically, the purpose is to:

- Raise the awareness of the school-aged children to the acquisition of

Schistosomiasis and its bad effects to health.

- Determine the varied acts of acquiring *Schistosomiasis* and its prevention and control.
- Identify ways of improving body health condition through taking Praziquantel in treating *Schistosomiasis* and practicing good personal hygiene and cleaning the environment.

Theme

The theme of this campaign is Awareness of School-Aged Children of Sapad District on *Schistosomiasis* with focus on useful information about the infection and having healthy habits at home and school.

Target Group

The target groups for this awareness program are school-aged children, teachers, and all other interested parties.

Resource Speakers

The resource speakers invited for the awareness program are personnel coming from Sapad Rural Health Unit headed by Dra. Manal Ameril and Municipal Nurse, Jubaida Ali, RN.

Campaign Drive Operations

The awareness campaign will include the taking of the following actions:

1. Conduct of Awareness Program on *Schistosomiasis* to the respondents of selected elementary schools in the district.
2. Educational film showing about *Schistosomiasis* to all respondents.

3. Distributing posters to all teachers in the district about *Schistosomiasis* that will be posted in their classroom health corners.
4. Giving of booklet about *Schistosomiasis* to all respondents.
5. Supplying tarpaulin on *Schistosomiasis* in all schools in the district to be posted at the bulletin board or beside school gate for public information.

MATRIX OF ACTIVITIES FOR THE AWARENESS PROGRAM

TIME	ACTIVITIES	PERSON IN CHARGE	VENUE
8:00 – 8:30	Arrival and Attendance	Research Proponent	Sapad Central ES Sapad ES Panoloon ES
8:30 – 9:00	Opening Program	Research Proponent	
9:00 – 9:30	Schistosomiasis: Definition	Resource Speaker from Sapad RHU	
9:30 – 10:00	Schistosomiasis: Causes and Effects	Resource Speaker from Sapad RHU	
10:30 – 11:00	Schistosomiasis: Prevention and Control	Resource Speaker from Sapad RHU	
11:30 – 12:00	Schistosomiasis: Treatment	Resource Speaker from Sapad RHU	
12:00 – 1:00	LUNCH BREAK		
1:00 – 2:00	Video Presentation on Schistosomiasis Cases in the Philippines	Respondents	Sapad Central ES Sapad ES Panoloon ES
2:00 – 2:30	Reflection	Respondents	
2:30 – 3:00	Closing Program	Research Proponent	

Research Questions

This study focused on determining the level of knowledge, attitude, and practices of the school-aged children of Sapad District on the issues of *Schistosomiasis* and improve their perception through an intervention. Specifically, this study will determine to answer the following questions:

1. What is the level of knowledge, attitude, and practices of the respondents on *Schistosomiasis*?

2. What intervention can be proposed from the results of the study?

ACTION RESEARCH METHODS

Participants

The respondents of this study were learners from Grade IV and V of the three schools of Sapad District with large number of enrolment for SY 2018 - 2019 namely Sapad Central Elementary School, Sapad Elementary School, and Panoloon Elementary School. The selection process included purposive sampling selecting the grade level and random sampling in the selecting the respondents, which was done by collecting the official list of enrollees in each grade level.

Data Gathering Methods

The method used in this study was descriptive research design in a form of survey. Descriptive design allowed systematic description of the respondents' knowledge, attitude, and practices on Schistosomiasis. Researcher – made questionnaire entitled Knowledge, Attitude, and Practices on *Schistosomiasis* (KAPS) which was also utilized in the study. The KAPS questionnaire used for survey was divided into three parts and each part was consist of 10 indicators on knowledge, attitude, and practices of the respondents on *Schistosomiasis* respectively. In addition, the researcher also include two open – ended questions for the respondents to answer on their own and preferred language.

Before the questionnaire was finalized, this was submitted to the content experts for validation, suggestions, and comments. The validation process included

the distribution and conduction of 30 sample questionnaires to the learners enrolled in non – participating schools in the district and this was followed by making the KAPS questionnaire undergone reliability test using statistics software. The indicators stated on the questionnaire about knowledge, attitude, and practices with Cronbach's alpha within or above 0.7 signify consistencies and were all reliable. After the approval of the data instrument, the researcher reproduced the final copies of the said questionnaire for the respondents.

The researcher was the one personally conducted the study including the administration and retrieval of the questionnaires. To facilitate the gathering of data, permissions to conduct the study were obtained from the schools division superintendent, principals, and teachers. For ethical consideration, a parental consent was given to the respondents. All the communications were signed and approved by the concerned personnel.

During the distribution of the KAPS questionnaires to the respondents, the researcher explained the importance and mechanics on how to answer the questionnaire. Confidentiality of the answers of the respondents was assured by the researcher. The KAPS questionnaire was conducted by making the respondents read and answer the indicators listed. Every indicator was translated by the researcher in order for the respondents to fully understand it.

