SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

PERCEPTIONS AND KNOWLEDGE OF CAREGIVERS OF SCHOOL-AGE CHILDREN ABOUT ANTI-HELMINTHIASIS MASS DRUG ADMINISTRATION PROGRAMME IN SEKYERE CENTRAL DISTRICT, GHANA.

By

Lansana Barry

(10802869)

THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE APPLIED HEALTH SOCIAL SCIENCE

SEPTEMBER, 2021

DECLARATION

I, Lansana Barry, declare that apart from people's knowledge that has been duly acknowledged, this dissertation is the result of my hard work under the competent supervision of Dr. Phyllis Dako-Gyeke. I further declare that no part or whole of this dissertation has ever been submitted for the award of any academic credit at this University or any University elsewhere.

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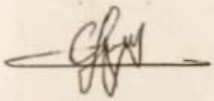

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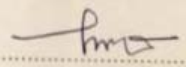

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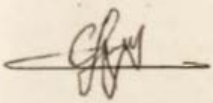

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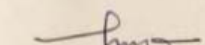

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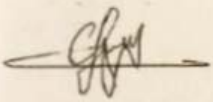

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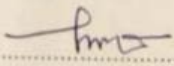

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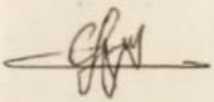

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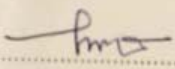

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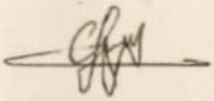

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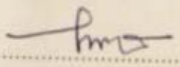

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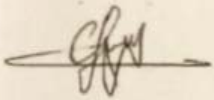

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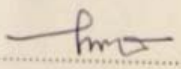

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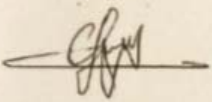

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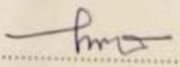

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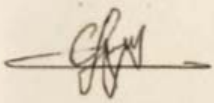

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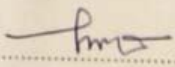

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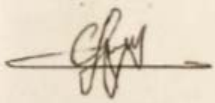

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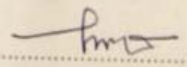

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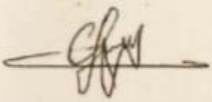

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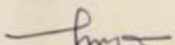

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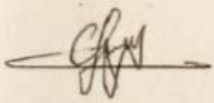

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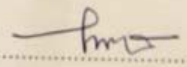

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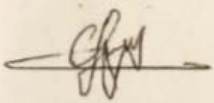

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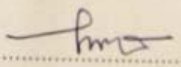

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DEDICATION

I dedicate this dissertation to my late parents Mamadou Alpha BARRY and M'balou DOUKOURE, for their encouragement, constant support, and desire to see me succeed. They gave me everything and believed in me. I pray to Allah the Highest to shower His grace on them and grant them His Paradise, Ameen!

To my brothers and sisters, the whole family, this work is yours. Thank you for your support and trust in me. May Allah keep us together in health and prosperity for a long time and strengthen our bonds!

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Praise be to Allah the Omnipresent and Omnipotent for guiding my steps towards this Master of Science in Applied Health Social Science and giving me the strength to succeed in this programme.

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To all my TDR scholars' friends, my classmates, all of whom have become my friends and even more so, my brothers and sisters, I express my deep gratitude for your unconditional support, may Allah bless you abundantly.

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ABSTRACT

Background: Soil transmitted-helminthiasis (STH) infections are among neglected tropical diseases that affect populations worldwide, especially in low- and middle-income countries. The groups at risk are pre-school and school-age children and women of reproductive age. Mass drug administration (MDA) is one of the means recommended by the WHO to control soil-transmitted helminthiasis (STH) transmission in all endemic countries. Therefore, this study explored caregivers' knowledge and perceptions about STH anti-helminthiasis MDA.

Methods: A phenomenology study using qualitative research approaches were conducted. In-depth interviews with 15 caregivers, five community drug distributors (CDD), and three key informants' interviews were conducted in Sekyere Central District of the Ashanti region. The data collected through these interviews were transcribed, coded using Nvivo software Version 12 (QSR International Pty Ltd. Cardigan UK). Thematic analysis with both inductive and deductive process was used.

Results: Some participants of this study had good knowledge about STH; however, others had no knowledge because they attributed the causes of STH infections to sugary foodstuffs and believed in the efficacy of traditional treatment (use of herbs and plant leaves) more than the orthodox ones. They also believed that albendazole (Alb) and mebendazole (Meb) which are very effective in the fight against STH, according to WHO, as poison. The lack of information on the MDA programme and the drugs distributed, as well as the lack of motivation for the CDD are among the major barriers to implementing the MDA programmes.

Conclusion: Perceptions and knowledge were relatively good among the respondents studied. NTD programme managers should therefore increase public education as well as motivate CDD.

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LIST OF ABBREVIATIONS

AHSS	Applied Health Social Sciences
ALB	Albendazole
CDC	Centres for Disease Control and Prevention
CDD	Community Drug Distributors
DALY	Disease Adjusted Life Years
GDHS	Ghana Demographic Health Survey
GHS	Ghana Health Service
HBM	Health Belief Model
IDI	In-Depth Interview
KII	Key Informant Interview
MDA	Mass Drug Administration
MEB	Mebendazole
NTD	Neglected Tropical Disease
PCT	Preventive Chemotherapy
PSAC	Pre-School Age Children
SAC	School-Age Children
STH	Soil-Transmitted Helminthiasis
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization

CHAPTER ONE

1. INTRODUCTION

1.1.Background

The fight against soil-transmitted helminthiasis (STH) is a global public health priority. STH infections include hookworms, Ascaris lumbricoides, and Trichuris-trichiura, which are among the common infections worldwide. STH is considered as the leading global cause of anaemia, malnutrition, and growth delay among preschool, school-age, and women of child-bearing age (Humphries et al., 2017; WHO, 2019). According to the World Health Organisation (2019), more than one billion people are infected with STH worldwide. More than 267 million pre-school children and more than 568 million school-age children live in endemic areas where the transmission of the responsible parasites is very intense and requires a strong commitment to treatment and prevention (WHO, 2019). The global burden of STH is estimated at 5 266 000 Disease Adjusted Life Years (DALYs) (Adjusted & Years, 2016).

STH are transmitted through eggs that are passed in the faeces of infected people (WHO, 2019). The main causes of STH infections are poor sanitary conditions, lack of an efficient waste disposal policy, the supply of water across rivers and, the low economic and faecal contamination of the soil causing high morbidity which adversely affect nutritional status and impairing cognitive processes (Nath, Padmawati, Alam, Das, & Murhandarwati, 2018). These conditions contribute to the spread of helminths within endemic communities (Masaku et al., 2017; WHO, 2019). There is no direct transmission from one person to another or through fresh faeces, but the eggs have to spend about 3 weeks in the soil before becoming mature to infect someone else (WHO, 2019).

The Mass Drug Administration programme (MDA) is one of the strategies used to control neglected tropical diseases, particularly STH, in most African countries, and Ghana is no exception (Campbell et al., 2018). The MDA strategy relies on volunteer distributors who are willing to spend days moving around villages to meet caregivers or parents of children. They interact with them to administer anti-helminthiasis (drugs). Sometimes the interactions between caregivers and volunteers are challenging because some caregivers may not cooperate. Besides, volunteers are not motivated or are under-motivated due to varied reasons (Krentel et al., 2017).

1.2.Problem statement

STH are among the most widespread infections among Neglected Tropical Diseases (NTD) and in areas where poor sanitary conditions are higher (GHS, 2016). Given the burden of helminthiasis infections on individuals, especially poor populations, many initiatives have been undertaken at all levels to fight to control its transmission. In addition to anti-helminthiases mass drug administration programme, improvement of domestic water supply sites, environmental sanitation, health education, access to health services for early diagnosis and treatment, and the use of latrines are among other measures used to prevent helminthiasis (Masaku et al., 2017; WHO, 2019). In 2015, a total of 16% of rural communities in Ghana had no access to domestic drinking water sources and more than 91% of them had no access to improved health facility services (Indexmundi, 2019) This reality shows how often these rural communities are at high risk of helminthiasis contamination.

Sekyere Central is one of the new districts resulting from the last administrative division of Ghana, which remains limited in terms of financial resources. This inadequate resources affects the health sector and is explained by the lack of health facilities and sometimes

prevents the district from meeting the health needs of the communities (Sekyere Central District Assembly Report, 2016).

In Ghana, nearly 26 districts are endemic and the prevalence of STH which range from 10% to 50% (Global Atlas of Helminth Infections London School of Hygiene and Tropical Medicine, 2015). Community drug distributors (CDDs) are a key integral part of the anti-helminthiasis MDA who are most of the time not motivated or under-motivated, which can directly negatively impact the MDA programmes against NTDs within communities (Krentel et al., 2017). Though the MDA programme is one of the main interventions put in place in the short term to control the disease, the parasite is still persistent and therefore increases the prevalence of helminthiasis in some communities, which is believed to be due to inadequate health education and insufficient information among community members about MDA and STH infections (Masaku et al., 2017). Therefore, it is imperative to explore the knowledge and perceptions of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme.

1.3.Justification

In stopping the transmission of NTDs, particularly STH, the WHO has instituted several measures and interventions, including MDA campaigns against STH. In 2001, the delegates of the 54th World Health Assembly generally supported a resolution (WHA54.19) calling on all endemic countries to come together and mobilize resources for the fight against STH infections and re-infections (WHO Health Assembly, 2001).

