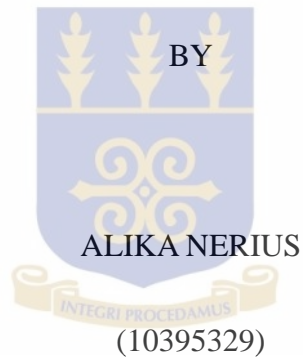


SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA
LEGON

HEALTH SEEKING BEHAVIOUR FOR SCHISTOSOMIASIS-RELATED
SYMPTOMS IN THE KASSENA-NANKANA EAST DISTRICT



A DISSERTATION PRESENTED TO THE UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A
MASTER OF PUBLIC HEALTH (MPH) DEGREE

JULY, 2013

DECLARATION

I carried out this work independently under the guidance of Dr. Phyllis Dako-Gyeke, my academic supervisor. I hereby declare that with the exception of other writers' studies which I have duly acknowledged, this work is the outcome of my own original research. This dissertation either in whole or part has not been submitted elsewhere for the award of another degree.



Dr. Phyllis Dako-Gyeke
ACADEMIC SUPERVISOR

DEDICATION

I dedicate this dissertation to my Mom Alike Mary and Dad Alike-Dongo Dominic of belated memories. To Salifu Ayishetu, you are the best.



ACKNOWLEDGEMENT

I thank the Almighty God for His wisdom in this work. My sincere gratitude goes to Pro. Caesar Apentiik the continuous support he has been providing me in the field of learning.

I thank my principal Mr. Amalba Ayine David for granting me the opportunity to go for further studies and wish him God's blessings.

To my supervisor, Dr. Phyllis Dako-Gyeke, thank you for your regular supervision on this study and always keeping me on my toes to the completion of this dissertation on time. I also thank all the lecturers of the School of Public Health, UG, Legon for their tuition and corrections during classroom presentation.

I am also grateful to all staff of the SOBS department of the school and students of the MPH 2012/13 cohort. Also to all those who contributed to production of this dissertation in the form of data gathering and manipulation to produce the results of the study, I thank you so much.

My greatest thanks go to the people of the KNED especially those from Bonia and Gani for allowing me to conduct the study in their communities. To all staff of the Navrongo Community Health Nurses Training College, I thank you for your support.

Despite the mentioning of names of these personalities in the work, it remains solely my responsibility for any pitfalls in the quality of this work.

Abstract

Schistosomiasis brings about long-term illness in humans which can become significant economic burden on the society. Morbidity control of schistosomiasis through integration of treatment within existing health care delivery system is seen as a potentially sustainable and cost-effective approach. A questionnaire-based cross-sectional study was conducted to assess the health-seeking behaviour for signs and symptoms related to schistosomiasis among the inhabitants of Gani and Bonia, within Kassena-Nankana East District (KNED). A total of 218 household heads were interviewed in two communities within the district.

Almost 50% of respondents used herbalists as the first line of action before going to hospital if the symptom persisted. This compares with 42% who used the health facility first and then resort to the traditional herbalist for schistosomiasis-related symptoms. Self-medication with allopathic medicine was less common. Patients aged 56 years and above were more likely to use hospital than younger ones and therefore could be associated with health seeking behaviour schistosomiasis-related symptoms. The accessibility, availability, cost, and efficacy of medicines and the time spent at the treatment source influenced health seeking behaviour. Logistic regression analyses showed place of residence and educational background as the main predictors of health seeking behaviour. Sex, marital status and ethnicity did not demonstrate significant association. Schistosomiasis control by the periodic administration of the WHO recommended medication of 40mg/kg body of praziquantel weight to target groups such school children is worth continuing but the number visiting the traditional herbalist is large and requires additional control measures.

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LIST OF ABBREVIATIONS

KNED	Kassena-Nankana East District
NHIS	National Health Insurance Scheme
WHO	World Health Organization
UN	United Nations
NTDs	Neglected Tropical Diseases

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Schistosomiasis (also known as **bilharzia**, **bilharziosis** or **snail fever**) is a tropical parasitic disease caused by blood-dwelling fluke worms of the genus *Schistosoma* (Cook & Zumla, 2009). Schistosomiasis (*Fulla-fuga* in Kasem, *Duduu-buliga* in Nankam and *Sesaa-boliga* in Buili) affects mostly children, women and farmers who usually have daily water contact needed for domestic and occupational activities. The disease is often prevalent in poor, rural areas, where attempts to alleviate poverty also promote small-to-large scale water-related development projects that may increase transmission (King, 2009; Hotez et al., 2007; Danso-Appiah *et al*, 2004).

The schistosomiasis diseases is identified as one of the most wide spread among all the parasitic infections of humans (WHO, 2010; King, 2009). The disease ranks second only to malaria in terms of socioeconomic and public health importance in many tropical and sub-tropical areas. It is second to none in prevalence among the water-borne diseases, and is most common in rural areas of developing countries (Cook & Zumla, 2009). An estimated 779 million people are at risk of schistosomiasis, of whom 106 million (13.6%) live in irrigation schemes or in close proximity to large dam reservoirs (Steinmann *et al.*, 2006a). Of more crucial importance is that 85% of infected people are on the African continent (Engels *et al*, 2002; Stothard *et al.*, 2009).

In Ghana, schistosomiasis assumed major importance as a public health problem in the early 1960s after the construction of the Akosombo dam (Paperna, 1970). Before the

construction of the dam, the prevalence of *schistosoma haematobium* was 5-15% and it rose to >90% after the construction of the dam in most communities along the Volta Lake (Asikoko, Kasa, Fatem, Kwabia, Afram ect) among young people from 15 – 24 years, raising serious public health concerns (Lavoipierre, 1973; Scott, Senker, & England, 1982).

In 1957, a major agricultural developmental project was commissioned as part of Ghana's independence celebration. The then Upper Region along the border with Upper Volta now called Burkina Faso, had a total of 185 clay-core dams constructed in 15 years to enhance village water supplies during the long dry season period. The benefits derived from these dams are undisputable as life today in the Upper East region would have been unimaginable without them. Equally undeniable has been a negative disease impact whereby the region's rate of schistosomiasis tripled in one to two years from 17% to 51% prevalence in the Upper East Region (Amankwa *et al*, 1994; Hunter, 2003). Therefore, an agriculturally induced Hyperdemicity of "red water" or "bloody urine" (*Fulla-fuga* in Kasem, *Duduu-buliga* in Nankam and *Sesaa-boliga* in Buili - representing urinary schistosomiasis) disease was introduced in the Upper East Region (Hunter, 1981; Hunter, 2003). In the Kassena-Nankana district, the prevalence of *Schistosoma haematobium* infection is 47.9% for boys and 52.1% for girls of school-age children (6–15 years) (Anto *et al.*, 2011).

The main objective of this study was to assess the healthcare-seeking behaviour of the inhabitants of the Kassena-Nankana east district for schistosomiasis-related signs and symptoms and factors associated with their choice of where to seek health care for schistosomiasis. Again, the study seeks to assess interventions taken by inhabitants in

response to schistosomiasis-related symptoms, which are essential to the success of control of the disease.

1.2 Statement of the Problem

The high prevalence of schistosomiasis in the Kassena-Nankana east district has been identified as one of the unfortunate legacies of the Tono irrigation dam project since 1975. The Tono irrigation dam project undoubtedly left a generational impact where hematuria became a “rite of passage” for young boys and girls in the Kassena-Nankana east district (Hunter, 2003). “Red water” as popularly known by the people of the municipality for hematuria has over the years been considered a normal experience among the inhabitants. However, other signs and symptoms of schistosomiasis such as painful urination, blood in stool and abdominal pain exist alongside hematuria. These have been ignored as health problems by the people and they could lead to serious complications. Schistosomiasis has been overlooked as a public health problem since hematuria was mistakenly seen as a complete replica of the disease by the people.

A key public health concern has been the possible overburdening of the already poor, ill-equipped rural health care systems confronted with elevated levels of schistosomiasis due to agricultural projects. To help address the problem, a recommended medication, praziquantel is usually used to break the transmission cycle of schistosomiasis (Stothard *et al.*, 2009; Steinmann *et al.*, 2006). However, observation of attendance records from the health facilities indicates very few presentations of schistosomiasis cases at health facilities. Given the previously reported high prevalence of schistosomiasis, a low presentation of cases at the health facilities partially shows the possible use of alternative sources of care, a phenomenon that might be slowing the speed of control of

schistosomiasis in the district. This is so because alternative sources of treatment do not actually cure the disease, but rather allow it to progress to the chronic stage. Moreover, inability to cure the disease also increases the level of further transmission of the disease as the victims continue to live with the parasites. The alternative sources of healthcare include self-medication with allopathic drugs and medicines not recommended by the WHO and herbal concoctions at the local level. The use of these alternative forms of care needs to be further explored considering the economic, social and developmental implications of increased levels of transmission of schistosomiasis at the community level.

1.3 Conceptual Framework

The investigator adopted relevant aspects of the Health Belief Model (HBM) to develop the conceptual framework for this study. The HBM was developed initially in the 1950s by a group of psychologists in the U.S. Public Health service to explain the widespread failure of people to participate in programmes to prevent and detect disease (Hochbaum, 1958; Rosenstock, 1960, 1974). Later the model was extended to people's responses to symptoms (Kirscht, 1974) and to their behaviours in response to diagnosed illness, particularly adherence to medical regimens as reported by Becker (1974).

The HBM is a value-expectancy theory. When value-expectancy concepts were gradually reformulated in the context of health-related behaviours, these interpretations were as follows: (1) the desire to avoid illness or to get well (value) and (2) the belief that a specific health action available to a person would prevent (or ameliorate) illness (expectation) (Ukwandu & Nmorsi, 2004; Rosenstock, 1974). The expectancy was further delineated in terms of the individual's estimate of personal susceptibility to and

severity of an illness, and of the likelihood of being able to reduce that threat through personal action (Kirscht, 1974).

Over the years since Hochbaum's survey, many investigations have helped to expand and clarify the model and to extend it beyond screening behaviours to include preventive, illness behaviours and sick-role behaviour (Rosenstock, 1974; Kirscht, 1974). In general, it is now believed that people will take action to prevent, to screen for, or to control ill-health conditions if they regard themselves as susceptible to the condition, if they believe it could have potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition (Thorson, Hoa, & Long, 2000), and if they believe that the anticipated barriers to (or cost of) taking the action are outweighed by its benefits (Yi-Xin & Manderson, 2005). The HBM has been used extensively to determine relationships between constructs and behaviours of public concern as well as to inform interventions.

The adopted conceptual framework highlights demographic, socio-cultural and physical factors that determine the health behaviours of the inhabitants of the Kassena-Nankana east district for schistosomiasis-related symptoms. With the construct of susceptibility as in the HBM the adopted frame work considers it that young boys and farmer sare believed to have greater chance of contracting schistosomiasis due to their regular contact with water as in swimming in the hot season and irrigation activities. This is represented in the framework as age, gender/sex and occupation. Again the level of the individuals' education could make them susceptible to some than others. Education teaches the scientific mode of disease causation and its prevention and control.