After this, an intervention can be proposed among the respondents in the selected elementary schools and campaign drives to other schools in order to improve the knowledge, attitude, and practices of School – Aged children on *Schistosomiasis*.

DISCUSSION OF RESULTS AND REFLECTION

Research Question 1: What is the level of knowledge, attitude, and practices of the respondents on *Schistosomiasis*?

Table 1
Knowledge Level of the Respondents

Knowledge	Mean	Description
1. I know the disease called Schistosomiasis.	3.07	*Knowledgeable*
2. I know the signs and symptoms of Schistosomiasis.	2.27	*Somewhat Knowledgeable*
3. I know how Schistosomiasis is transmitted.	2.29	*Somewhat Knowledgeable*
4. I know the varied types of Schistosomiasis.	2.38	*Somewhat Knowledgeable*
5. I know that snails are major carrier of schistosomes.	3.00	*Knowledgeable*
6. I know the places/areas where one can get easily infected with the disease.	2.96	*Knowledgeable*
7. I know that it is important to use proper toilet when urinating or defecating.	3.49	*Very Knowledgeable*
8. I know that cultivating in rice/corn fields regularly can cause Schistosomiasis.	3.08	*Knowledgeable*
9. I know that walking or playing on the ground barefoot is one way of acquiring Schistosomiasis.	3.27	*Very Knowledgeable*
10. I know that taking Praziquantel is effective in treating Schistosomiasis.	2.18	*Somewhat Knowledgeable*
Average	***2.80***	***Knowledgeable***

Note: 1.00 – 1.74 Not Knowledgeable
1.75 – 2.49 Somewhat Knowledgeable
2.50 – 3.24 Knowledgeable
3.25 – 4.00 Very Knowledgeable

Table 1 presents the level of knowledge of the respondents about *Schistosomiasis.* Data gathered reveal that the respondents are knowledgeable of the infection with an average mean of 2.80. They are very knowledgeable when it comes to the importance of using proper toilet when urinating and defecating and the acquisition of *Schistosomiasis* when one is walking or playing on the ground barefoot with a mean of 3.08 and 3.27 respectively. Furthermore, they are somewhat knowledgeable on the effectiveness of Praziquantel in treating *Schistosomiaisis* having a mean of 2.18.

This implies that the respondents know this kind of health issue in the community and have background knowledge that their area is prone to the infection and are aware on how it affects their daily livings.

The results of this study were similar to the study of (Kitalile, 2011) among the primary school children has demonstrated an intermediate level of knowledge of Urinary *Schistosomiasis*.

Table 2
Attitude Level of the Respondents

Attitude	Mean	Description
1. I observe precautionary measures when going outside for health concerns.	3.32	*Strongly Agree*
2. I am aware of the prevalence of Schistosomiasis in the community.	2.80	*Agree*
3. I recognize the importance of taking Praziquantel in treating Schistosomiasis.	3.36	*Strongly Agree*
4. I am cautious whenever I go to different water bodies.	2.00	*Disagree*
5. I do care wherever I urinate and defecate.	2.32	*Disagree*
6. I am cautious in having contact with snails.	2.35	*Disagree*
7. I feel safe because of the mass drug administration annually conducted in the school.	2.82	*Agree*
8. I am careful every time I cultivate in rice/corn fields and fish in the ponds.	2.63	*Agree*
9. I feel risky if I do not wear foot coverings when I go out.	2.23	*Disgree*
10. I am strict when it comes to drinking unsafe/unclean water.	2.51	*Agree*
Average	***2.64***	***Agree***

Note: 1.00 – 1.74 Strongly Disagree
1.75 – 2.49 Disagree
2.50 – 3.24 Agree
3.25 – 4.00 Strongly Agree

Table 2 shows the level of attitude of the respondents about *Schistosomiasis.* The results of the data having an average of 2.64 indicates that the respondents agree with the attitudes listed above towards the infection. They strongly agree that they observe precautionary measures when going outside for health concerns and recognize the importance of taking Praziquantel in treating *Schistosomiasis.*

Moreover, with a mean of 2.00, they disagree that they are cautious when going to different water bodies such lakes and rivers.

The results implies that the respondents are aware of the significance of having healthy actions before going out and the intake of effective medicine for treatment of the infection. In general, *Schistosomiasis* can be eliminated through improved sanitation, safe water suppy, and population – based chemotherapy
(Gryseels, et. al, 2006).