Among the major conclusions of this assembly was the provision of STH treatment to the following at-risk groups: children (1-14 years) and women (15-45 years). Treatment was to

be given once a year for low-risk communities with a prevalence of 20-50% of soil-transmitted helminths, or twice a year in at-risk communities with a prevalence greater than 50% STH (WHO Health Assembly, 2001).

Several studies have been conducted for determining the prevalence and STH treatment effectiveness in Ghana and other endemic countries. Studies on perceptions and knowledge of caregivers about STH and motivation of MDA volunteers have rarely explored hence the inspiration for this study. Therefore, it is imperative to explore the knowledge and perceptions of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme. Such a district without any referral hospital and where the available health centres are only concentrated in the centre of the district does not favour the identification of certain health problems and appropriate health care. It should be remembered that disadvantaged environments where hygienic measures are not in place are the places at risk of contracting STH infections. In these low-income areas, coupled with the lack of adequate health infrastructure and health information, communities may resort to traditional treatment methods to deal with the health problems they encounter, hence the interest in conducting this study in this area.

1.4.Research questions

1. How do caregivers of school-age children perceive helminthiasis Mass Drug Administration programme in Sekyere Central District, Ghana in 2019?

2. What are the factors that influence caregivers' perceptions about anti-helminthiasis Mass Drug Administration programme in Sekyere Central District, Ghana, in 2019?

3. What are the community members' experiences with the Mass Drug Administration?

4. What are the attitudes of caregivers and community drug distributors toward the delivery of the Mass Drug Administration?

1.5.OBJECTIVES

1.5.1. General objective:

The overall objective of this study is to explore the perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme Sekyere Central District, Ghana.

1.5.2. Specific objectives:

1. To explore caregivers' knowledge and perceptions of helminthiasis

2. To identify factors that influence caregivers' perceptions about anti-helminthiasis MDA

3. To explore community members' experiences with the MDA programme

4. To describe attitudes of caregivers and community drug distributors toward the delivery of MDA in their community.

1.6. Narrative of the conceptual framework

The Health Belief Model (HBM) is a useful model to explain the health behaviours of individuals, it helps identifying MDA influencing factors (barriers and facilitators), including the perceptions and knowledge of caregivers of school-age children about anti-helminthiasis MDA programme. This health promotion model can be used to improve preventive health behaviours. It has been constructed from six (6) domains (Sallis & Owen, 2008).

The HBM is used to analyse the conceptual framework in this study. The Perceived susceptibility refers to a person's subjective perception of the risk of acquiring an illness or disease. There is wide variation in a person's feelings of personal vulnerability to an illness or disease while the perceived severity refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity. When evaluating the severity, a person often considers the medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships). These two constructs of the HBM are reflected in knowledge about STH (modes of transmission, prevention and treatment, and the disease's consequences). An individual can only determine that they are at risk of contracting a disease and determine its severity if they have sufficient and verifiable knowledge about the disease. But in addition to this, knowledge of STH is directly influenced by many of the factors in the conceptual framework, including those related to socio-cultural factors and distributors, shared information and caregivers' personal situation also directly impact caregivers' perceptions and knowledge of the MDA programme.

According to LaMorte (2019), the perceived benefits are a person's impression of the efficacy of different measures available to minimize the threat of illness or disease (or to cure illness

or disease). A person's course of action in avoiding (or treating) illness or disease is based on assessment and appraisal of both perceived vulnerability and perceived benefit so that the individual would accept the advised health activity if it was thought to be helpful. Cue to action is the stimulus required to initiate the decision-making process to adopt a suggested health action. These signals might be internal (for example, chest aches, wheezing, and so on) or external (e.g., advice from others, illness of family member, newspaper article, etc.). In this conceptual framework, the lived experience factors influence factors linked to drug distributors and which also directly affect perceptions and knowledge about the MDA programme. The more beneficial people find a healthy behaviour, the more they adopt it; the same is true for curative or preventive treatment. In addition, some people may support the MDA programme not necessarily because they have experienced or observed its positive impacts but because they have learned either from drug distributors or other information channels or from peer counselling that the programme is beneficial for their children therefore for themselves by extension.

Perceived barriers refer to a person's thoughts about the barriers to carrying out a suggested health intervention. A person's perception of obstacles, or obstructions, varies widely, prompting a cost/benefit analysis. The individual evaluates the efficiency of the activities against the perceptions that they will be costly, hazardous (e.g., adverse effects), unpleasant (e.g., painful), and time-consuming, or inconvenient. To improve their perceptions and knowledge about the programme, these barriers need to be addressed by improving the incentives for CDDs, their training, the process of sharing information about the MDA, and by taking into account the socio-cultural aspect, among other factors in this conceptual framework.

There is a direct interrelationship between Caregivers Personal Situation, Sociocultural factors, Factors linked to drug distributors, Factors linked to information and Knowledge about STH, i.e., the above-mentioned factors influence Knowledge about STH. The Factors linked to information, the Lived experience factors and Knowledge about STH also have a direct impact on the MDA programme of the conceptual framework. So, when community members are not well informed about the anti-helminthiasis drug are less like to trust distributors hence decrease compliance to take the drug.

This conceptual framework shows the different factors that interact with each other and directly influence the perceptions and knowledge of caregivers about anti-helminthiasis MDA programme.

1.6.1. Conceptual framework

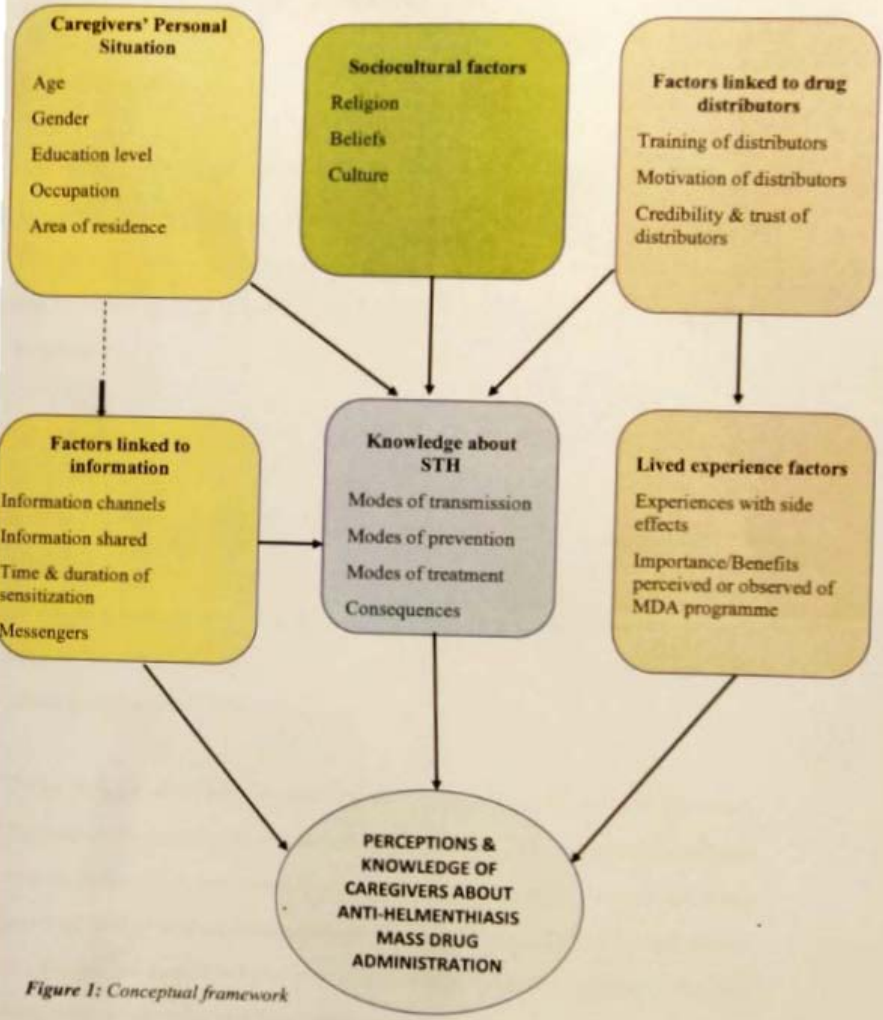

Figure 1: Conceptual framework

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

This chapter reviewed the literature on caregivers' perceptions and knowledge on anti-helminthiasis Mass Drug Administration programme. This chapter is divided into five sections: causes, life cycle and transmission mode of STH, the burden of STH, perceptions and knowledge on STH, control methods of STH, barriers in the implementation of MDA programmes.

2.2. Causes and symptoms of STH transmission

STH is a group of parasites that are widespread worldwide, particularly in tropical and subtropical areas, and are linked to poor sanitation and production wherever poverty exists (WHO, 2016). Among this group of STH, ascariasis is the most common intestinal parasite in humans. The larvae and adult worms of STH live in the small intestine and can cause intestinal disease (CDC, 2019).

The parasites live in the intestines and the eggs are passed in the faeces of infected people. Transmission is extremely high in areas with open defecation. If the infected person defecates outdoors, whether it is near bushes, in a garden or field, or when the faeces of an infected person are used as fertilizer, the eggs are then deposited on the soil. They can then develop into an infectious form. The ingestion of infectious eggs causes STH infections. It happens when hands or fingers that have been contaminated with soil are put in the mouth or by eating

vegetables or fruit that have not been thoroughly cooked, washed or peeled, by walking barefoot on the infected soil or with any other direct contact with the skin, and it is often children who end up on the floor playing (CDC, 2019).