The severity of the disease determines the patient's health seeking behavior. As schistosomiasis is asymptomatic at the early stages of infection, knowledge of the symptoms, how long these symptoms persist in the patient and the individual's cultural belief as to what is ill-health relative to their geographic location as in the frame work represent the severity of the illness to initiate a health seeking behavior for schistosomiasis.

The third category of variables as per this model, were included since their existence directly influence the patient's choice of place in time of healthcare seeking for schistosomiasis-related symptoms. The various factors and the health behaviours have been presented diagrammatically in Figure 1.1 below.

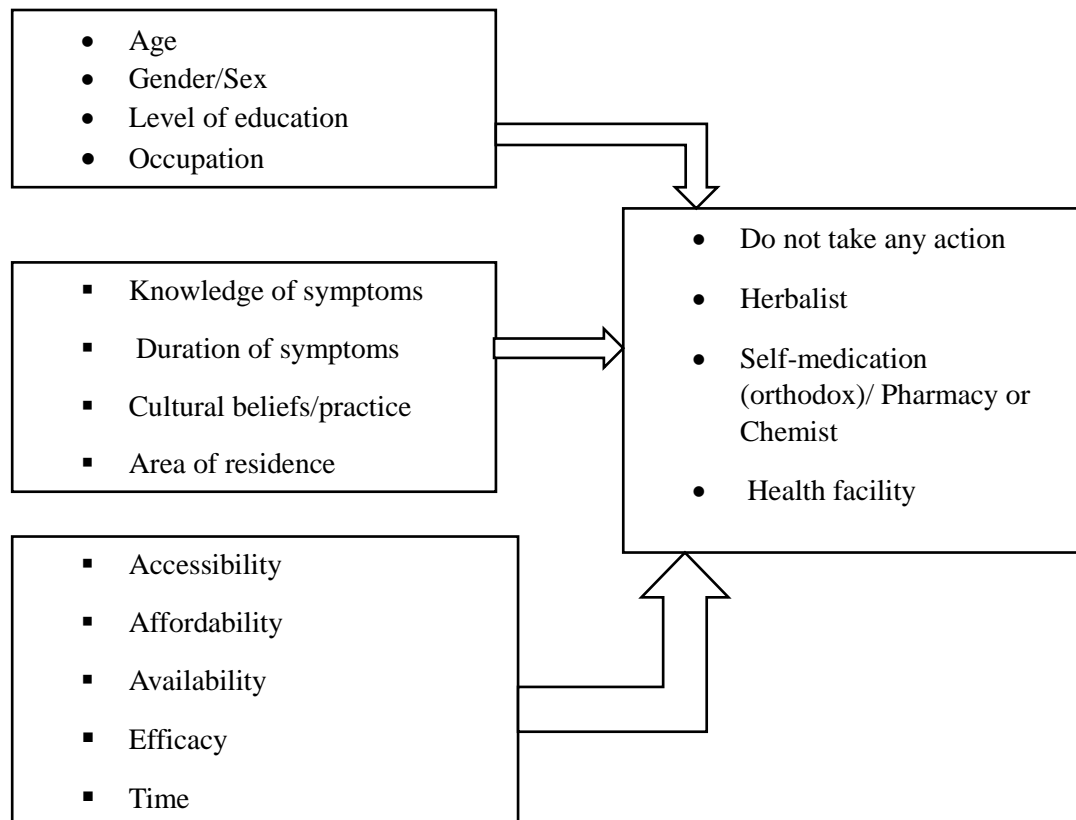


Figure 1.1: Components and linkages of conceptual framework (Adopted HBM)

Some concepts in this framework are operationalized as the following:

Accessibility is the ability of a person to obtain needed care (including advice and support) from the practitioner of choice within a time frame appropriate to the urgency of the problem (Haggerty & Martin, 2005). Affordability is your capability to buy or pay for something or service (Mills *et al.*, 2012). Availability means what is readily found all the time (Tabi, *et al* 2006). Efficacy is how effective and quick the healthcare source cures the health problem (Tabi *et al.*, 2006). Time is how long it takes for you to get to the care you seek at that source (Tabi *et al.*, 2006).

Cultural beliefs/practices operationally is defined as the social interpretations and actions taken with regard to health within a particular setting. Examples include consulting a soothsayer or spiritualist to diagnose and tell the cause of illness and how people react to illness in relation to their position in the society in which they live (Twumasi, 2005).

1.4 Justification of the study

Schistosomiasis brings about long-term illness and significant economic burden to the community. Morbidity control through integration of treatment within the existing health care system has been seen to be cost-effective and potentially sustainable.

Yet the prevalence of the disease in the Kassen-Nankana East district seems not to be reducing (56% and 48% for urinary and intestinal schistosomiasis respectively) as a result of the main canal and smaller lakes created from the Tono irrigation dam (Danso-Appiah *et al.*, 2010; Amankwa *et al*, 1994). Therefore, it was of great concern to assess the health-seeking behaviour of the inhabitants in relation to schistosomiasis-related

symptoms. Understanding peoples' health-seeking behaviour and their reasons for seeking healthcare at different sources for schistosomiasis-related signs and symptoms is key for health planners and policymakers towards integration of parasitic disease control within the regular health services. Also the scarcity of current information on this known health problem in the district for sometime now equally led to the conduct of this study.

1.5 Objectives

General Objective

To assess healthcare-seeking behaviour of inhabitants for schistosomiasis-related symptoms in the Kassena-Nankana East District.

Specific Objectives

1. To assess the inhabitants' level of knowledge about the signs and symptoms related to schistosomiasis.
2. Assess the care seeking pattern of inhabitants for schistosomiasis-related symptoms.
3. To determine the factors influencing the inhabitants' choice of healthcare for schistosomiasis-related symptoms.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

In chapter one, the background of the problem of schistosomiasis (“red water”) and the contribution of poverty and agricultural projects to its occurrence were outlined. It also looked at the location of the study, its demography and the problem of schistosomiasis among the inhabitants of the Kassena-Nankana east district (KNED).

This current chapter provides an insight to the available literature reviewed relating to schistosomiasis and care seeking for this parasitic disease. Some findings in the reviewed literature suggest that agricultural activities (farming and fishing) and recreational activities (swimming) were tagged to the occurrence and transmission of schistosomiasis in deprived rural communities. The age, sex, socio-economic status, cultural beliefs/practices of people and the length of time schistosomiasis-related symptoms persist are significantly affect health seeking behaviour and their impact cannot be overlooked. Health seeking behaviours refer to when people seek medical assistance and whom they turn to initially for help.

The literature review is centered on the definition of human schistosomiasis, its epidemiology, transmission and life cycle of the schistosome parasite, clinical manifestation of schistosomiasis, health-seeking behaviour for schistosomiasis-related symptoms, factors associated with health-seeking behaviour and finally the treatment and prevention of schistosomiasis.

2.2 Definition of schistosomiasis

The term human schistosomiasis includes a complex group of acute and chronic parasitic infection caused by mammalian blood flukes (schistosome) (Nelson & Williams, 2006). It is a disease that is caused by parasites (genus *Schistosoma*) that enter humans by attaching to the skin, penetrating it, and then migrating through the venous system to the portal veins where the parasites produce eggs and eventually, the symptoms of acute or chronic disease (for example, abdominal discomfort, blood in stools, blood in urine and painful urination) (WHO, 2010). These infections are transmitted by aquatic or amphibious snails in a wide variety of freshwater habitats. Of the 16 species of schistosome known to infect humans or animals, only five are responsible for the overwhelming proportion of human infections: *Schistosoma haematobium*, *S. intercalatum*, *S. mansoni*, *S. japonicum* and *S. mekongi* (Cook & Zumla, 2009).

Chronic haematuria (blood in urine) and various bladder disorders occurred in Egypt and Mesopotamia from the earliest times in association with the agricultural civilization of the great river valleys. Many remedies for haematuria (blood in urine) were recorded from the time of the Ebers Papyrus and it has been assumed that the condition was widespread (Kamal, 1967; Colley, 1996).

Urinary and intestinal schistosomiasis caused by *S. haematobium* and *S. mansoni* respectively, are widespread in Africa (Danso-Appiah *et al.*, 2010). Both species are found in Ghana, sometimes as mixed infection in the same person (Amankwah *et al.*, 1994). But the intensity of infection determines the severity of the disease for most people who are repeatedly exposed.

2.3 Human schistosomiasis epidemiology

The epidemiology and epidemiological dynamics of schistosomiasis are heterogeneous and complicated, involving a definitive host in the human, an intermediate host in various species of aquatic or amphibious snails, a freshwater environment that humans contaminate with excreta through unsanitary habits, and from which infection is also acquired through repeated water contact by means of many occupational and recreational activities (Hunter, 2003).

Literature has shown that the background of the disease is one of low socioeconomic status on a base of poverty and ignorance, with resultant poor housing, lack of portable water, inadequate hygienic conditions, few if any sanitary facilities and a multitude of activities bring a population into contact with water into which eggs are passed and in which are found intermediate host snail hosts (Steinmann *et al.*, 2006b; Van der Werf *et al.*, 2003; Engels *et al.*, 2002). Obligatory human water contact may be of domestic, hygienic, occupational, recreational or religious origin. These forms of obligatory human water contact include cooking, drinking, bathing, washing, farming, fishing, masonry, swimming, wading and religious washing of the body (ablution and baptism).

Children are particularly important as reservoirs of infection because of their indiscriminate excretory habits, especially urination when swimming, and their unrivalled opportunities for water contact in hot climates (Cook & Zumla, 2009; Steinmann *et al.*, 2006b). Kloos *et al.* (1983), alluded to the fact that Schistosomiasis is not invariably a rural disease by stating that, expanding populations in periurban fringes of cities overwhelm the available sanitation and are thus at risk of transmission in modern cities of Africa and northeast Brazil.

2.4 Transmission and life cycle of schistosomiasis

The transmission of schistosomiasis requires three conditions:

1. A source of infection for the contamination of fresh water with human urine or faeces containing schistosome eggs. Fresh water bodies in the study communities are small lakes, irrigation farmlands and the main canal from the Tono dam where infected human urine or faeces can contaminate through urination or when used as manure.
2. The presence in the water of the right species of the snail in which miracidia hatched from the eggs are capable of producing cercariae which can infect man. *Bulinus truncates* mostly in the main irrigation canal and *Blomphalaria globosus* in the lakes and farmlands are responsible for the transmission of *S. haematobium* (urinary schistosomiasis) and *S. mansoni* (intestinal schistosomiasis) respectively in the KND (Amankwa *et al.*, 1994).
3. Human contact with water by bathing, wading or washing in it or drinking. In the study communities, human contact with water by these means occur during agricultural activities (farming and fishing) and fetching water from the canal and lakes for domestic purposes such as building houses and for animals to drink.

Man is the main source of infection, children who pass large numbers of eggs being the main source. This occurs during farming, fishing, swimming and intentional direct urination in fresh water bodies by children.