Table 3
Practices Level of the Respondents

Practices	Mean	Description
1. I urinate and defecate anywhere I want.	2.04	*Seldom*
2. I swim in water bodies such as rivers, lakes or dams.	2.02	*Seldom*
3. I wear socks or slippers when going out.	2.84	*Often*
4. I fetch water and do laundry in lakes or rivers.	1.82	*Seldom*
5. I drink safe and clean water.	3.46	*Always*
6. I help my parents in cultivating in rice/corn fields.	2.51	*Often*
7. I take Praziquantel in treating Schistosomiasis.	3.12	*Often*
8. I touch snails whenever I see them.	1.74	*Never*
9. I bath in stagnant water.	1.53	*Never*
10. I go to medical check-ups whenever I am sick.	2.53	*Often*
Average	***2.36***	***Seldom***

Note: 1.00 – 1.74 Never
1.75 – 2.49 Seldom
2.50 – 3.24 Often
3.25 – 4.00 Always

Table 3 indicates the level of practices of the respondents when it comes to *Schistosomiasis* and displays the indicators which can enhance its transmission. The data reveal that the respondents seldom practice the above – mentioned actions. With a mean of 3.46, the respondents always drink safe and clean water and they never touch snails whenever they see them and bath in stagnant water with a mean of 1.74 and 1.53 respectively. This implies that the respondents are watchful on the type of water they drink and employ good practices concerning health since they do not have contact with snails which are considered as carrier of *Schistosomes*. According to

(Center for Disease Control and Prevention, 2012), infection occurs when your skin comes in contact with contaminated freshwater in which certain types of snails that carry *Schistosomes* are living. Freshwater becomes contaminated with *Schistosoma* eggs when infected people urinate or defecate in the water. Provision of tap water can reduce water bodies contact frequency and thus, prevent the spread of the disease (Kitalile, 2012).

Research Question 2: What intervention can be proposed from the results of the study?

Based on the results of the study, it can be noted that the respondents have knowledge about *Schistosomiasis* and its prevalence in the community, exhibit positive attitude towards the infection as they strongly agree that it is significant to treat *Schistosomiasis* through medication, and employ favorable response when it comes to their practices related to the infection specifically the drinking of clean and safe water all the time.

Moreover, when the respondents were asked by the researcher on what they will do in order not to acquire *Schistosomiasis,* most of their responses include wearing slippers or shoes when going outside, not playing on the ground barefoot, no swimming in water bodies, and practicing personal hygiene. In terms of the importance of having them aware of the infection, the respondents answered that it is very important for them to be aware of it so that they will not acquire the infection and be free from sickness.

From these, there is a call for an intervention in a form of a campaign drive to be implemented. With the cooperation of the Rural Health Unit of Sapad, an awareness program will be made to strengthen the movement against

Schistosomiasis and increase the awareness of community members specially the school – aged children about the infection. All schools in the district will be tapped to participate in the said operation. This will be done by giving the teachers a poster containing an information about *Schistosomiasis* and having it posted in their health corners in the classroom for the learners to be well-versed. The school administrators will also be given a tarpaulin to be put in the school bulletin board for everyone to be informed, and lastly, all the respondents in this study will be provided with a booklet for them to be educated about the infection and monitor their participation in the Mass Drug Administration on *Schistosomiasis* annually conducted in school by the Department of Health.

ACTION PLAN

Phase	Activities	Objective/s	Persons Involved	Resources Needed	Time Frame	Indicators of Success
Preparation	Asking for cooperation from the Sapad Rural Health Unit in the conduct of Awareness Program.	To create linkages with other local agency for successful conduct of the program.	Researcher and RHU Personnel	Letter of Invitation	1st Week of October 2018	Sapad RHU cooperated in the program
	Informing the schools within the district about the Awareness Campaign Drive.	To achieve full participation of all schools in the campaign drive.	Researcher Teachers Administrators	District Memorandum & Letter of Information	2nd week of October 2018	All schools in the district are well – informed about the campaign.
Implementation	Conducting an Awareness Program to the respondents.	To raise awareness among the children on *Schistosomiasis.*	Researcher RHU Personnel Teachers Respondents	Matrix of Activities Laptop, Projector, Speaker, White Screen	3rd week of October 2018	Properly conducted the Awareness Program.
	Distributing booklets on *Schistosomiasis* to the respondents.	To educate the children about *Schistosomiais* using the booklet.	Researcher Respondents	Booklets	4th week of October 2018	All respondents received their respective booklet.
	Giving of posters to all teachers and tarpaulins to all school administrators in the district.	To obtain intense public dissemination of information about *Schistosomiasis* in all schools.	Researcher Teachers Administrators	Posters Tarpaulins	4th week of October 2018	Provision of the informative materials to all teachers and school administrators.

Monitoring	Checking of the respondents' participation in the School Mass Drug Administration.	To determine the participation rate of the children in the MDA and find out their reasons for their acts.	Researcher Teachers Respondents	Booklets	4th week of October 2018 1st week of January 2019	Respondents participated in the MDA.
	Assessing the informative materials given to all teachers and school administrators.	To gather feedbacks about the posters and tarpaulins for betterment and future use.	Researcher Teachers Administrators	Evaluation Form	1st week of November 2018 1st week of January 2019	Retrieval of evaluation form duly accomplished by the teachers and school administrators.

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