People infected with STH early on often show no symptoms. In case symptoms do appear, they may be mild and may include abdominal discomfort. In the advanced stage, severe infections can cause a blockage in the intestines and may interfere with the growth of children. Other symptoms, such as coughing, will explain the process of worm migration throughout the human body (CDC, 2019).

Health care providers diagnose STH infections by taking a sample to a microscope to look for the presence of eggs. Some people notice an infection when a worm passes in their stool or coughs. At that moment, it is highly recommended to take a sample immediately to a health care provider for diagnosis (CDC).

2.3. Life cycle and transmission mode of STH

STH is quite common among communities with poor sanitation and unclean water supply. The most common intestinal helminths in the world include Ascaris lumbricoides (ringworm), Trichuris trichiura (whipworm), and hookworms. Other studies revealed that STH present in Egypt is Enterobius vermicularis (pinworm) and Hymenolepis nana (dwarf tapeworm) (Curtale et al., 1998).

Transmission of Ascaris lumbricoides (ringworm) and Trichuris trichiura (whipworm) normally occurs by ingesting the eggs of the adult worms found in the faeces of an infected person. The eggs are often ingested by eating contaminated food or vegetables or from dirty

hands and fingernails. Indiscriminate defecation makes the spread of STHs higher in areas with high poverty and limited access to safe drinking water and sanitation. Some of the effects that STH's have on people include cognitive impairment, intestinal blood loss that can lead to anaemia, intestinal obstruction leading to malnutrition, stunted growth, vomiting, abdominal pain and even death (Curtale et al., 1998).

Besides, poor water supply, filthy environment or sanitation also contribute to its transmission. According to WHO, STH can be curbed by considering three major factors: improved sanitation, chemotherapy, and health education. The proper way of preventing the spread of STH's is through proper sanitation. However, health education also plays an important role in stopping the spread of STH as it serves as an effective and affordable short-term measure for controlling helminth infections. Even though inexpensive anti-helminthic are available, the success of a chemotherapy program will depend upon selecting the target group and type of anti-helminthic (Aniwada et al., 2016).

According to WHO (2016) and CDC (2019), the dumpsites, toilets (open defecation places) unclean water source are the areas of high-risk transmission of STH. In a study conducted in Nigeria in 2018, the authors sought to identify high-risk areas for STH virus transmission. Dumpsites or garbage bins are the places where prevalence is highest (74.2%), followed by toilets (36.5%). The lowest prevalence was observed around houses with only (1.6%) risk. The same study indicated that the percentage of open defecation is high and is one of the risk factors for STH transmission, followed by barefoot walking, finger sucking and consumption of unhealthy and unsafe food for consumption. Also, there is low awareness of how to avoid STH infections, i.e. (66.8%) of the respondents (Oyebamiji et al., 2018).

STH have a complex life cycle and transmission mode which makes it difficult to dispose of. However, the transmission is not directly from one individual to another (WHO, 2019). Here below a figure to show the life cycle and transmission of STH.

Fig. 1 Life cycle of soil-transmitted helminths. *Adapted/reproduced with permission from the WHO. Key phases of the soil-transmitted helminths and* Strongyloidiasis *life cycles commencing with the excretion from human host of eggs (*A. lumbricoides, T. trichiura *and hookworms) and larvae (*S. stercoralis*).*

Figure 2: *The Life cycle of STH*

2.4. Burden of STH

The burden attributed to geohelminths infections is enormous. According to WHO (2019), more than 24% of people worldwide are affected. There are 300 million serious cases, and 155,000 deaths are attributed each year (Montresor, Gyorkos, & Savioli, 2004).

STH is a poverty disease, which cause suffering and complications, that may lead to death (Montresor et al., 2004). The infections also contribute to poverty by impairing the intellectual capacities and growth of children. They reduce the work capacity and productivity of adults(Montresor et al., 2004). STH bring immediate adverse consequences for thousands of families(Montresor et al., 2004).

In 2016, STH caused approximately 3,452,655 DALYs; however, it is estimated that more than 500,000 DALYs/year have been prevented through control (WHO, 2018). In 2017, out of the 516.7 million school-age children worldwide who received Preventive Chemotherapy (PCT) against STH, 406.6 million lived in areas where treatment was needed, bringing global coverage to 68.8%. Nearly 84% of the treatment given to school-aged children was distributed through MDA programmes (WHO, 2018).

In 2018, WHO estimated that 272.7 million pre-school children, 596 million school-age children and 688 million women of childbearing age needed ALB or MEB PCT globally. WHO's goal was to treat at least 75% of pre-school and school-age children in all STH endemic countries by 2020.

2.4.1. Prevalence of STH in Ghana

Like many other countries in sub-Saharan Africa, Ghana is an area where the prevalence of STH remains high in many of the country's health districts. According to the data on the distribution of STH prevalence by district in 2017, prevalence increases from minus (-1%) to

50% or more (Global Atlas of Helminth Infections London School of Hygiene and Tropical Medicine, 2015). Much remains to be done in terms of elimination or net reduction of STH transmission, as it remains among the most frequent NTDs in Ghana.

However, it should be recognized that efforts have been made, but much remains to be done to control STH transmission as the national prevalence of STH is around 50%, although some areas are well below this percentage (Global Atlas of Helminth Infections London School of Hygiene and Tropical Medicine, 2015).

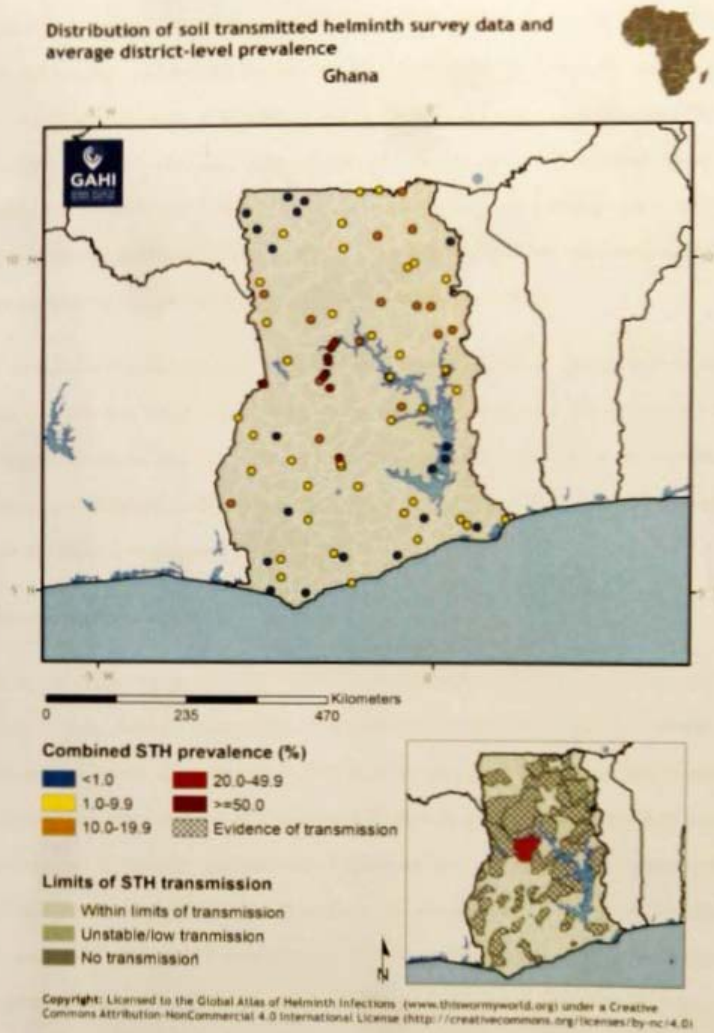

Figure 3: distribution of STH in Ghana

2.4.2. Effects of STH on the development of a child

The STH virus affects individuals, especially school-age children (SAC) who are in the process of physical and mental development, in several ways. It affects the children's nutritional status and causes a decrease or lack of appetite and leads to malnutrition. The worms feed on blood and cause anaemia, loss of iron and protein. T. trichiura causes diarrhoea and dysentery. At a certain level, infections obstruct the intestines and to treat them, it is intervened surgically (WHO, 2019). All these health problems mentioned expose infected children to physical and mental disabilities, and death, sometimes.

STH morbidities can be explained by the number of worms housed. People with mild intensity or with few worms do not suffer from infection in most cases. In their order of occurrence, infections cause a range of symptoms, including intestinal manifestations (diarrhoea and abdominal pain), malnutrition, general malaise and weakness, and stunted growth and physical development (WHO, 2019).

2.5. Control methods of STH

Since its 54th assembly in 2001, the WHO has recognized and called on all developed countries to make the fight against STH a public health priority. In this fight, PCT through the albendazole (ALB) and mebendazole (MEB) MDA programmes has been adopted and considered as an effective means of controlling STH parasite infections. Since this fight was initiated in the 52 endemic countries, only 7 countries have obtained results indicating a complete elimination of morbidity due to moderate and severe STH. For example, in Burkina Faso and Mali, where WHO recognised in 2017 that PCT against STH is no longer considered necessary, like these countries, which have longstanding interventions, have a very low prevalence of STH (WHO, 2018).