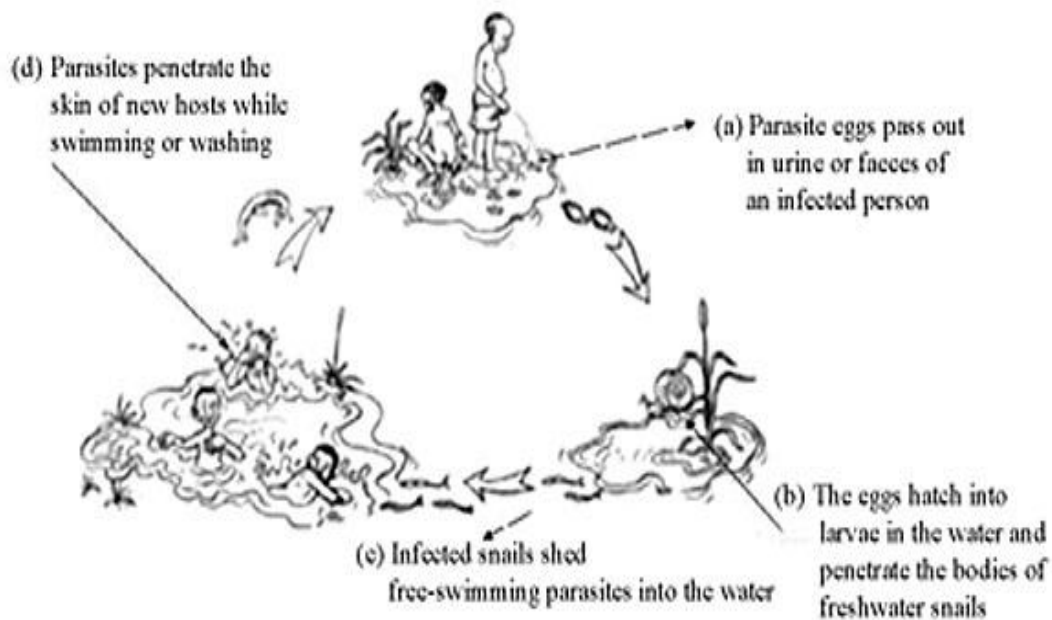


Figure 2.1 How schistosomiasis is transmitted from infected humans to new human hosts, via freshwater snails

(Source: Adapted from <http://www.who.int/schistosomiasis/epidemiology/en/>)

The eggs from an adult female worm in the definitive mammalian host are passed into fresh water via the urine or stool according to species of schistosome where they hatch into the first larval stage – a miracidium. This then enters the intermediate host snail, in certain species of which, specific to each species of schistosome, it forms a large number of sporocysts which, after a period of four to seven weeks, emerge from the snail as the second larval stage – cercariae. Cercariae live in the water for 48 to 72 hours during which time they must find a new mammalian host or die.

The immature form of the parasite penetrates the skin of a new host when he or she is swimming, washing or standing in infected water. They pass to the liver, where they mature into adult worms. Male and female adult worms mate (Figure 2.2) and deposit

their eggs in the blood vessels of either the intestine (*Schistosoma mansoni*) or bladder (*Schistosoma haematobium*). The eggs pass out into the water in either the faeces or urine, to continue the infection cycle.

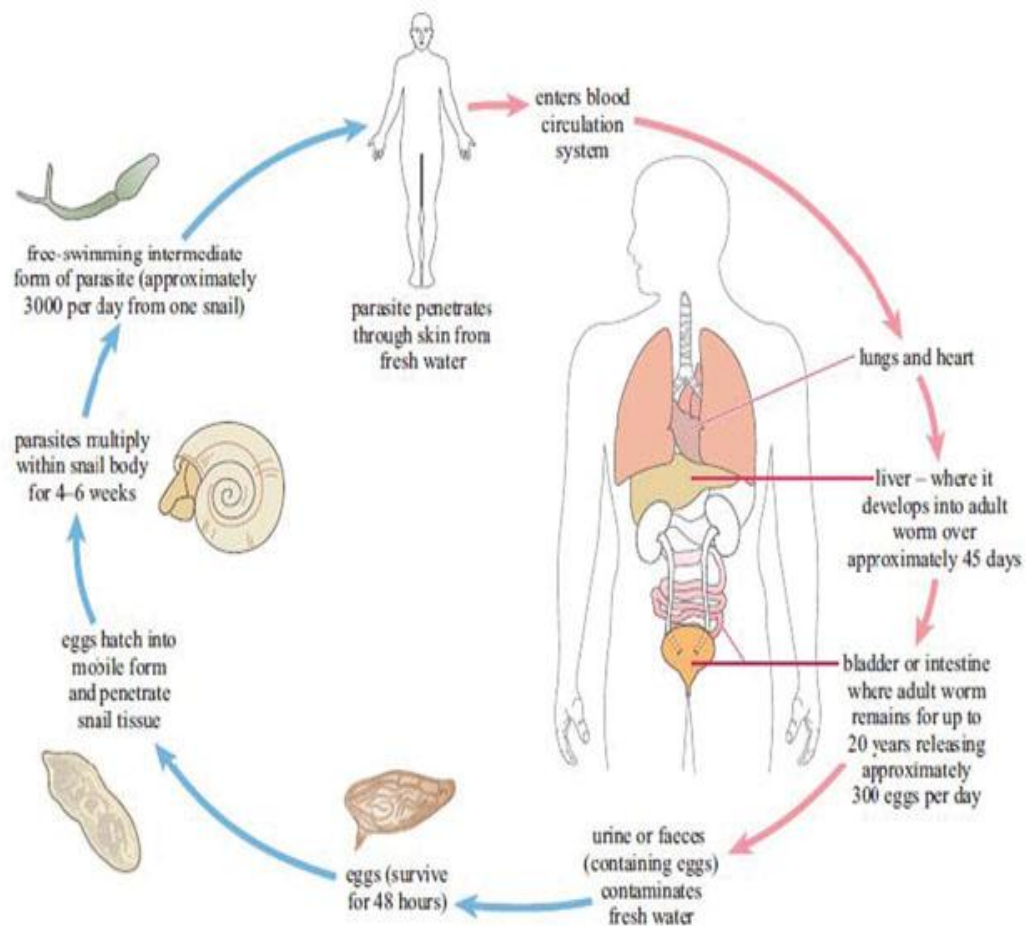


Figure 2.2 Lifecycle of *Schistosoma* parasites as they pass through human hosts and freshwater snails. (Source: The Open University, *Environment: Journeys Through a Changing World*, U116, Block 3,)

2.5 Signs and Symptoms of Schistosomiasis

Urinary schistosomiasis leads to blood in urine (haematuria) and painful micturition (dysuria) as early symptoms whilst secondary bacterial infection, calcification of the bladder wall, bladder stones, bladder carcinoma, hydronephrosis and renal failure are late stage complications (Danso-Appiah *et al.*, 2004). Intestinal schistosomiasis gives rise to blood in stool or (bloody) diarrhea, abdominal discomfort or pain and colicky cramps. Secondary symptoms of fever, weakness, fatigue, anorexia and weight loss are frequent (Cook and Zumla, 2009). Also, inflammatory reactions in the liver lead to hepatosplenomegaly. Later-stage lesions become fibrotic and progressively occlude the portal system, leading to portal hypertension that may precipitate haematemesis (vomiting of blood) from ruptured oesophageal varices. Several studies have revealed that over 70% of infected children show one or more early symptoms and signs of the disease (haematuria, dysuria, blood in stool and abdominal pain) (Okoli & Iwuala, 2004; Feldmeier & Poggensee, 1993; Mott *et al.*, 1983). Adults, who usually have light infections, are often asymptomatic but some develop late pathology after prolonged infection (King & Dangerfield-Cha, 2008; Grossfeld *et al.*, 2001). In such cases it is difficult to detect the presence of schistosomiasis and this may develop into serious complications as the disease continues to progress. Other researchers found out that female and male genital schistosomiasis reduce fertility and may promote the spread of HIV/AIDS (Kallestrup *et al.*, 2005; Lawn *et al.*, 2000). Some authors too wrote that the overall vitality and academic performance of children infected is affected in school (Useh & Ejezie, 1999; McGarvey, 2000; Clercq *et al.*, 1998) and these could be considered as indications of schistosomiasis in rural endemic communities.

2.6 Health-seeking behaviour for schistosomiasis-related symptoms

Health-seeking behaviour refers to when people seek medical assistance and whom they turn to initially for help (Brown & Barrett, 2010). The North American Nursing Diagnosis Association defined health-seeking behaviour as a state in which a person in stable health is actively seeking ways to alter his or her personal habits or environment in order to move toward a higher level of health. “Stable health” is defined as the achieving of age-appropriate illness prevention measures, with reporting of good or excellent health, and signs or symptoms of disease, when present, being controlled (Carpenito-Moyet, 2006). Therefore health or care seeking behaviour can be defined operationally as any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy. The biomedical model of health and illness sees ill-health as being caused by a biological organism from the physical environment of man. People in remote rural communities see and interpret the ill state of the individual from their own perception which is in turn associated with societal definitions of the disease condition.

The society definitions of disease conditions predict health care seeking behaviour (actions in response to illness). In many African cultures and others around the globe, causation of disease is seen as a body of inherited tales. An individual may blame himself, nature, society or the supernatural realm for his ill-health. In primitive communities, causation of a disease is multifactorial (Ward *et al*, 1997). Thus causes of diseases do exist in isolation but are linked to the actions of the individual, natural, social and the supernatural worlds (Twumasi, 2005).

Researches have shown that most community members exhibit much knowledge about the signs and symptoms related to schistosomiasis since in these communities they assigned various names for human schistosomiasis (Balen *et al.*, 2007; Wang *et al.*, 2006). It is shown that in some communities, schistosomiasis is associated with socio-cultural factors and a perceived hereditary disease (Aagaard-Hansen *et al.*, 2009).

According to Danso-Appiah *et al.* (2004), schistosomiasis (urinary) is seen as a sign of manhood (male menstruation) and sometimes the red coloured urine is attributed to sugar cane eaten in the area. Historically some communities in Northern Ghana linked the passage of blood in urine and severe abdominal pain to excessive eating of uncooked sweet potatoes, especially children during the wet season. People in these areas thought that farmers suffered signs and symptoms of schistosomiasis because they (farmers) stayed away from home and drank from pounds and streams near the farm lands and forest. The symptoms ceased to exist when they returned home from the farm lands in the dry season mostly in the olden days. Again, in cases where female were sufferers of human schistosomiasis it was considered as a sexually transmitted disease and was thus frowned at. Their study was a questionnaire-based field study in a Kokoetsekope, a village of 380 inhabitants in the Greater Accra Region of Ghana, endemic for both urinary and intestinal schistosomiasis to determine whether infected individuals self-reported to health centres or clinics and to identify factors that influenced individuals' decision to seek healthcare. Others researchers reported that such actions usually prevented female patients from seeking health care or reporting it to others, most notably the adolescent girls (Aryeetey *et al.*, 1999; Aagaard-Hansen *et al.*, 2009).

Studies among rural Zimbabwean women have shown that absence of early treatment for genital schistosomiasis is a high risk factor for HIV-1 infection, mostly among females due to damage of the genital mucosa associated with persistent haematuria (Kjetland *et al.*, 2006; Kallestrup *et al.*, 2005). Other socio-cultural factors such gender, sexuality, power relationships, poverty, educational background and cultural practice and beliefs (women do not talk sex in some societies) (Boivin *et al.*, 2007; Mill & Anarfi, 2002; Gupta, 2000). Because schistosomiasis may be considered not a severe illness since it is seen as a sign of manhood and its sufferers been stigmatized by others in the communities, patients turn not to report it and/or seek treatment for it (Ukwandu & Nmorsi, 2004).

However, in relation actions taken for schistosomiasis-related symptoms, Danso-Appiah *et al.* (2010) reported that “doing nothing”, “self-medicating” and “visiting a health facility” were the common practices. They also recorded that the large majority of people with blood in urine or painful urination did not seek health care, whereas most people with diarrhea and abdominal pain did take action, mostly self-medication with allopathic drugs. According to these researchers, among the overall respondents only few people with schistosomiasis-related symptoms did report to health facilities as first line of action. Multiple actions for a symptom were practiced with some of respondents who self-medicated subsequently visited a health facility as a second or third alternative and vice versa. It was shown that the tendency to seek health care was lowest for the symptoms with chronic characteristics (blood in urine, painful urination, swollen abdomen), but when these patients do something, they are more likely to go to the health facility (Danso-Appiah *et al.*, 2010; Stothard *et al.*, 2009).

2.7 Factors Influencing the Choice of Healthcare

Health seeking behaviour does not merely depend on the individual's choice or circumstances; it depends greatly on the dynamics of communities that influence over the well-being of the inhabitants (Mackian *et al*, 2004; MacKian, 2003). The concept of health seeking behaviours serves as a tool for understanding how people employ with health care systems in their respective socio-cultural, economic and demographic circumstances (Shaikh, 2008). The factors associated with health seeking behaviours may be seen in various contexts: physical, socio-economic, cultural and political (WHO, 2005).

There are several ways in which the sick person receives assistance. He may appeal directly to the ancestral spirits, to his god, or he may travel to the medicinal shrine to “see” the medicine man (herbalist). The nature of his illness may influence the decision (Twumasi, 2005). The health delivery system, limited options for the rural poor, long distance to district hospitals which remain the main source for schistosomiasis diagnosis and treatment, traditional health beliefs that place access to modern medicine as just on along a host of competing alternatives and their fee-for-service have also be identified to influence people’s care-seeking decisions (Moshabela *et al.*, 2011).

The person who is ill may recognize that he is not feeling well. The next stage for him is to communicate this feeling of illness to others, which may be achieved verbally or non-verbally. Once the symptoms have being recognized, not only the sufferer but within the primary group, an implicit or explicit decision has to be taken collectively as to whether the situation is serious enough to justify the disturbance of normal social relation by the

adoption of what has come to be known, following Sigerist and Parsons, as the “sick role” (Roemer, 1929; cited in Twumasi, 2005).

Implicit in this role are other decisions as to how such a role is to be legitimated and how other social interaction is to be adjusted to minimize social disturbance. The characteristics of the sick role in the society are that in so far as he is legitimately recognized as a sick person, he is not obliged to attend work to support his family or take active part in the decision-making processes of his various social groups. This role, according to Twumasi (2005), is legitimated by the elders of the family and it is reinforced by the traditional medicine man, when the case comes to him at his medicinal shine.

The sick-role principle, therefore, is not the invention of modern society. The sick in traditional societies are under social pressure to call in a traditional medicine man or other outside authority such as an elder who, in return for obedience to his request, legitimates the non-fulfillment of obligations, because the sick are not relieved of normal obligations without social cost (Tabi *et al.*, 2006).

To be legitimately ill first requires the approval of an elder of the extended kinship group or the family and/or the medicine man; second it implies the obligation or determination to get well and to return to normal daily activities (Twumasi, 2005). This implies that while the social unit on its part mobilizes (through the medicine man) its resource to restore health, so the sick must do or she is ordered to do. Once the signs and the symptoms have been socially recognized, both the illness and the sick exist within the social situation. The tradition man, when he is called in or is approached, sees the social

situation as causing the disease (Tabi *et al.*, 2006). This phenomenon is common among the indigenous rural African communities.

Cultural beliefs and practices often lead to self-care, home remedies and consultation with traditional healers in rural communities (Nyamongo, 2002). Advice of the elderly women in the house is also very instrumental and cannot be ignored. These factors result in delay in treatment seeking and are more common amongst women, not only for their own health but especially for children's illnesses (Nakagawa *et al.*, 2001). Family size and parity, educational status and occupation of the head of the family are also associated with health seeking behaviour besides age, gender and marital status (Braveman *et al.*, 2005). However, cultural practices and beliefs have been prevalent regardless of age, socio-economic status of the family and level of education (Osubor *et al.*, 2006). This group of researchers thought that those factors also affected awareness and recognition of severity of illness, gender, availability of service and acceptability of service.

Gender disparity has affected the health of the women in Pakistan too by putting an un-rewarded reproductive burden on them, resulting in early and excessive child-bearing. This has led to 'a normal maternity' being lumped with diseases and health problems. Throughout the life cycle, gender discrimination in child rearing, nutrition, health care seeking, education and general care make a woman highly vulnerable and disadvantaged (Hassan & Khanum, 2000).

At times, religious misinterpretations have endorsed her inferior status. For the married woman, limited access to the outer world has been culturally entrenched in the society, and for the unmarried, the situation has been even worse (Fatimi & Avan, 2002; Stephenson & Hennink, 2004) even if it is a matter of consulting a physician in

emergency (Alix-Dancer, 2003). In some societies women have a subjugated position in the family and therefore need to seek the permission of head of the household or the men in the family to go to health services (Shaikh, 2007; Ngom *et al.*, 2003).

Danso-Appiah *et al.* (2004), believed various factors emanating from the household, community and national levels, or even introduction of internationally driven policies such as the cost recovery system directly or indirectly influenced health-seeking behaviour. They said that in order to understand what policy changes were necessary for successful integrated control, it was important to first know the extent to which currently available services contributed to morbidity control. This critically depended on the community perception of the disease, health seeking behaviour of individuals and socio-economic factors such as occupation, income, educational and marital status among others (Shaikh & Hatcher, 2005).

For seeking health care, people must consider the symptoms a health threat and have resources available (Thorson *et al.*, 2000). In a study conducted by Shaikh & Hatcher (2007), it was shown that health care seeking behaviour is not only a matter of knowledge about the cause and treatment of the disease, but also of perceived seriousness and duration, cultural practice and socio-economic status. Perceived quality of health care expected (efficacy), availability and cost of medicine, distance to hospital (accessibility) and user fees charged (affordability) also influenced health seeking behaviour (Shaikh *et al.*, 2008). On the contrary, perceived quality of health care (efficacy) did not come out as important determinant of health seeking behaviour as stated by Danso-Appiah *et al.* (2004). It is the symptoms of the disease that cause people to visit a health care facility In another study conducted in Accra on sexually transmitted infections and health seeking

behavior among Ghanaian women it was shown that seeking care or advice was strongly associated with the respondent being of a high wealth index group and suffering from an offensive vaginal odour (Adanu, Hill, Seffah, Darko, Anarfi and Duda, 2008). In another survey on the health of adult women in Accra, age and the wealth of the household influence women's health more than their individual characteristics such as education (Darko, Adanu, Duda, Douptcheva and Hill, 2012).

The mechanisms driving health seeking behaviour are complex, requiring multidimensional approaches that bring together all aspects related to access and utilization of health care (Allman *et al.*, 2007). A research by Danso-Appiah *et al.* (2010) confirmed the significant contribution of perceived severity of schistosomiasis-related symptoms to healthcare seeking. In their study they found out that the rate of healthcare seeking for schistosomiasis-related symptoms was lowest for symptoms with chronic characteristics. Another study on differing health and health-seeking behaviour: ethnic minorities of the Chittagong Hill Tracts, Bangladesh revealed that Sex, types of illness, ethnicity, household head's education and household's landholding were significant predictors of seeking treatment, and allopathic treatment in particular (Ahmed, 2001).

In an earlier study among poorer and less poor schoolchildren of rural Cote d'Ivoire, it was shown that people with higher socio-economic status more frequently seek health care and visit health facilities than people with low socio-economic status (Raso *et al.*, 2005).

2.8 Prevention and Control of schistosomiasis

For no other parasitic disease have there been such major advances in chemotherapy as have occurred since the 1960s, in the treatment of schistosomiasis. The introduction and widespread use, at both the individual patient level and in large-scale community based operations, of the current highly effective, orally administered, well tolerated, anti-schistosomal drugs have provided physicians, epidemiologists and public health practitioners with therapeutic opportunities not in existence at the end of the 1960s (Cook & Zumla, 2009).

The primary objective of chemotherapy is cure of the individual patient by eradication of the infection (or the infection with two species) from which he or she suffers. Cure leads to cessation of egg deposition, the pathogenic agent in the tissues, and this prevents additional organ damage; existing lesions will, in the vast majority of cases regress.

In large-scale community-based chemotherapy programmes, where compromises on dosage may have to be made to ensure viable delivery system and optimal population coverage, the main aim is to reduce the community egg load and excretion by the greatest amount possible. Individual 'cure' may or may not occur; the community benefits as a whole by blocking of the egg-miracidium-snail stage of the biological cycle, which reduces transmission by minimizing excretal pollution of water supplies and thus diminishes cercarial contamination of human water contact sites. Of even greater importance is the reduction of community morbidity caused by schistosomiasis.

Praziquantel is the drug of choice, and is effective against all schistosome species that occur in human. Although dosage is standardized in large-scale epidemiologically based

morbidity control programmes, there is frequently a variation in dose in the treatment of the individual patient. In field programmes, a single dose of 40mg/kg body weight is effective in *S. haematobium*, *S. mansoni*, *S. japonicum*, and *S. intercalatum* infections.

For treatment of individual patients with heavy infections with *S. mansoni* (over 800eggs/g of stool), a total dose of 50 or 60mg/kg body weight, given in two equally divided doses 4-6hours apart, may be needed; single doses are best given after food and if, possible, in the evening. Patient tolerance is extremely good and virtually all trials have confirmed the absence of toxicity in the liver, kidney, haematopoietic system, or other body organs and functions (Doenhoff & Pica-Mattoccia, 2006).

A tetrahydroquinolone compound distantly related to hycanthon, Oxamniquine is effective only against *S. mansoni*. Oxamniquine is also available as capsules of 250mg or syrup containing 50mg/mL and is marketed as Vansil in Africa. It is used at all stages, from acute toxaemic to chronic and complicated *S. mansoni* infections, with good results. Side-effects are uncommon; dizziness, drowsiness and headache are most frequent but last for some 4-6 h only. Although abdominal discomfort, vomiting and diarrhoea do occur, they have no influence on compliance in field programmes (Cook & Zumla, 2009).

For sometime, the Ministry of Health and the Ghana Health Service have carried out public health educational campaigns on the prevention and control of schistosomiasis in endemic communities in the country. These campaigns were centered on breaking the chain of transmission of the disease in attempts to eliminate it. There have also been mass administration of praziquantel in the Kassena-Nankana municipality by the Navrongo Health Research Center (NHRC) as parts of measures to control the disease.