Almost all STH control programs implemented by all countries in Asia, Africa, and Latin America target only at-risk populations. These actions include MDA campaigns or PCT with ALB and/or MEB, which is a common means of control in all countries, health education and the promotion of water, sanitation and hygiene sanitation (WASH) measures where it is possible because of the lack of resources (Perdomo et al., 2017).

To reduce STH infections, WHO has put in place two (2) main control strategies. The first one is PCT which is a recommended as a short-term intervention to control the morbidity associated with these infestations. It consists of the periodic anti-helminthiasis MDA (ALB and/or MEB). The second one is WASH, but this is being experimented in some places where resources are available (WHO, 2018).

In 2017, 743 million people were receiving treatment against STH, including 188 million preschool-age children (PSAC), 406.6 million SAC and 127.9 million women of childbearing age. 36 countries achieved a 75% coverage rate for pre-school children and by 29 countries for school-age children. However, Ghana is not one country that has reached this 75% coverage rate in 2017 (WHO, 2018).

2.6. MDA Implementation

It all began in June 1996, when a survey was conducted jointly by WHO, the World Food Programme (WFP) and the Ministry of Health of Nepal to assess the prevalence and intensity of soil-borne nematode infections among Nepalese schoolchildren. The objective of the survey was to assess the need for gut parasite control initiatives within the ongoing WFP-supported school feeding programme implemented by the Ministry of Education. The survey revealed an overall prevalence of worms among children of 90 per cent. This exceedingly high prevalence of intestinal worm infections, particularly hookworm, is probably associated with severe iron deficiency anaemia and poor environmental hygiene. The same survey also

revealed the widespread prevalence of hookworms in rural areas and whipworms in urban areas. It should also be noted that hookworm infection is a known cause of severe nutritional deficiencies, including iron deficiency anaemia, and parasitic intestinal infections are priority health problems in rural and urban areas of endemic countries. This survey ranked Nepal as one of the countries with the highest incidence of soil-borne nematode infections (Montresor et al., 2008).

It is only at its 54th assembly in 2001, 6 years later, that WHO has placed STH infections as one of the major health problems that states and organizations must face while taking into account the recommendations of this survey of Nepal. Among these recommendations was the regular distribution of anti-helminthiasis products to school-age children, focusing on soil-borne nematodes as a short-term intervention. The long-term objectives were: improving cleanliness in schools and villages, ensuring safe drinking water supply (which until now are only applied in some places due to lack of funds) and health education based especially on STH infections (WHO, 2001; Montresor et al., 2008).

Further on, the results of the same survey, which served as a basis and benchmark for the implementation of mass distribution campaigns to curb STH transmission, showed that ALB tablets (400mg) are remarkably effective. They reduce the intensity and prevalence of intestinal parasitic infections in children aged 6 to 12 years. These MDA campaigns are implemented in primary schools once or twice a year depending on the prevalence of STH in the country. To be precise, when the prevalence is below 50%, the MDAs are done once a year, and if it is higher than that, the MDA will be done twice a year. Nowadays, in addition to ALB, MEB is also distributed for the same virtues ((Montresor et al., 2008; WHO, 2019).

The MDA is a programme set up to help school-age children in general but is sometimes implemented on behalf of children who are in school only (a school-based programme) due to

lack of funding. The MDA programme is designed to curb transmission and reduce the prevalence of hookworm, Ascaris and Trichuris infections by 80% and the intensity of infection by 90%. However, it should be noted that the programme has been facing funding problems in some places despite the call for resource mobilization by WHO since 2001.

2.7. Barriers in the implementation of MDA programmes

MDA is the central strategy to control the continued occurrence of STH infection. However, implementing MDA programs comes with challenges including; information dissemination about STH and MDA, lack of consent from parents and low trust on the drugs being distributed, communication gaps between health workers, school teachers who are selected as community drug distribution (CDD) and community members, lack of record-keeping, monitoring and follow-up after MDA program (Wanzira et al., 2018).

2.7.1. Information dissemination about STH and MDA

Findings from a study revealed that information dissemination about STH and MDA sometimes do not reach the entire population in a community. Previous research indicated that community knowledge and perception about the STH infection have significant influence and motivate MDA uptake. For information dissemination of MDA for STH, locally appropriate media like the demonstration in village market or religious places, short documentation, community talk and announcements through loudspeakers can be especially useful and needs to be assessed. However, without the use of this medium of communication community members may not get the chance to be informed on the MDA programme. An integrated health promotional program with national immunization programme campaign should reach all targeted population of the endemic communities (Wanzira et al., 2018).

2.7.2. Lack of consent from parents and low trust in drug distribution

Community members have a lot of concern on the side effect of drugs, lack of consent from parents and low trust on the distribution of drugs is also another challenge to the achievement of the MDA program. Parents whose consent are not sorted tends to discourage their wards from allowing them to swallow the drug during MDA. Several studies revealed that taste and size of drugs, rumours and previous experience of side effects adversely impact on the uptake of mass treatment (Wanzira et al., 2018).

2.7.3. Communication gaps between health workers, schoolteachers, and community people

Studies have shown that there are information gaps between health workers, schoolteachers, and community people that contribute to implementing MDA. Information gap includes record-keeping, roles of publicity and even distributing drugs to children who do not enrol in schools. Also, controversy statements of health workers and community people slow down the process of distributing drugs among non-school going children. Lack of communication always gaps on acceptance of any control program and to ensure full community participation in an intervention, proper guidelines, exchange of information, and communication with all stakeholders are crucial (Wanzira et al., 2018).

In terms of studies of caregivers' perceptions and knowledge of MDA programmes, little is known because few studies have been conducted in Ghana that directly address these issues. Outside the country, different findings from different studies on caregivers' perceptions and knowledge of MDA programmes against STH reported that community prejudices are in fact related to the problem of information dissemination about STH and MDA, lack of consent from parents and low trust in drug distribution, and Communication gaps between health workers, schoolteachers, and community people. In addition to these problems mentioned

above, there is also the lack of financial motivation of distributor agents that affects the distribution processes of MDA programmes. This study shed light on the slow progress of programme managers and all other decision-makers involved in the fight against STH. This review allowed us to view caregivers' perceptions and knowledge of the STH programme; in other words, it helped to guide and establish the relevance of the present study.

CHAPTER THREE

3. METHODS

3.1. Introduction

This section provides a general view of the methodological approach that was used to conduct this study. It is comprised of the study setting, the study population and sampling and the data collection techniques. It also explained the data storage and management process, the quality checking process, and the analysis process. The ethical considerations and the use of the findings were explained in this chapter.

3.2. Study setting

3.2.1. General setting

Ghana is a sovereign West African country located on the Atlantic Ocean. It is composed of sixteen (16) regions and several islands. In the West, it borders Cote d'Ivoire, while in the North is Burkina Faso. To the east, it borders Togo, while to the south; it borders the Atlantic Ocean and the Gulf of Guinea. It has 30,716,560 million inhabitants (2018) with a young population; approximately 57% of the population is under the age of 25 (2018). Its average density is 127 (2019) inhabitants per square kilometre (Worldpopulationreview, 2019). More than seventy-six per cent (76.6%) of this population can read and write (Indexmundi, 2019).

Besides this, the physician's density was 0.18 physicians/1,000 in 2017, and hospital density was 0.9 beds/1,000 in 2011. Life expectancy (2018) is estimated to be 67.4 years (male: 64.9 years, female: 70 years) (Ghana Demographic Profile, 2019).

Ghana has a highly agrarian economy where a high proportion of the population is engaged in this sector. Data from the 2014 GDHS indicate that 39% of households own agricultural

land. Rural households are significantly more likely to own land (59%) than urban households (22%) (GSS; GHS; DHS; ICF International, 2015). Seventy per cent of children aged 6 to 11 who are expected to attend primary school are currently doing so, a slight decrease from 74 per cent of all children aged 6 to 11 who are expected to attend primary school in 2008. The gross primary school attendance rate is 99 per cent (GSS et al., 2014).

3.2.2. Specific setting

Ashanti is a core area of the Asante kingdom whose boundaries stretched south to the Atlantic Ocean and north to the Gonja and Dagomba lands during the 18th century. The Asante kingdom extended beyond the country's current borders to the east and west. The territorial extension was through conflicts and the conquest of territories from other ethnic groups (Boateng, 2013).

The region covers an area of 24,389 km2, or 10.2% of Ghana's total area, and is in the southern half of the country. It is the third-largest region after the Northern and Brong Ahafo regions, respectively. It borders the West, Central, East and Brong Ahafo regions. More than half of the region, including its southwestern part, is in the semi-equatorial forest zone and a smaller North Eastern part in the savannah zone. The average daily temperature is about 27 degrees Celsius. Each district is divided into sub-metros (Boateng, 2013).

The economic activities that the residents in the region engaged in are agriculture, trading, services and many more. Agriculture including forestry try and little fishing is their leading economic activity (30%) The region has the largest mining site in the country at Obuasi. More than seventy-seven per cent are Christians of various denominations while 15.3 per cent constitutes Muslims (Boateng, 2013). In 2017, the population of Ashanti Region was estimated at 5,661,728 (Ghana Health Service, 2017). Sekyere Central District served as the

site for this study. It is one of the districts in the Ashanti region with 85,241 inhabitants as in 2017 (WHO, 2018).