CHAPTER THREE

3.0 METHODS

3.1 Study design

This study was a cross-sectional survey that employed quantitative methods and sought to understand the health seeking behaviour for schistosomiasis-related symptoms (as indicated by household heads). The study was conducted from 20th May – 14th June, 2013 in two selected communities (Bonia and Gani) in the Kassena-Nankana East District (KNED). It assessed the knowledge level of household heads of the signs and symptoms related to schistosomiasis, pattern of health seeking behaviour for schistosomiasis and finally factors influencing inhabitants choice of healthcare for schistosomiasis in the KNED.

3.2 Study location/area

The Kassena-Nankana East district is one of the 12 districts in the Upper East Region of Ghana. It was created out of the then Kassena-Nankana district in 2008. The district capital is Navrongo, which is 18km from Bolgatanga, the Upper East Regional capital. The district shares boundaries with the Builsa North district in the south, Bolgatanga municipality in the east, Kassena-Nankana West in the west and parts of the Northern Region in the south-east. The district lies between latitudes 10o30' and 11o00' north of the equator and between longitudes 1o00' and 1o30' west of the zero meridian and covers an area of 851.5 square kilometers and has an altitude of 200m - 400m above sea level. The land is relatively flat and passing through it from Burkina Faso is the White Volta River, which feeds Lake Volta (the world's largest artificial lake) in the Volta region,

south of Ghana. It covers about 129.1 inches per kilometer square of Sahelian savannah with an estimated population of 109,944 (Codjoe, 2010).

The district is largely rural, with only 9.5% living in urban quarters. The population consists of two distinct ethno-linguistic groups: the *Kassena* forms 49% of the district's population, while the *Nankani* constitutes about 46%. The *Builsa* and migrants belonging to other ethnic groups make up the remaining 5%. The main languages spoken are *Kassim* and *Nankam*, with *Buili* being spoken by most of the minority tribe. Despite the linguistic distinction, the population is, in many respects, a homogenous group with a common culture. The district has about six traditional paramount chiefdoms and is characterized by traditional forms of village organization, leadership and governance. At both the village and family levels, there is a strong traditional social structure which influences economic and social behaviour. Male dominance is strong, constraining the autonomy of women and limiting their health decisions. For example, curative and preventive health care may not be sought without the permission of the male spouse or, in his absence, the head of the compound (Binka *et al.*, 1999).

Presently, about a third of the people are Christian, 5% are Muslim and the rest profess the traditional religion. However, the dominant animist faith guides daily life, economic decisions, health beliefs and practices. This reliance on traditional medicine hampers the utilization of health services (Nyarko *et al.*, 2001; Oduro *et al.*, 2012).

A large reservoir (Tono dam) in the middle of the district provides water throughout the year for irrigation. Subsistence agriculture is the mainstay of the district's economy, complemented to some extent by retail trading. About 90% of the people are farmers. The major agricultural products are groundnuts, millet, guinea corn, rice, sorghum, sweet

potatoes, beans and tomatoes. Rearing of cattle, goats, sheep, pigs, fowls and guinea fowls also form part of the agricultural activities.

The district has 77 primary schools, 35 junior secondary schools, 5 senior secondary schools, 1 training college and 2 vocational institutions. The district also accommodates the third faculty of the University for Development Studies, which focuses on integrated science.

The main sources of water supply in the Kassena-Nankana district are streams, wells and boreholes. In a few urban houses, however, pipelines have been installed to provide treated water.

The district has a hospital, six health centres and four clinics located in selected communities. These static health delivery points are complemented by community-based service delivery in all the communities. There are also the Navrongo Health Research Centre and a Community Health Nurses Training College that belong to the Ministry of Health. There is also a high prevalence of cerebrospinal meningitis, with the peak season occurring between March and April. Schistosomiasis, lymphatic filariasis and onchocerciasis are endemic in the district (Amankwa *et al.*, 1994; Gyapong *et al.*, 1994).

The study was conducted in two communities. Gani, is 7.0km west from Navrongo central and lies between Vwenania and Biuk close to the TonoLake. It has an estimated population of 1,986 (Oduro *et al.*, 2012) with one primary school and one junior high school. The area has no health centre or drug store; however, outreach clinic is run by CHNs monthly. The second community is Bonia which is 6.4km southwest from Navrongo lies close to the main irrigation canal from the Tono dam. There is a vast irrigation farm land that separates it from Chuchuliga in the Builsa north district. Bonia

has a primary and junior high school but also without a health facility with an estimated population of 1,532 people. The inhabitants of this community access orthodox healthcare service at Wuru health centre about 3.2km towards Navrongo town.

Figure 3.1: Map of Study Location



3.3 Study population

The study population was made up of inhabitants of Gani and Bonia. These communities are located along the Tono Lake and the irrigation canals of the Tono dam in the KNED. The Tono Lake created several water reservoirs in these two selected communities. The irrigation water canals and the other water bodies harbor fresh water snail that are known to be recognized in the transmission process of schistosomiasis. Because of the nearness of these two communities to water bodies throughout the year, they were selected for the study. The main target was household heads. This was decided upon based on the fact that heads of households and mostly men predominantly take responsibility of, and also take decisions regarding family members' health.

3.4 Sampling

A sum of 218 household heads was selected for the study. A hundred and nine (109) household heads were interviewed from each community, Bonia and Gani. This equal number of respondents from each community was considered to ensure ethnic balance as Bonia and Gani are dominated by Kassem speaking and Nankan speaking people respectively.

3.5 Sample size estimation

$$n = [(Z_{1-\alpha} 2p(1-p))] / d^2$$

Using the formula

With consideration of the following:

$$Z_{1-\alpha}$$

for 95% confidence level = 1.96

(1-p) using 50% prevalence = 0.5 (1-0.5) = 0.25

d for 5% error margin = 0.05

Combined number of households of two communities N=500

$$n = (1.96^2 \times 0.25) / 0.05^2 = 0.9604 / 0.0025 = 384.16$$

Modified sample size for finite study population using the formula $S = nN/n + (N-1)$

$$S = 384.16 \times 500 / [384.16 + (500-1)] = 192080 / 883.16 = 218$$

Sample size for study = 218

3.6 Sampling procedure

The Bonia and Gani communities were selected for the study due to closeness to water bodies and the nature of the main occupation (agricultural activities) of the inhabitants.

A house in the KNED comprised four to six households. The houses for the study were selected using house numbers with even numbers in Bonia and those with odd numbers in Gani. The selection began from the houses closer to the sources of infection (irrigation

canal in Bonia and the Tono Lake in Gani) in both communities during the study. A household head is the person who takes care of all the members of a nuclear family within the larger extended family by providing the needs of members under his/her roof and is also recognized as the final decision maker. It could be obtained by inheritance due to death of sibling or spouse and also through one's own biological nuclear family. Within a chosen house, identified household heads (respondents) were selected by allowing all of them to pick a piece of paper with either a "YES" or "NO" written on them and placed in a container, after they gave their verbal consent to participate in the study. The number of rolled pieces of paper in the container corresponded with the number of household heads at the time of choosing the participants for the study in each house selected within the study site. In a house that was made up of an even number of households, half the number of the paper pieces had on them "YES" and the other half "NO" whereas in the case of an odd number of households, the "YES" outnumbered the "NO" in order to increase the chance of obtaining the estimated sample size for the study. However, there was no pick and replace at the point of participant selection. Household heads in each chosen house that picked the "YES" pieces of paper were the respondents in the study. This procedure was carried out in 36 houses to finally arrive at 108 respondents for each of the selected sites for the study throughout the study period. Dates for the interviews were set by the respondents with the researcher and documented in an exercise book.

Household heads initiate remedies for health problems of others family members when the sick report to the heads. Heads are also believed traditionally to have vast knowledge on various ailments and their immediate local treatments. They also take care of the

spiritual needs of family member and ill health is strongly linked to spiritual beliefs of a typical rural African community. They finance the healthcare services of other members of the family in the form of cash and animal exchange for herbs and are the final decision makers in times of ill health and other social activities. These reasons were considered in sampling them as participants of the study.

3.7 Data collection techniques/methods and tool

After the conduct of the community entry in the communities, data for the study were collected within the agreed dates of interviews set by respondents in the two study sites during the period of the study. In a day, an interviewer visited nine (9) household heads and interviewed them individually with each interview session lasting 15 minutes. All participants within the same house were interviewed separately and secretly to reduce repetition of responses by an earlier respondent interviewed in the same house.

The data collection period fell within the rice harvest season in the study sites. Because of this, some of the respondents were followed up to the irrigation farms to be interviewed while others were interviewed only when they returned from the farm between 3:00 clock pm and 6:00 clock pm. Respondents were offered a handkerchief each as a token for participating in the study.

Two of the trained Research Assistants collected the data at Bonia which is a predominant Kasem speaking community. These two assistants spoke Kasem fluently and were therefore assigned to that site. In the second community, Gani data were collected by the third assistant and the researcher. Both of them spoke Kasem, Nankam and Buili as that site was predominantly Nankam speaking people with some few Kassem and Buili

speaking people interspersed as a result of marriage and immigration. The questionnaire's items were thus translated from English to three languages during the interview process depending on the ethnic group of respondents.

An interviewer structured questionnaire was used for data collection in the study. It contained closed-ended questions which the respondents answered after they gave their verbal consent. The questionnaire comprised four sections. The first part gathered data on the socio-demographic characteristics of respondents and the second section sought information on respondents' knowledge level of schistosomiasis-related symptoms. The third and fourth sections of the tool focused on the health seeking behavior pattern and the factors associated with the care seeking for schistosomiasis-related symptoms by the inhabitants respectively (appendix I).

3.8 Quality control

The data collection tool (structured questionnaire) was created and amended with respect to the objectives of the study and inputs from the supervisor. It was pretested in a pilot study in Chuchuliga in the Builsa North District to ensure that it measured correctly and consistently what it was meant to measure.

As part of enhancing the quality of data collected, three research assistants were hired and trained by the principal investigator to help collect data. They were taken through the ways of collecting data from respondents by first introducing themselves to respondents and then explaining the purpose of the study to respondents. The researcher also explained the key terminologies on the tool to the assistants in all the three languages and

how to check data collected for completeness as well as handle difficulties encountered during the interview sessions.

All answered questionnaires were returned to the researcher and examined for errors and responses completeness. Data were double entered to minimize data entry mistakes as well as make the data authentic.

3.9 Data processing and analysis

Data collected for the study were entered directly into Microsoft Excel and exported to SPSS software version 17.0 after data was cleaned. Where there were discrepancies, the hard copies were consulted and the necessary corrections made. Descriptive statistical tests involving proportions and percentages were carried out for the independent variables. Logistic regression was used to test the impact of various socio-demographic characteristics on care seeking pattern for schistosomiasis-related symptoms. Cross tabulations (bivariate analysis) were performed on factors against forms of treatment for schistosomiasis-related symptoms and chi-square test used to test the association between each factor and the patronage of a particular treatment form for schistosomiasis-related symptoms. Binary regression was subsequently conducted for independent variables with the use of health facility and herbalist separately to obtain odd ratios (OR) and P-values. First univariate analyses (proportions) were conducted for the factors (accessibility, affordability, availability, efficacy and time) and the forms of treatment (herbalist, health facility and self-medication).

3.10 Ethical consideration/issues

Ethical approval for the study was sought from the Ethical Review Committee of the Ghana Health Service, Research and Development Division, Accra through the University Of Ghana School Of Public Health. The principal investigator prior to the data collection undertook a community entry in both communities. At each community, the village chief and the assembly member were consulted and the procedure and purpose of the study outlined to them. They were also assured of the non-harmful nature of the entire study to its participants as well as its benefits to the communities. This the opinion leaders willingly gave their approval verbally for the conduct of the study.. Respondents' consent was sought individually after the purpose of the study and its possible benefits were verbally explained to them. Confidentiality and privacy of respondents were ensured as all of them willingly gave their verbal consent to participate in the study.

3.11 Pretest

The questionnaire was administered in a pilot area, Chuchuliga, to ascertain its clarity to the respondents. Required corrections within the questionnaire were then made before the actual administration in the selected communities for the study.

3.12 Limitation

Healthcare providers (herbalist and hospital/clinic staffs) were not interviewed to confirm these numbers that report at their facilities as in the study.

CHAPTER FOUR

4.0 RESULTS

This cross-sectional survey was carried out to assess the level of knowledge of inhabitants of Bonia and Gani in the KNED on schistosomiasis-related symptoms, their health seeking behaviours for the related symptoms and the factors associated with the people's health seeking behaviours for schistosomiasis-related symptoms. The data were collected by the researcher through face to face with respondents using a questionnaire. These results of the study shown below are from 218 completed questionnaires.

4.1 Socio-demographic characteristics of respondents

Table 4.1 summarizes the background characteristics of household heads. Male household heads constituted the higher percent (59%) of the respondents. The majority of the respondents were between the ages of 18 and 25 years old forming 39% and the lowest of 10.1% were older than 56 years.

On their residential background, 50.0% of the respondents reside at Gani while 50.0% reside at Bonia. Additionally, 85.7% of the respondents lived in their community over 11 years. With regards to ethnicity, a majority of respondents (47.2%) belonged to Kassena and 44.4% of the respondents belonged to Nankani. Christianity, 64.8% and African Traditional Religion, 29.8% were the major religious affiliations of the respondents.

Among the respondents, 63.9% were married or living together with their partners while the rest were single in one way or the other. For education, 29.5% of the respondents never had formal education. A majority of the respondents had some form of formal education. With regards to their main occupation, 83.7% of the respondents were farmers

and still carried out additional jobs like fishing and trading. This demonstrates the multiplicity of the jobs done by heads of households to sustain their families.

Table 4.1 Background characteristics of household heads

Characteristic	Number (N=218)	Percent (%)
Age group (years)		
18 – 25	86	39.0
26 – 35	49	22.0
36 – 45	37	17.0
46 – 55	24	11.0
56+	22	10.0
Total	218	100
Sex		
Male	129	59.3
Female	89	40.7
Total	218	100
Ethnic background		
Kassena	102	47.0
Nankana	98	45.0
Builsa	16	7.0
Others	2	1.0
Total	218	100
Religious affiliation		
Christianity	138	63.3
Islam	3	1.4
Traditional	69	31.6
Others	8	3.7
Total	218	100

Characteristic	Number (N=218)	Percent (%)
Marital status		
Married or living together	139	63.7
Divorced/separated	6	2.8
Widowed	65	29.8
Never married and never lived together	8	3.7
Total	218	100
Educational background		
Pre-school	6	2.8
Primary	60	27.5
Middle/JSS/SHS	72	33.0
Secondary/SSS/SHS/Tech/Voc	15	6.9
Higher	1	0.5
Don't know	4	1.8
Never schooled	60	27.5
Total	218	100
Occupation		
Farming	181	83.0
Fishing	4	1.8
Trading	20	9.2
Others	13	6.0
Total	218	100
Area of residence		
Bonia	109	50
Gani	109	50
Total	218	100

Duration of stay in area of residence (years)

1 – 5	13	6.0
6 – 10	16	7.4
11+	189	86.6
Total	218	100

4.2 Source and use of water

From the study it was observed that 90.3% of the respondents obtain water from boreholes. Some of the respondents stated that they obtain water from canal (55.1%), hand dug well (2.8%), lakes (27.3) and pipe born (4.6%). From the study site, 69.7%, 35.3%, 34.0%, 51.1% and 63.4% respondents indicated that they use the water in the canal or lake for bathing, cooking, drinking, farming and washing respectively. With regards to how often the respondents fetch water from the canal or lake, 18.1% fetch once a day, 19% and 55.6% fetch twice and thrice daily.

4.3 Knowledge of “red water” or schistosomiasis-related symptoms

Based on the awareness of “red water” disease, 87% of the respondents indicated that they have heard of the disease but 13.0% have never heard of the disease. Sixty-four percent (64.9%) of the respondents stated that red water is contracted when one walks or swims in an infected water. Based on susceptibility, 31.9% stated that boys are more susceptible, 14.6% said girls are more susceptible and 11.8% indicated that women are more susceptible. However, 41.8% forming the majority stated that men are more susceptible.

The respondents had varying view about the signs and symptoms of “red water” disease, 31.0%, 20.9%, 19.0%, 75.9%, 61.9% and 26.4% of the correspondent indicated that

abdominal pain, blood in faeces, blood in saliva, blood in urine, painful urination and yellowish urine are likely to be the symptoms of the disease respectively.

Additionally, 92.1% of the respondents indicated that males experiencing passage of blood from their penis during urination are suffering from “red water” disease. 0.5% stated that they may be suffering from sexually transmitted diseases. Some of the respondents, 2.3% and 5.1% indicated that they may be suffering from malaria and male menstruation respectively.

Table 4.2: Respondents knowledge of “red water” disease signs and symptoms

	Frequency (N=218)	Percentage (%)
Ever heard of red water	188	87.0
Signs & Symptoms		
Abdominal pain	68	31.3
Blood in faeces	45	20.8
Blood in saliva	41	18.9
Blood in urine	164	75.6
Painful urination	133	61.6
Yellowish urine	57	26.3
Transmission of "red water		
Eat snails	13	6.3
Do not eat well	5	2.4
Are bewitched	8	3.9
Walk or swim in infected water	134	65.0
Passage of blood in urine as sign of:		
Malaria	5	2.3
Male menstruation	11	5.1
“Red water”	199	92.1
Sexually transmitted disease	1	0.5

4.4 Health seeking behaviour for “red water” or schistosomiasis-related symptoms

With regards to health seeking behaviour, 47.2% of the respondents stated that “red water” disease patients must visit the herbalist for treatment, 42.6% indicated that they must visit the hospital or clinic, 3.7% indicated that they must buy drugs from drug stores for self-medication, 1.4% indicated that the patients must buy drugs from drug peddlers and 3.7% stated that they should do nothing. However, 1.4% indicated that they must use other means like use of herbs including soaking of groundnuts seeds in the morning and decanting the water from the soaked seeds and drinking it or boiling the silk of the maize from and drinking its water.

Most heads of household, (80.9%) stated that the patients must seek health care as soon as they observe the symptoms, 14.0% stated that they must seek medical care when the symptoms persist for one week but 2.8% and 2.3% stated that health care must be seek when the symptoms persist for two weeks and over three weeks respectively. For first line of care, 49.1% of respondents stated that the first line of action must be the herbalist, 44.4% stated that the first line should be hospital or clinic while 5.1% stated self-medication from drug peddlers as the first line of action. 32.4% of the respondents also stated herbalist as the second line of action, 59.7% stated hospitals or clinics as second line of action, 5.1% of the respondents are for self-medication from drug peddlers and 2.3% stated other second line of action.

Comparing the first line of action to be taken for “red water” (Table 4.3) by males or females in seeking health care for “red water” disease, 66 male respondents against 39 females stated that they will visit the herbalist while, 54 male respondents against 42 females indicated that they will visit the hospital or clinic. With the second line of action,

43 male respondents against 27 female indicated that they will visit the herbalist as the second line of action while 77 males against 51 females stated that they will visit the hospital or clinic.

Table 4.3: Line of actions taken by respondents for “red water” disease according to sex and place of residence

Character	Sex		Place of residence		Total
	Male	Female	Bonia	Gani	
First line of action					
Go to the herbalist	66	39	43	63	211
Go to the hospital	54	42	54	42	192
Self-medication	6	5	8	3	22
Second line of action					
Go to the herbalist	43	27	38	32	140
Go to the hospital	77	51	56	73	257
Self-medication	5	6	9	2	22

From the Pearson Chi-square test, it was observed that there is a strong relationship between gender and the first line of action in care for “red water” disease (Chi-square = 1.78, df = 4, p = 0.778). It was also observed that there is a strong relationship between gender and the second line of action in care for “red water” disease (Chi-square = 2.50, df = 4, p = 0.644).

Although an equal number of respondents were interviewed in the two communities during the study, each community had a different view with regards to the first line and second line of action to take when one has “red water” disease. 39 respondents from

Bonia against 66 from Gani stated that their first line of action in seeking health care will be the herbalist while 49 respondents from Bonia against 47 from Gani would prefer to visit the hospital or clinic as the first line of action. For the second line of action, 35 respondents from Bonia against 35 from Gani agreed that they will visit the herbalist as the second line of action while 50 of the respondents from Bonia against 78 from Gani stated that they will visit the hospital or clinic as the second line of action.

From the Pearson Chi-square test, it was observed that there no relationship between place of residence and the first line of action in care for “red water” disease (Chi-square = 10.98, df = 4, p = 0.027). It was also observed that there is a strong relationship between place of residence and the second line of action in care for “red water” disease (Chi-square = 12.11, df = 4, p = 0.017).

4.5 Factors associated with health seeking behaviour for “red water” disease

When respondents were interviewed for their reasons for seeking health care from the various sources (Table 4.4), 59.4% visit the herbalist for accessibility, 50.7% for affordability, 48.8% for availability, 27.2% for efficacy and 55.3% for time. On the other hand, 26.7% of respondents visited the orthodox health facilities for accessibility, 36.4% for affordability, 38.2% for availability, 59.0% for efficacy and 30.4 for time. Also, 6.5% use self-medication for accessibility, 7.4% for affordability, 7.4% for availability, 4.1% for efficacy and 7.8% for time.

Table 4:4 Reasons for choice of place or facility for health care

Factors	Herbalist	Hospitals	Self-medication
Accessibility	130(59.6%)	58(26.6%)	14(6.4%)
Affordability	110(50.5%)	80(36.7%)	16(7.3%)
Availability	106(48.6%)	84(38.5%)	16(7.3%)
Efficacy	59(27.1%)	128(58.7%)	10(4.6%)
Time	120(55.0%)	67(30.7%)	17(7.8%)

With respect to who decides for “red water” patients to seek medical care, 56.9% stated that the father will decide, 9.3% stated that the head of the house must, 31.9 stated that the mother must decide and 1.9% indicated that the siblings must decide. Considering the group of people who are likely to seek health care, 31% of the correspondent states that men are most likely, 19.5% stated that girls are most likely, 19.5% also stated women are most likely and 29.8% stated that boys are most likely.

Evaluating the respondents’ response on the reason for seeking health care, 81 of the males against 47 females visit the herbalist for accessibility reasons. Also, 34 male against 24 female visit the clinic or hospital for the same reason. These results are summarised in the figure below. Based on affordability, 78 males against 33 females visit the herbalist to seek health care. On other hand 38 males visit the hospital or clinic against 41 females due to affordability.