Sekyere Central District lacks a number of health facilities. The district cannot boast a single hospital. There are four (4) health centres, five (5) maternal and child health clinics and two (2) private/missionary clinics, most of which are centred around the district capital. This means that people in the rural part of the district do not have access to many health centres. According to Sekyere Central District Assembly Report in 2016, efforts are being made to build more premises and housing for the CHPS staff in the rural communities. This is one of the districts in the region in which STH infection is prevalent.

The district has 60 nursery schools, 60 primary schools, 41 middle schools and three (3) high schools. Despite the district's extensive educational infrastructure, the level of education is not encouraging, as 33.8 per cent of the population aged 11 years and above is illiterate, while 66.2 per cent are literate. Facilities need to be improved to facilitate teaching and learning. Mainly due to financial constraints, about 20 per cent of school-age students are not enrolled in school (Sekyere Central District Assembly Report, 2016).

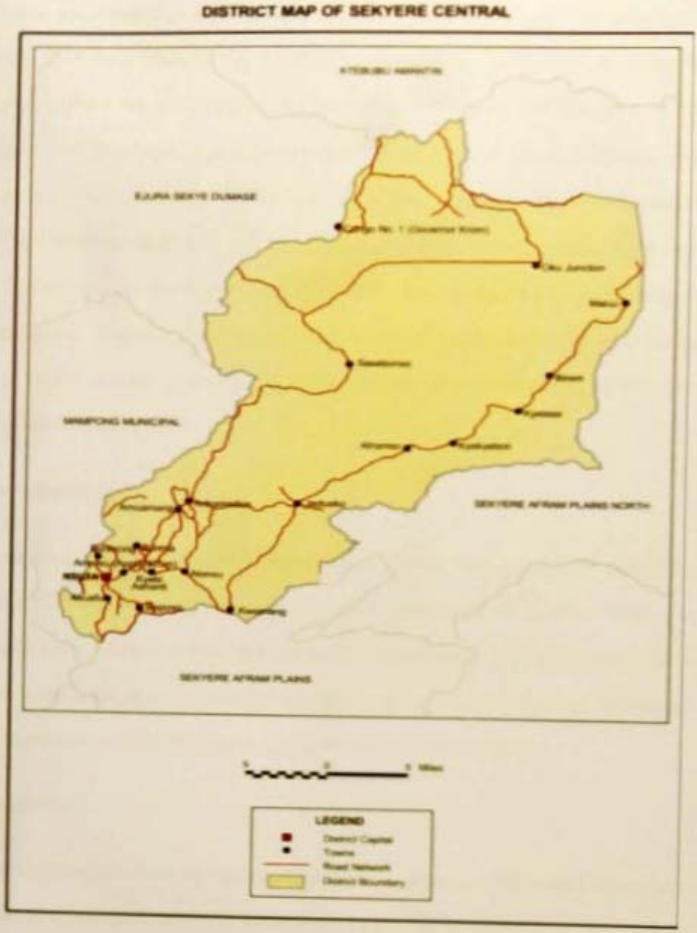

Figure 4: *Sekyere Central District Map*

3.3. Study design

This was a phenomenology study using a qualitative research approach. Phenomenology (Creswell, 2014) is a study design based on philosophy and psychology in which the researcher explains the individual's perception of a phenomenon as described by the participants. This description culminates in several individuals experiencing the phenomenon in the essence of the experiences. In this regard, the investigator put aside all prejudgements and rely on intuition, imagination, and the structure to get the lived experience of the study group. The aim is to identify what the participants have in common in terms of knowledge of the phenomenon. Phenomenology is one of the most appropriate designs for a study that seeks to explore people knowledge and perception about a phenomenon as the MDA programme (Creswell, 2014).

3.4. Study population

The population of this study was residents of Sekyere Central district and more specifically those who care for children of school age. Secondly, people who are involved in the drug distribution called CDD. The third and last group of participants were community leaders who were interviewed as key informants because they serve as liaisons between communities and health workers/or CDD involved in anti-helminthiasis MDA campaigns.

3.5. Sample size

A sample can be explained as any representative part of a given population that is proposed to be studied (Banerjee et al., 2007). In qualitative studies using interviews as a data collection technique, 20 participants are sufficient to reach saturation (Green & Thorogood, 2004). The sample size is flexible and often justified by data saturation that is progressively determined.

In 2009, Francis reports that with 13 interviews, one has a great chance to capture all the data related to the subject of study and thus reach saturation.

The concept of data saturation was introduced into the field of qualitative research by Glaser and Strauss (1967) and it refers to the point in data collection where the researcher no longer finds additional new data that develops aspects of a conceptual category (Francis et al., 2010). Therefore, for this study, 15 caregivers of school-age children, 5 CDD and 3 key informants (community leaders) giving a total of 23 participants were interviewed.

3.6. Sampling method and participants recruitment

Participants from the Sekyere Central District were purposefully sampled for the study. Researchers widely use purposive sampling in qualitative research to identify and select information-rich cases related to the phenomenon of interest. Specifically, maximum variation sampling, which is a type of intentional sampling, was used to select all participants with broad behavioural knowledge. This also allowed for important common patterns while establishing a fact by comparing different information (Fusch & Ness, 2015).

We interviewed various community members, including caregivers (parents or guardians of school-age children), and community drug distributors (school teachers and some community members). In addition, we interviewed key informants such as community leaders (religious leaders and local or traditional authorities) who play a key role in implementing the STH MDA programme in their communities.

The participant recruitment process took into account the variation in certain characteristics of the participants. For example, for caregivers, we took into account their professional category (housewife, shopkeeper or merchant and worker); for CDDs, we took into account their affiliation with different programmes (teacher, school official and worker); and finally,

the variation in socio-demographic characteristics (age group, sex, socio-economic level, proximity to the health structure and area of residence) was taken into account in the selection of all participants.

They were all contacted, informed about the study, but the decision to participate or not was at their own.

3.6.1. Determination of Saturation

Recruitment and interviewing of participants continued until the data reached the saturation level. It means that there was no more new information, themes relevant to the study emerge during the data collection process (Francis et al., 2010). Saturation was gradually determined at the time of collection and through a continuous comparison of the collected data. This was done by the principal investigator (PI), the research assistants and with the help of an external person (experienced researcher) who listened/red the interviews and determine the level of saturation through this reading by identifying repeated themes. That was an iterative work that took place along the data collection on the field. Prior to that, a meeting was held every evening of data collection day PI and the research assistants to take stock together, which allowed the identification of themes that emerged during the collection at the first stage. After then, the same exercise was done by the external person to validate the data saturation.

3.6.2. Safety Provision for COVID-19 Pandemic

As a response to the COVID-19 pandemic, the study participants were provided with an alcohol-based sanitizer and nose mask before starting each interview, which they were asked to always wear during the interview. The participants were also informed on the best practices on how to dispose of the mask of care for reusable masks.

The study ensured that at least 6ft of social distance is maintained during the IDIs and KIIs between the researcher and the participant.

The research team also maintained adequate standards of hygiene through handwashing and the use of alcohol-based sanitizer. Disposable face masks were always worn and changed every 3 hours.

3.7. Data collection tools and technique:

To fully understand the caregivers' perceptions of anti-helminthiases MDA and possibly the challenges faced by CDD during MDA campaigns, data were collected through interview guides with both caregivers and CDD as well as community leaders.

Three (3) different interview guides were designed according to the different group of participants to collect data: IDI guide for caregivers, IDI for CDD and KII for community leaders. Besides, audio recorders recorded all the interviews throughout the data collection process by the research assistants. There were also field notes took simultaneously during with the interviews. These notes described the unspoken words of each participant and all other relevant observations related to the study that cannot be captured through the recorder.

Most of the time, the interviews were conducted in local language (Twi) and English, for any participants deemed suitable to answer questions in English.

3.7.1. In-Depth Interviews

The information from the literature review and formal discussions with the NTD programme managers and research questions were used as a basis to design in-depth interviews for caregivers of children and CDD. As the main focus, the IDIs helped explore perceptions and level of knowledge, influencing caregivers of school-age children about the STH and the

MDA. The same was applied to the CDD and the major challenges they face in their activities and the possible ways and means of solving them.

3.8. Key Informant Interviews

Key informant interviews are in-depth qualitative interviews with key actors in the implementing process of a project. They are involved in one way or another and who know what is happening during the implementation process. For this study, the key informants are community leaders witnessing what all CDD, health workers, programme managers, and community members face during MDA. The interviews with these key informants aimed to gather information from resource persons who have idea about the entire MDA implementation process. The guides first covered their knowledge and perception about anti-helminthiasis MDA campaigns and the main challenges during MDA.

3.9. Data processing

All interviews were recorded with participants' permission. Interviews conducted in the local dialect were verbatim transcribed and, at the same time, translated into English with the help of the research assistants. All transcripts were reviewed, verified, and confirmed by the PI to correct grammatical errors and possibly skipped or mistranslated words and expressions.

3.10. Data analysis

Data were coded using both deductive and inductive thematic analyses. The deductive coding was applied to the information based on the existing literature. This step followed by the inductive coding, where new themes were progressively identified from the transcriptions through multiple readings and re-readings. The terms emerging from the interviews were coded and classified into subcategories and then into categories based on differences and

similarities. Data were analysed using Nvivo software Version 12 (QSR International Pty Ltd. Cardigan UK).

A codebook was created from the study objectives, and each transcription was opened in the NVivo software. A line by line reading and coding were performed. The codebook was gradually improved during the process. The main emerging categories and subcategories were summarized in words to facilitate reading, data interpretation, and the selection of the best citations to be presented in the results section.