From the Pearson Chi-square test, it was observed that there is no relationship between gender and health seeking behaviour based on affordability (Chi-square = 10.01, df = 3, p = 0.018). It was also observed that there is a strong relationship between gender and health seeking behaviour based on accessibility (Chi-square = 4.02, df = 3, p = 0.259).

With regards to availability, 71 males against 33 female visit the herbalist to seek health care while 41 males against 43 females visit the hospital to seek health care. Additionally, 36 males against 23female visit the herbalist due to the efficacy of their remedies while 77 males against 49 females visit hospital or clinic based on the same reason.

From the Pearson Chi-square test, it was observed that there is a relationship between gender and health seeking behaviour based on availability (Chi-square = 7.36, df = 3, p = 0.061). It was also observed that there is a strong relationship between gender and health seeking behaviour based on affordability (Chi-square = 3.84, df = 3, p = 0.279).

Comparing the educational level of the respondents to their health seeking behaviour, 79 respondents who have up to basic education against 39 who did not have any formal education indicated that they will visit the herbalist due to their accessibility. However, 39 respondents who had at least basic education against 12 who did not have any level of formal education stated that they will visit the hospital or clinic due to their accessibility. Based on affordability, 67 participants who had at least basic education against 33 who are not educated stated that they visit the herbalist for health care. 52 participants who had at least basic education against 22 who never had any form of formal education stated that they visit the hospital or clinic for health or clinic for health care.

From the Pearson Chi-square test, it was observed that there is a strong relationship between educational background and health seeking behaviour based on affordability (Chi-square = 17.84, df = 18, p = 0.466). It was also observed that there is a strong relationship between educational background and health seeking behaviour based on accessibility (Chi-square = 12.63 df = 18, p = 0.813).

Furthermore, 67 of the respondents who had at least basic education against 33 respondents who did not receive any formal education visit the herbalist due to the affordability of their remedies and services. Nonetheless, 52 of the respondents who had at least basic education against 22 respondents who did not receive any formal education visit the hospital or clinic due to the affordability of their remedies and services.

In relation to area of residence, the majority of respondents in Bonia (55) and Gani (73) sought health care from the hospital because of the efficacious nature of its treatment for schistosomiasis. These factors (accessibility, affordability, availability and efficacy of the mode of treatment as well as the time spent to get the treatment) were analysed with respondents' educational background and place of residence to determine what they considered before seeking healthcare at the herbalist and/or the hospital since these factors are affected by socio-economic status of respondents and geographical factors.

Table 4.5: Reasons for choice of healthcare seeking for schistosomiasis at the herbalist and hospital by educational background and place of residence of respondents

		Place of care		
Reason	Variable		Herbalist (n)	Hospital (n)
Accessibility	Educational background	Ever schooled	88	45
		Never schooled	39	12
	Location	Bonia	66	18
		Gani	64	40
Affordability	Educational background	Ever schooled	75	57
		Never schooled	33	22
	Location	Bonia	49	35
		Gani	61	45
Availability	Educational background	Ever schooled	70	62
		Never schooled	33	22
	Location	Bonia	48	37
		Gani	58	47
Efficacy	Educational background	Ever schooled	21	30
		Never schooled	40	14
	Location	Bonia	23	55
		Gani	36	73
Time	Educational background	Ever schooled	78	51
		Never schooled	40	14
	Location	Bonia	55	31
		Gani	65	36

Table 4.6a Logistic regression of independent variables with hospital

Characteristic	Odds Ratio	P—value	95% Conf. Interval
Age group (years)			
18 – 25	1		
26 – 35	0.732	0.400	0.345, 1.513
36 – 45	1.002	0.995	0.462, 2.175
46 – 55	1.393	0.474	0.561, 3.460
56+	0.346	0.056*	0.117, 1.026
Sex			
Male	1		
Female	1.645	0.076	0.948, 2.854
Area of residence			
Bonia	1		
Gani	0.535	0.025***	0.310, 0.923
Ethnic background			
Kassena	1		
Nankana	0.924	0.884	0.322, 2.652
Builsa	0.548	0.269	0.188, 1.591
Others	1	1.000	0.528, 18.914
Marital status			
Unmarried	1		
Married	0.734	0.280	0.419, 1.285
Ever Schooled			
Yes	1		
No	2.188	0.014 ***	1.173, 4.082

*Factor with an effect of $p = 0.05$.

***Factors with an effect of $p < 0.05$.

Table 4.6b Logistic regression of independent variables with herbalist

Characteristic	Odds Ratio	P—value	95% Conf. Interval
Age group (years)			
18 – 25	1		
26 – 35	1.290	0.484	0.631, 2.635
36 – 45	1.051	0.899	0.484, 2.282
46 – 55	0.883	0.791	0.353, 2.210
56+	1.484	0.411	0.578, 3.806
Sex			
Male	1		
Female	0.610	0.079	0.351, 1.058
Area of residence			
Bonia	1		
Gani	3.190	0.000***	1.830, 5.561
Ethnic background			
Kassena	1		
Nankana	0.701	0.515	0.241, 2.040
Builsa	1.962	0.216	0.673, 5.715
Others	1.285	0.867	0.067, 24.382
Marital status			
Unmarried	1		
Married	1.363	0.277	0.779, 2.386
Ever Schooled			
Yes	1		
No	0.497	0.021***	0.274, 0.901

***Factors with an effect of $p < 0.05$.

Tables 4.6a and 4.6b reflect the association between background characteristics of household heads and the use of hospital and herbalist for the treatment of “red water”.

Logistic regression analyses were performed on the independent variables with use of health facility/clinic (hospital) and herbalist to estimate the odds ratios and P-values at 95% confidence level.

Age group of 56 years and above has a borderline effect on the use of hospital (P-value = 0.056). The impact of place of residence on the use of hospital for the treatment of “red water” disease was significant (OR=0.535; 95% CI 0.310, 0.923) (Table 4.6a). This could be attributed the number of health facilities/clinic close to the area where respondents resided.

Another signification association was noticed between educational background and use of hospital for treatment of “red water”. Heads of households who have never schooled were more likely to go to hospital than those who ever schooled (OR=0.497; 95% CI 0.274, 0.901). The assumption here could be that these participants visited the hospital after having had home based treatment without improvement coupled with the health education programme on schistosomiasis control and prevention in the district. However, age, sex, ethnicity and marital status did not show significant association with the use of hospital for the treatment of “red water” or schistosomiasis (Table 4.6a).

For the use of herbalist, area of residence and educational background of respondents had strong influence (OR= 3.190; 95% CI 1.830, 5.561 and OR=0.497; 95% CI 0.274, 0.901) (Table 4.6b). This was observed due to the fact that, herbalists provided health prior to the introduction of orthodox medicine in the rural African society and are also the first to

reach before hospital for both the schooled and unschooled. There also since to be more health facilities closer to Bonia than Gani which contributed the variation.

CHAPTER FIVE

5.0 DISCUSSION

This cross-sectional survey was a questionnaire-based study conducted in two communities within the Kassena-Nankana east district to assess the health seeking behaviour for schistosomiasis-related symptoms. A sum of 218 household heads were interviewed face –to- face concerning their level of knowledge about schistosomiasis-related symptoms, what actions they take in the form of health seeking for these symptoms and the factors associated with their decision to seek health for schistosomiasis-related symptoms at different sources. The study targeted heads of household because they decide where the sick in these communities seek healthcare and are also responsible for financing members healthcare.

5.1 Background characteristics of household heads

Respondents in this study were from the ages of 18 to 56 years and above, with a mean age range of 26 – 35 years (22%). Male household heads formed majority of respondents (60%) indicating male dominance in a typical rural Ghanaian community. However, the remaining percentage of female household heads, which is not common in Northern Ghana, may be as a result of husband emigration to the South or death. With regard to marital status, the majority of respondents were married (63.7%) and a sizable number also widowed (29.8%) but still have children to care for.

A majority of respondents (87%) had lived in their community for 11years and above. This exposed them to the disease since its existence over the years after the construction of the Tono dam in 1975. Respondents' longer stay in their communities offered them a

better understanding of schistosomiasis and its treatments forms. Household heads mainly belonged to the Kassena (48%) and Nankana (44%) ethnic backgrounds. A few respondents were Builsa (7%) as a result of marriage and resettlement for agricultural purpose. Thus they were very familiar with the schistosomiasis name in their various languages (*Fulla-fuga* in Kasem, *Duduu-buliga* in Nankam and *Sesaa-boliga* in Buili). Most respondents professed the Christian faith (65%) and the Traditional African Religion. This information about respondents are similar to that by (Oduro *et al.*, 2012) in their demographic surveillance of Navrongo, although there are some differences due to population dynamics current formal education. A greater number of respondents have ever married (70%) and about 28% of them never went to school. Farming (83%) showed as the major occupation of respondents since subsistence agriculture is the mainstay economy of the district.

5.2 Level of knowledge about schistosomiasis-related symptoms

The awareness of schistosomiasis among household heads in the study was high as 85% of them stated they have ever heard of “red water” disease (schistosomiasis). It was also revealed that apart from the general term “red water” associated with schistosomiasis, the disease also has names in the three languages of the various major ethnic groups in the study sites (*fulla-fuga* in Kassem, *doduu-boliga* in Nankam and *sesaa-buliga* in Buili). Similar local names are given to schistosomiasis in Mali (Bah, Diallo, Dembélé, & Paulsen, 2006a) and sudano-sahelian zone of Cameroon (Takougang *et al.*, 2005). Respondents also demonstrated appropriate level of knowledge about the mode of transmission of schistosomiasis. They identified the contact with water from the canals

and smaller lakes created by the Tono dam through bathing and farming as route of transmission.

However, a significant proportion of respondents said schistosomiasis occurs as a result of eating “raw sweet potato”. This corresponds with a report by Ayeetey *et al.* (2000) in Southern Ghana where schistosomiasis was also tagged with eating “sugar cane”. In any case, these two crops are grown in water logged areas and could promote water contact during harvest by people. Respondents also exhibited adequate level of knowledge about the clinical manifestations. Haematuria (blood in urine) among inhabitants mostly boys and men was considered “red water” which represents schistosomiasis by the respondents rather than a sign of manhood (male menstruation) as documented by Desowitz (1981) in east Central Africa among the fishing villages that line Lake Victoria. The people in this area assumed that as female adolescents experience menarche, the passage of blood in urine among the adolescent males, a major sign of urinary schistosomiasis, was similar to menarche. Thus they considered it that the male child is also menstruating as a sign of manhood.

These findings are congruent with those from King & Dangerfield-Cha, 2008, Wang *et al.* (2009) and Yirenya-Tawiah *et al.* (2011) as they reported an increased level of knowledge among respondents in their respective studies. Other signs and symptoms of schistosomiasis including painful urination, blood in stool and abdominal pain were also recognized by respondents as indications of the presence of schistosomiasis in the patient.

5.3 Health seeking behavior for schistosomiasis-related symptoms

This study revealed that many heads of household consulted the herbalist (47%) and hospital/clinic (43%) for treatment for schistosomiasis-related symptoms. The males dominated in seeking care for schistosomiasis as they were the final decision makers in these communities. Male children were also seen to be valued than the females as respondents believed that the males will stay in the house and take care of them (respondents) rather the females who will leave the house to be married to other men. Respondents' first line of action was to visit the herbalist and followed by the hospital when the symptoms persist as indicated in the conceptual framework that the duration of symptom can determine health seeking behaviour. The herbalist here also included home based care of boiling leaves of certain plants for the patient since this was easy to come by without less or no cost at all. However, the hospital was considered the next line of action in terms of health seeking for schistosomiasis because of the advent of the NHIS in the district that has made health financially accessible to the people. Despite this pattern of health care seeking, multiple actions were common among respondents because of the desire for quick cure. The use of multiple sources of care including traditional medical practice has always been part of the Ghanaian society (Tabi *et al.*, 2006). These findings are consistent with a similar study in the Niono district, Mali, by Bah *et al.* (2006b) on the use of herbs for the treatment of urinary schistosomiasis and that by Dalaba, (2012) on the use of health facilities in Navrongo as better option because of the NHIS.

In general more boys and men seek health care for schistosomiasis because of the easy detection of haematuria than girls and women who may mistake haematuria as part of their regular reproductive and/or a sign of sexually transmitted diseases.

5.4 Factors influencing the choice of healthcare seeking for schistosomiasis- related symptoms

Previous studies have reported that the effectiveness of a treatment (efficacy), the availability and accessibility of the treatment and the user fees charged influence health seeking behaviour (Shaikh, 2008; Phillips *et al*, 2006). Findings in this study fall in line with these ones as 57% of respondents used the herbalist because of its availability and geographical access and cost effectiveness (51%). Health facilities were used for the efficacy of the drug of choice (praziquantel) for treating schistosomiasis. These variables determine respondents' health seeking behaviour for schistosomiasis-related symptoms as depicted in the conceptual framework.

The mechanisms driving health seeking behaviour are complex and seen in various contexts (UN Research Institute for social development, 2007; WHO, 2005). From the majority of respondents, fathers decide where family members seek healthcare for schistosomiasis-related symptoms as reported by Ngom *et al.* (2003) that male dominance influence women's health seeking behaviour in Navrongo.

This study confirms a significant relationship between respondents' area of residence with healthcare seeking behaviour for schistosomiasis-related symptoms in the KNED. In two separate regressions, area of residence of respondents consistently showed to be the most significant predictor of health care seeking for schistosomiasis-related symptoms at both hospital (P-value = 0.025) and herbalist (P-value = 0.000). A similar study in three regions in Ghana reported that people from the south turn to seek care at the hospital that those from the north (Danso-Appiah *et al.*, 2010). This has some cultural belief and practice aspect as well as presence of both traditional and orthodox medical practices.

However, there are more health facilities in the southern sector of Ghana than the northern part.

There was also another significant relationship between educational backgrounds of respondents with health seeking behaviour for schistosomiasis-related symptoms at both hospital (P-value = 0.014) and the herbalist (P-value = 0.021) in this study. This study shows that people who never schooled were more likely to use both hospital and the herbalist than those who ever schooled. There, those who ever schooled might believe that the disease affected the poor people in the society. The educated stayed healthy and were not prone to the disease because of their acquired scientific knowledge of the ‘germ theory of disease’ in the classroom. The rural also want to avoid hospital admission in order not to stay away from their farming activities and social responsibilities and will quickly seek healthcare in terms of sickness. This shows that appropriate level of knowledge was associated with decision to seek health care for schistosomiasis-related symptoms.

However, age and occupation did not show as determinants of health seeking behaviour for schistosomiasis-related symptoms in this study. They could still influence health seeking behaviour in other circumstances as highlighted in the conceptual frame work.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

This study has unveiled significant factors influencing the healthcare seeking behaviour for schistosomiasis-related symptoms among inhabitants of Kassena-Nankana. Focusing on the household head as a locus for healthcare seeking decision-making, it identified place of residence and educational background as key determinants of healthcare seeking behavior for schistosomiasis-related symptoms. The high rate of reported herbalist utilization for schistosomiasis-related signs and symptoms could be attributed to their cordial interaction with patients and the quick services they offer to their clients. Herbalists also offer treatment to patients and allow the patients time to pay for the services later as they (herbalists) traditionally have filial ties with their clients. Herbalists also advise clients on home based care for common illnesses in the rural communities.

The study also revealed that people within these communities will use the hospital when the traditional herbal treatment fails. This was associated with the fact that they feared it could progress to serious complications leading to reproductive problems (infertility) in females. Another reason was that, diseases may not always exist in isolation. Other unknown diseases could exist within the same patient with schistosomiasis and these could only be diagnosed and treated at the hospital. Thus it makes the hospital the preferred second choice of seeking healthcare for schistosomiasis-related symptoms.

In conclusion, residents of Bonia sought healthcare for schistosomiasis-related symptoms in the hospital whereas those of Gani resorted the use of herbalist. The uneducated were quick in seeking healthcare for schistosomiasis-related symptoms in both communities.

6.2 RECOMMENDATIONS

- Scientific investigations need to be conducted to identify the pharmacologic elements in some of the herbs such as maize silk used traditionally in these areas to treat schistosomiasis.
- The traditional and modern medical systems should be combined in the nation's healthcare delivery system since traditional healer are still important.
- The ministry of health should establish more health facilities closer to the rural the make use these as their first line of healthcare seeking for schistosomiasis in the district.
- The local authorities and the ministry of education should ensure that all children of school going age put in school to give the people some level of formal education.
- Future health education and control of schistosomiasis programmes should be design in line with the ethnic difference of these two communities within the district.

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QUESTIONNAIRE

The principal investigator for this research study is Alika Nerijs, a student from the University of Ghana, School of public health. It is an academic exercise carried out in partial fulfilment for the award of a Master of Public Health (MPH) degree by the University of Ghana. This structured questionnaire is intended to assess the health care seeking behaviour for schistosomiasis (“red water”) in the Kassena-Nankana East District. You are requested to respond to these questions after you have consented to be a participant in this study.

SECTION A

Socio-Demographic Characteristics of Responders

Indicate participants’ responses to the following questions by writing and/or ticking [\sqrt] appropriately in the spaces or boxes provided after each item in this questionnaire.

1. Age of respondent (years)
 - (a) 18 – 25 []
 - (b) 26 – 35 []
 - (c) 36 – 45 []
 - (d) 46 – 55 []
 - (e) 56 and above []
2. Sex of respondent
 - (a) Male [] (b) Female []
3. Where do you reside?
 - (a) Bonia [] (b) Gani []

4. How long have you stayed or lived in this community?

(a) 1 – 5 years [] (b) 6 – 10 years []

(c) 10 years and above []

5. Which ethnic background do you belong to?

(a) Builsa [] (b) Kassena []

(c) Nankani [] (d) Others specify _____

6. What is your religious affiliation?

(a) Christian religion [] (b) Islamic religion []

(c) Traditional African religion [] (d) Others specify _____

7. What is your current marital status?

(a) Married or living together [] (b) Divorced/separated []

(c) Widowed [] (d) Single []

(e) Never-married and never lived together []

8. What is the highest level of school you have attended?

(a) Pre-school [] (b) Primary [] (c) Middle/JSS/JHS []

(d) Secondary/SSS/SHS/Tech/Voc [] (e) Higher [] (f) Don't know []

(g) None []

9. What is your main occupation?

- (a) Farming [] (b) Fishing []
(c) Trading [] (d) Others specify _____

10. What are your sources of water? (Please tick as many answers as applicable)

- (a) Borehole [] (b) Canal [] (c) Hand dug well []
(d) Lake [] (e) Pipe born [] (f) Others specify _____

11. What do you use the water from the canal and/or lake for? (Please tick as many answers as applicable)

- (a) Bathing [] (b) Cooking [] (c) Drinking []
(d) Gardening/farming [] (e) Washing [] (f) Others specify _____

12. How often do you fetch water from the canal/lake in a day? (Please provide only one answer)

- (a) Once [] (b) Twice []
(c) Thrice [] (d) Others specify _____

SECTION B

Level of Knowledge of Signs and Symptoms Related to “red water”

Here I will like you to tell me what you know about the “red water” disease including the things (signs) that are present when you or someone in your family has “red water” disease.

13. Have you ever heard of the “red water” disease?

(a) Yes (b) No

14. “Red water” is contracted when someone or you: (Please provide only one answer)

(a) Eat snails (b) Do not eat well (c) Are bewitched

(d) Walk or swim in infected water (e) Others specify _____

15. Who is likely to have “red water” your community? (Please provide only one answer)

(a) Boys (b) Girls

(c) Men (d) Women

16. If someone or you have “red water”, what do you see? (Please tick as many answers as applicable)

Sign/symptoms	Tick (√)here
a. Abdominal pain	
b. Blood in faeces	
c. Blood in saliva	
d. Blood in urine	
e. Painful urination	
f. Yellowish urine	
g. Don't know	
h. Others specify _____	

17. Men who experience passage of blood from their penis during urination in this community might be experiencing symptoms of: (Please provide only one answer)

- (a) Malaria (b) Male menstruation
(c) "Red water" (c) Sexually transmitted disease

SECTION C

Health Seeking Behaviour for "Red water"

This part is concerned with what is done in this community in the form of seeking health care (treatment) for the "red water" disease.

18. What do you do when you or someone in your family has "red water"? (Please provide only one answer)

- (a) Do nothing (b) Go to herbalist (c) Go to hospital/clinic
(d) Self-medicate from drug peddler (e) Self-medicate from drug store
(f) Others specify _____

19. At what stage of "red water" will you or someone in your family seek health care? (Please provide only one answer)

- (a) As soon as the symptoms are recognized
(b) When symptoms persist for one week
(c) When symptoms persist for two weeks
(d) When symptoms persist for three and more weeks

20. What will be your first line of care seeking for “red water”? (Please provide only one answer)

- (a) Go to herbalist (b) Go to hospital/clinic
(c) Self-medicate from drug peddler (d) Others specify _____

21. Which will be your second source of remedy for “red water” if you first source fails to cure you? (Please provide only one answer)

- (a) Go to herbalist (b) Go to hospital/clinic
(c) Self-medicate from drug peddler (d) Others specify _____

SECTION D

Factors Associated with Health Seeking Behaviour for “Red water”

22. In questions 20 and 21 above, you have shown your sequence of care seeking for “red water”. What are your reasons for using those sources of care seeking for “red water”?

Explain these terminologies to the respondent as follows:

- (a) **Accessibility** means easy to come by.
- (b) **Affordability** is your capability to buy or pay for something or service.
- (c) **Availability** means what is readily found all the time.
- (d) **Efficacy** is how effective the source treats “red water”.
- (e) **Time** is how long it takes you to get the care you seek at that source.

(Please tick as many answers as applicable)

	Herbalist	Health facility (orthodox)	Self medication
Accessibility			
Affordability			
Availability			
Efficacy			
Time			
Others specify _____			

23. In your family, who decides where to seek health care for “red water”? (Please provide only one answer)

(a) Father [] (b) Head of house [] (c) Mother []

(c) Siblings [] (d) Others specify _____

24. Which groups of people are most likely to seek care for “red water” in this community? (Please provide only one answer)

(a) Boys [] (b) Girls []

(c) Men [] (d) Women []

THANK YOU