3.11. Quality control

For quality work, a training module were developed by the principal investigator for research assistants. A pilot study was conducted in the peri-urban of Accra (community with similar characteristics of the study site) to test the tools and that helped to correct and improve them for us to get all the information needed for this thesis. It helped also to consider all ethical aspects.

During the data collection on the field, the accuracy and completeness of the data were checked, and the necessary corrections made as far as possible and respecting the value of neutrality. After each interview, the research assistants double-checked to make sure that the audio has been recorded and saved with the code assigned to the participant, the date and place.

The PI was with the field research assistants for supervision. In addition to supervision, the principal investigator's mission was to facilitate the few problems that the research assistants encountered and to answer participants' questions about the study in case the assistants are not able to answer some of them.

3.12. Establishing Trustworthiness

To ensure the reliability of the study results, the strategies suggested by Kay (1997): credibility, transferability, reliability, and confirmability (or neutrality) was be applied.

Credibility, reliability, and confirmability Kay (1997) were ensured by triangulating data from different sources (literature review, caregivers of school-age children, CDD and community leaders).

Besides, credibility was ensured through engagement with community members. The PI visited the study site to find out about some facts before the data collection begun.

Transferability was ensured through a detailed description of the tools and method used throughout this study.

Neutrality (or confirmability), on the other hand, was made by differentiating the research team members from those of the participants and, above all, insurance was made that links established between them (researchers and participants) did not affect or influence the data collected.

3.13. Ethical considerations

The study was approved by the Ghana Health Service Ethics Review Board with approval number GHS ERC 070.03.20, and a formal permission was sought at the Regional Health Directorate and the District Health Directorate office of Sekyere Central District before the field data collection.

3.14. Consenting process

Before an interview was conducted, each participant received a detailed study information sheet as well as the consent form. The content of the information sheet and consent form were red and translated to participants in the local language (Twi) if he or she could not speak English. Each participant could ask questions related to his or her participation, and these were clearly explained to him or her until total satisfaction. If necessary, he or she was also allowed to contact the Study Supervisor or GHS-ERC to be reassured and verify the information.

3.14.1. Voluntary consent and withdrawal

After reading and understanding all the details of the study and the implications of their participation, participants were asked to sign or thumbprint the two consent forms (one for the participant and the other for the research team) if they consented.

The research team highlighted and respected the right of participants to refuse to participate, answer a specific question, or withdraw at any time.

3.14.2. Confidentiality

All data collected were anonymously coded for analysis and report writing. This information was only used for scientific purposes, and nowhere the names of participants did not appear either in the final report of the thesis or the article to be published after.

3.14.3. Potential risks

The risks associated with this study are minimal. But given the COVID-19 pandemic that the world is facing, there is always a risk of contamination where people congregate. But with the provision of personal protection equipment for both researchers and participants (use of

hand sanitiser before and after the interview, nose masks wearing and observing of social distancing of at least 6ft) protected and reduced the risk of contamination.

3.14.4. Benefits

There are no direct benefits for participants in this study. However, the information they provided was analysed and used to write recommendations for improving MDA compliance and guide policymakers for their future interventions. This information was clearly explained to them.

There was no cost for participants associated with participation in this study. They also were not compensated for participation in the study. However, the researcher reimbursed participants' transportation costs where appropriate.

3.14.5. Conflict of interest

There is no conflict of interest in this study.

3.14.6. Sponsorship/ Protocol funding

The WHO's Special Programme supported this study for Research and Training in Tropical Diseases (WHO/TDR). WHO/TDR provided funding for education. The PI did all other works related to the study with support from the School of Public Health at the University of Ghana.

3.14.7. Data storage and usage

All data were anonymised and coded before analysis. The data file on electronic devices is password protected and accessible only to the research team and the study supervisor.

The data collected for this study were used only for scientific purposes to inform decision-makers and help better inform other researchers on similar issues.

3.14.8. Dissemination of results

A research report was written, and results presented at the School of Public Health, University of Ghana. A copy of the report is made available to the library of the school and to Sekyere Central health directorate (the study site) and WHO, which is the sponsor of this study. The researcher also plans to write scientific articles through the results of the study for publication in journals, this could inform other scientific community about the topic.

CHAPTER FOUR

4. RESULTS

4.1. Introduction

This chapter is devoted to the results of the study with the research questions. On analysing the collected data, the results are classified into six (6) categories: socio-demographic characteristics of participants, knowledge on helminthiasis, perception on helminthiasis MDA programme, factors influencing participants' perceptions, participants experience and attitudes of towards the delivery of MDA.

4.2. Socio-demographic characteristics of participants

A total of 23 participants, all from Sekyere Central District in the Ashanti region, took part in this study, as shown in Table 4.1. They were comprised of 15 caregivers, 10 of whom were interviewed in urban areas, and 5 in rural areas, 6 CDDs, 4 of whom were in urban areas and 2 in rural areas, and four community leaders (or opinion leaders) who served as key informants in this study, i.e., 2 per site (urban and rural).

Among caregivers, the age range was between 29 and 79 years, while among CDDs, the age range was between 26 and 50 years and only one woman. Key informants' age range was between 26 and 60 years, and all were male. Besides, most participants were married and Christian. The caregivers were predominantly without formal education and were engaged in various non-skilled jobs such as commerce and agriculture.

Table 5: Socio-demographic Characteristics of Study Participants

Characteristics of study participants	Number of participants		
	Participants for IDIs		
Area of residence	**Caregivers**	**CDD**	**Key Informants**
Urban	10	4	2
Rural	5	2	2
Sex			
Male	6	5	3
Female	9	-	-
Age (years)			
<26	6	1	1
30-39	7	3	1
40-49	-	-	1
50-59	-	1	
60-69	1	-	1
70+	1	-	-
Education Level			
No Formal Education	5	-	-
Primary	7	-	-
JHS	2	-	1
SHS	1	3	-
Tertiary	-	2	3
Religion			
Christianity	15	5	3
Traditionalism	-	-	1
Occupation			
Trader	6	-	1
Farmer	9	-	1
Masson	-	1	
Teacher	-	4	-
Engineer	-	-	1
Accountant	-	-	1
Marital Status			
Single	-	2	-
Married	12	2	3
Cohabitant	3	1	-

4.3. Knowledge on Helminthiasis

The three groups of participants in this study demonstrated a great deal of broad and varied knowledge about helminthiasis, particularly about the causes and/or modes of transmission, prevention, treatment, symptoms, and risk areas. Each group described these phenomena from their perspective of knowledge through different sources of information.

4.3.1. Knowledge of caregivers on helminthiasis

Participants in this study mentioned that helminthiasis is caused by eating sugary foods, evil spirits, infected soil, open defecation and transmitted by flies. Explanations of these modes of STH transmission are given by different participants and are presented in detail below:

> *"...when you eat sweets such as sugar, they can get into your body"* **IDI_26y_Female_CG_R.**

Furthermore, this participant gave more specifications on the types of foods that expose children because they are foods that all children want to eat, she named them as *«...biscuits, chocolates, kalypo* [type of candy], *toffees and other sugary drinks. When you take these items frequently you become at risk of getting STH"*

They also said that STH infections are sometimes associated with evil spirits, and in such cases, no de-wormer can help eliminate the parasites," said one mother.

> *"for the spiritual course you will all the different de-wormers in the world, doctors will prescribe different drugs for you, yet you will still grow skinny and become ugly. With this, you can tell that this STH is not the normal one but rather related to spirits"* **IDI_38y_Female_CG_R.**

But for many, helminthiasis results from open defecation but also eggs laid by flies in utensils. And that's why people need to take care of it from their bowls and eat it," they say. The eggs laid by the flies are undetectable to the naked eye and as such, caution is needed because these particles (eggs) as they call them can end up on any eating plate or bole.

> *«...when you go, and you ease yourself, and you leave it like that, at the end of the day when no animal ee gets to that thing, ... it will be rotten, and when it rotten, it will*

mix with the soil. So anytime, even wind can transfer that faeces and spread it all over that area. So, the place will become contaminated. So that one, it can cause the diseases" **IDI_35y_Male_CG_U**.

"... Flirty can bring something like that because it is like you eating in a bowl and not washing it, then flies will come and settle in it and shit in it. You go for that bowl thinking that it is clean because you cannot see the germs with your naked eyes, so you put food in it and eat it. I think this can create that problem for you to get the disease" **IDI_34y_Male_CG_R**.

Also, caregivers gave explanations on the modes of transmission of parasites, identified risk areas for helminth infections. They cited places such as cold, damp places and dirty sites.

"*I was saying when you go to cold places, let say when there is a rainfall, and you visit cold places without wearing your shoe, then you become at risk of getting the disease*" **IDI_26y_Female_CG_R**.

"*So, if you don't err clean our environment and we come into contact with them, it is easy that we can pick these particles from the soil and you know most, children play on the floor, and they can pick these organisms which can cause diseases to them*" **IDI_79y_Male_CG_U**.

Others also think that rural areas are at risk because of their lack of modern toilets, sources of clean drinking water, but also because of the lack of a spirit of maintaining a clean physical environment *"In our villages most part of them, their hygienic conditions are very low. So, right now we are sitting here, if you look at the pipe side, you will see some rubbers and rubbish there. Some do not have access to pipe water"* **IDI_34y_Male_CG_R**.

Consequently, these children are victims of stomach aches, lack of appetite leading to permanent hunger, and weight loss and vomiting as signs indicating the presence of worms in the belly. The worms are sometimes visible even in the faeces of infected or carrier children, especially when the contamination has persisted without treatment.

> "*when they get into the human body, they can cause you to lose your appetite, resulting in weight loss and shrink in size*" **IDI_38y_Female_CG_R**.

> "*When the children's they get that type of disease, in my knowledge, and what I have experienced, eee, sometimes they vomit and sometimes when they go to toilet, or they ease, you will see ee this thing, the worms in the toilet*" **IDI_35y_Male_CG_U**.

To deal with this, some means of prevention and treatment of helminthiasis infections were listed by the participants in this study. Many of them insisted on hygiene, which includes personal and environmental hygiene.

> "*So, what we advise is that we have to know how to keep things hygienically so that our children will not be contact with that disease* [STH] *and keep frequent handwashing*" **IDI_79y_Male_CG_U**.

However, one participant believes that in addition to these means, "prayer" is a means he believes in and uses to prevent all forms of infection, particularly STH infection. "*all that I do is to pray for God's protection for my children*" **IDI_38y_Female_CG_R**. Others go so far as to interpret what the Holy Scriptures (Bible) say concerning the search for protection through prayers and the use of leaves as the Bible teaches.

> "*as for spiritual as I said earlier, we do pray to God for prevention but traditional, as I said also, God gave the leaves and the everything to us. So, even in the Bible, He said we should use the fruit, we should use the ee*" **IDI_29y_Female_CG_U**.

At the same time, other in case of STH infections boiled herbs that they drink or give to children to eliminate these infections "*Given the child ee the local medicine, yeah, you see ... what we call '**duduo**'* [leaves name in local language Twi], *as soon as you get up in the morning, Kwame, Kwasi* [some names] *come and take this drink before even he gets food to eat, every day. So that he can be prevented from all these I mean sickness*" **IDI_79y_Male_CG_U**. While others believe that combining traditional medicine with modern medicine is an effective way. Those who opt for "modern" medicine get their supplies from the pharmacies on the floor or from the stalls they give to children "*Yeah, it's very good. But eee let me say, the drugs too, God gave them the knowledge and through this knowledge, they have polish it in a such a way that when you use it too, you can be also cured...I sometimes go to market buy some... So, they are all good to be used, but the traditional one is very sharp, yeah*" **IDI_29y_Female_CG_U**.

4.3.2. Knowledge of CDD on helminthiasis

CDDs are important actors in the MDA process, and that is why they were selected as key informants for this study. During this study, they mentioned that helminthiasis parasites are transmitted by several means, including soil and this may be through several possibilities as described by one of the CDDs encountered in rural areas:

> "*Well, you see if the disease is in the sand and you step in the sand, then you will get it. If you also use your hand to scratch the ground to you might get. You see, that is why the disease is quite common among children. And you see the personal hygiene of children are not that encouraging even when they are eating, and their food falls on the ground, they will pick it up and eat. So, these act of theirs promotes the rate at which they contract the disease*" **IDI_50y_Male_CDD_R**.

Later, another CDD cited spitting as a means of transmitting STH. Once an infected individual spit on the ground, the germs mix with the soil, any other individual who meets this contaminated soil, especially children, will be infected *"So if one has it and maybe spit because it is through the soil, the germs can mix with the soil. So, if another child gets interacted with the soil, that will also...the child may also pick it from the soil"* **IDI_36y_Male_CDD_R**.

Helminthiasis parasites are common in dirty places and anyone who finds themselves there is exposed because the parasites are transmitted through the air *"It can pass through air"* **IDI_50y_Male_CDD_R**. Besides, others cited the consumption of unwashed salty foods with well-indicated solutions that can systematically eliminate all germs. Below are the explanations of a CDD encountered in a rural area *"Then, vegetables and fruits which have not been properly washed, especially with salt, to kill the germs"* **IDI_33y_Male_CDD_R**.

Regarding modes of prevention and treatment, CDDs referred to periodical deworming regarding MDA. *"we should practice the habit of deworming ourselves regularly"* **IDI_26y_Male_CDD_U**. Another CDD, this time in rural areas, supported the promotion and maintenance of a clean human physical environment to avoid contamination *"I think the most important thing is to always keep our environment clean"* **IDI_39y_Male_CDD_U**.

4.3.3. Knowledge of community leaders on helminthiasis

The study results also helped to identify the knowledge of the community leaders who constitute a vital part of the MDA campaigns against helminthiasis, on their modes of transmission.

> *"I was saying that this disease mostly affects children because they normally play in the sand, and as they play, they might touch some of the worms of which they might*

not know. So, through this, the worms get into their body, and because of that they contract STH" **KII_52y_Male_CL_R**.

Dirty places and the placement of garbage cans anywhere and how as they are real reservoirs for helminthiases parasites is a bad habit. That is why one opinion leader acknowledges that the salty physical environment is one of the causes leading to STH.

"well, let say when there is dirt all around, and people dump their refuse anywhere, it would cause the worms to multiply in their high numbers. I also know that worms like places that are cold so if children play in colder places, the worms can get into them" **KII_38y_Male_CL_U**.

Also, community leaders indicated that helminthiases are parasites that are harmful to health, particularly to children, and that they are in constant contact with all the forms of transmission mentioned above. Medicines remain effective up to three (3) months in the body, which is why children must be kept in the right hygienic conditions because this prevents them from being contaminated.

"when the child practices good hygiene, the child is not likely to get the disease. Moreover, the drug only stays in the body for three months" **KII_60y_Male_CL_U**.

4.4.Perceptions about helminthiasis MDA programme

In this study, participants' perceptions of MDA anti-helminthiasis were categorised into two (2) types: positive and negative perceptions.

4.4.1. Positive perceptions

Several participants expressed positive views about the anti-helminthiasis MDA programme. They found the MDA program useful for both the rich and poor, as one participant put it in

the words of one participant: "*The programme helps the rich and the poor because the government is not selective when running the MDA programme provided you meet the age range*" **IDI_28y_Female_CG_R**. This participant continued in the same direction but with a special emphasis on the poor. Although the program is useful, it is beneficial for economically vulnerable groups, as such parents cannot do periodic deworming sessions or pay hospitalisation fees for children in case of STH infection. For example, a participant said "*What I know is that it helps us because not all people are able to afford the drug and the protective measures, we take may not be sufficient in protecting us, so it supplements it to protect us against the disease. Some people also forget to take de-wormer, so the government one helps a lot in our health*" **IDI_28y_Female_CG_R**. The MDA campaigns against STH improve children's health, especially in terms of their rapid physical development if they are protected from STH infections, as stated that "it promotes child growth and *protects the children from contracting the disease*" **IDI_62y_Male_ CG_U**.

Some CDD's also, in turn, argued that the distribution of helminthiasis to school-age children is handy and helps them in the learning process as he said in his remarks, "*...they [parents] are happy about it, that the government is giving such drugs to their wards, so, that they will be prevented from infection of wormers to boost their system, so that, they can study comfortably*" **IDI_62y_Male_ CG_U**.

Another opinion leader went in the same direction as above and maintains that his community finds the MDA program attractive, "*Oh, they* [parents] *see it to be a very good programme .... So, they see the health programme* [MDA] *to be the only thing to help them, to prevent the disease*" **KII_60y_Male_CL_U**.

> "*It is very encouraging. Whenever they take the drug, they become continually active. But when they do not, they put themselves at risk of contracting the disease. So, it*

helps when they run the MDA programme" **KII_52y_Male_CL_R**.

There is also a positive interpretation of the reactions of the products on the body. For him, the reactions of the products prove how effective they are and that they are in the process of eliminating parasites. This interpretation came from one of the CDDs he met in a rural area.

> "*Yah you see when we give the drug, as I said earlier some begin to show some reactions which means that the drug is really working because when the person hadn't taken the drug, he or she was not showing such reactions*" **IDI_50y_Male_CDD_R**.

4.4.2. Negative perceptions

The results of this study showed that two (2) of the three (3) groups of participants, notably the caregivers and CDDs, expressed some reservations about the anti-helminthiasis products distributed through the MDA program. For the former, the drugs of modern medicine (ALB & Meb) are not sufficient to cure STH infections "*Sometimes the drug they give doesn't cure the disease*" **IDI_28y_Female_CG_R**.

Further on, the same participant made it clear that she has just completed an exciting discovery on how to treat STH infections through herbs that are widely used in treatment in the country. These herbs allow patients who have lost their appetite to regain it.

> "*These days, I learnt that the traditional herbs are now used more often in this country. At first, they used to export it to other countries. I didn't even know that* ***Onwono*** [name of a tree used to heal STH infections by the community] *was effective in treating STH I just found out recently...That one can help you to regain your appetite when you chew*" **IDI_28y_Female_CG_R**.

In the same direction, one CDD mentioned that he believes more in traditional medicine using herbs and leaves than in modern medical production full of chemical elements harmful to human health. He also evoked and recognised the providence that God gives us. Here are his detailed explanations below.

> *"Yeah, in my own opinion, I will prefer the use of the local one* [medicine] *instead of the white man* [medicine]. *Because the white man medicine, they are full of chemicals and once we are here, God has given us everything we need so I do not see the reason for much on the drugs which come mostly from abroad. Yah for me if I am given a chance to choose between, provided the local one is workable, then I will go for the local one because that is more organic than the refined ones"* **IDI_36y_Male_CDD_R**.

Always wanting to say why the medicines of the white (modern) people as he calls them are not good, he wonders about their origin or efficacy because they have an opinion that our leaders are crisis businessmen. Hence, all they care about is money, and they are willing to do anything to get there at the cost of their fellow citizens' lives. This opinion is shared by the elites, and they wonder why doctors, nurses and other health professionals do not give these drugs to their offspring but instead demand that the children of others take them. As teachers and in charge of distribution, CDDs are obliged to follow the directives of the hierarchy. But to do so, they are sometimes obliged to take the drugs first in front of their pupils, a way for them to convince them that there is nothing harmful. Although after taking medication, they have some reactions in their bodies; but they are forced to do. That is why he said what follows.

> *"... at times we would want to find out where the drugs might have come from. Because we hear that, erm as for these drugs, because our leaders want money, so*

anything which is not good, let me put it this way, anything which is err harmful, is for Africans. So, our leaders would go and then take money...like this err ... So that is the perceptions most of us, especially the elite ones about these MDA... we do not see doctors and nurses given those drugs to their children. So, if you are not given it to your children, why do you want other people children to take... So, at times it is exceedingly difficult, but because we are teachers, we take it to show that it is good and therefore it is not anything poisonous before we give it to them. That is what we have been doing" **IDI_36y_Male_CDD_R**.

Another CDD mentioned the fact that some parents refuse to allow their children to take part in the MDA program because the medicines they distribute are out of date and as this is the case, they bring this to Africa and distribute it for free.

"These were drugs that have been expired in someone country, and they have brought it here to give to the Africans. So, some [parents] *came here and report, and explanation was given...and some* [students] *were not also taking it due to their parent's advice. So, it was not compulsory too, so we just leave them"* **IDI_36y_Male_CDD_R**.

Another CDD also reported that communities refuse to subscribe to the MDA programme against STH campaigns because they believe that it is a means to control fertility among the very young (children). Here is an illustration of what he said: *"Oh, at times some people will be saying that these drugs have been given so that their wards won't birth and those kinds of things"* **IDI_26y_Male_CDD_U**.

4.5.Factors influencing participants' perceptions

Factors influencing participants' perceptions of adherence to MDAs constituting either barriers or facilitators were explored in this study. These factors were primarily categorised as barriers and facilitators to adherence to MDA campaigns in the fight against STH.

4.5.1. Barriers to MDA implementation

The various participants in this study have exposed elements that constitute obstacles or blockages to the implementation of MDA programs. Lack of information, non-involvement of parents, side effects of medication and lack of motivation for CDDs are the main barriers described below.

The data showed that the lack of information is a hinderance to the effective implementation of MDA as well as STH campaigns. This lack of information, which was noted by many of the participants, has several aspects, including the lack of sufficient communication about the drugs distributed and the program: who these drugs are intended for, why and the possible adverse effects of these drugs (positive and negative effects if any), where they come from, are among the questions raised about the MDA program. Therefore, a mother we met in Nsuta told us the following:

> "*...challenges are there, this is what I'm saying that you don't see the I mean, the health personnel giving information about all these things* [MDA & drugs to be distributed]. *That's it...*" **IDI_33y_Male_CG_U**.

This lack of communication and information about STH medications, including the expected reactions or side effects of ALB and MEB after administration, was a real barrier for many participants. As a result, they expressed the desire to have health workers provide them with

all the information about the drugs. For this crucial informant, giving the information in parts and omitting the undesirable aspects is unfair.

> *"Yes, because when the person does not speak the truth about what can happen by taking the drugs, you cannot also give out the drug... When we take the drug, we will go to the toilet some days or probably three days after taking the drug* [you will have running stomach]*; you must make it known before we give out the drug. But when such information is not given, even me I would fear taking the drug. So, you must make it known so that we the people can see the effectiveness of the drug"* **KII_52y_Male_CL_R**.

The other aspect that needs to be considered in this program, although it is a school-based program, is the involvement of the parents of the students. An opinion leader mentioned that one should not assume that the children will inform their parents after school about the distribution of the planned medicines because, it is up to them to do so, no reversal of role is possible.

> *"I think with kids when you talk of drugs if the parents are not involved, and you talk about it in school, they simply forget about it. It is only a few and intelligent ones or the curious ones who will come home and talk about it"* **KII_60y_Male_CL_U**.

Fuelled by the non-involvement of parents in the process, some CDDs recognised that the system for disseminating information on drug distribution to parents suffers from ineffectiveness because the use of students (program beneficiaries) as informants is erroneous. The general rule in societies is that one does not prevent disease, one acts instead of curing it, so questions are raised when molecules (drugs) are offered to a healthy person.

> *"They will hear that, or the children will send the information to them that they are*

giving us drugs at school and you know most at times based on our culture, we only take drugs when we are sick. So, the parents some of them will say that aa, but you are not sick why are they giving you drugs. Yah... so when the information is not...erm. giving to them for them to know the importance of the drugs, that causes some of these resistance" **IDI_39y_Male_CDD_U**.

He goes on to argue that it is the children who are the parents' informants about the program "*We use them as our campaigners for them to go and give the information to the parents, and try to disagree their mind from some of these things*" **IDI_39y_Male_CDD_U**.

The manifestations of side effects and their management are still a significant concern for parents, even though CDDs do not give enough credit to parental complaints and take a special look at the effects of the drugs on children. They have been either trivialised or interpreted positively.

"*So, I tell them that because they have the disease present in their body that is why they give those reactions. There are some people that, days after taking the drug, would still show the reaction*" **IDI_50y_Male_CDD_R**.

These side effects and their trivialisation by the CDD provoke the parents' anger: "*There are some parents after their kids get those reactions to get angry at us*" **IDI_50y_Male_CDD_R**.

There are times when the children themselves go to complain to their different teachers about the various ailments they have after taking the medication. Here are the comments reported by one of the CDD.

"*At times, the children eerrrhhhh, the children itself will tell us when they see us around that these drug makes them weak and at times have a headache. The parents also call and report such an incident to us*" **IDI_33y_Male_CDD_R**.

"We had let say, three or five learners who were vomiting that day, that was their first day, but as times goes on, it was normal in their system. So, that was it, but we don't have any serious symptoms here, it's just they are vomiting and one girl..... yeah, yeah, one girl at home, the parents called the next day that she had been admitted at the hospital" **IDI_26y_Male_CDD_U**.

Despite complaints from both parents and students themselves, some teachers remain idle as they consider them to be everyday phenomena, as one CDD reported as follows, *"We do didn't do anything, we just allowed the system to work out"* **IDI_36y_Male_CDD_R**.

All CDD reported that during these activities, no one is motivated (no bonus). They make the distribution because the decision to do so came from the central level, i.e., from above. They are required to respect them and cannot act otherwise.

"...when it comes to school, they just give it to the headteachers to do it and so for the headteachers, they don't get anything" **IDI_36y_Male_CDD_R**.

CDD do not receive any incentive bonus, unlike health workers, who receive a few bonuses for each outing.

"But I think for the health workers when they go round; there are some motivations. There are some motivations they get from it, and they also get allowances" **IDI_36y_Male_CDD_R**.

It should be remembered that the lack of motivation of CDDs is one of the obstacles to the implementation of MDA programs, even though everyone says that it is advantageous to be at the service of the community.

"As I was saying our work is voluntary, they don't pay us for our jobs. We just have

the thought that if Ghana health service is willing to help the community, why do not we help. I have worked for 13 years now without they are paying us, but it is my will to help my country. Even if there is something to be given and I do not go and represent this community, that means the community would not get some unless I go to interviews and workshops with my own money" **IDI_50y_Male_CDD_R**.

4.5.2. Facilitators to MDA implementation

The factors that facilitate the implementation of MDAs in communities were identified during this study with the three (3) target audiences. Preliminary information to the drug distribution and awareness, school-based program, management of side effects for free, CDD motivation, and opinion leaders' involvement are facilitators identified during the study.

Information and communication are two key factors if they are considered in the implementation of a program such as MDAs, promoting adherence. The more informed people are, the better they understand and therefore accept the programme. For this reason, there is a need to diversify information channels so that everyone gets enough information on their own.

"...so, advertising it on TV and radio, the same way, as well as one on one, will help others who don't have a radio or TV to get informed. Those who got it from one on one will inform others that there is this ongoing program for people to patronise in it" **IDI_32y_Female_CG_R**.

Continuing to demonstrate the importance of prior information about the MDA program, one participant said the following, *"Oh, depending on how they announce it on the television. Sometimes when they make the announcement, they talk about how important it is to take the drug so with such knowledge I wouldn't want to miss it"* **IDI_28y_Female_CG_R**.

The participants in their interventions made it clear that they would like nothing better than to be informed in advance; if they have the information, they are willing to accept that their children take part in mass distribution campaigns. It is not possible to come in unannounced and expect people to adjust.

> *"Me, for instance when you just come to my house and tell me you are distributing drugs so I should come for mine, I wouldn't take the drug since I had not been informed. But when the announcement is given that, there would be an MDA programme, then my family and I would take part since we had already gotten information. But when you come unexpectedly, I won't take the drug"* **IDI_38y_Female_CG_R**.

Passing information is good, but choosing the information channels to have more impact is also very good. In addition to radio and television, information campaigns can also target places of worship, as one study participant noted.

> *"...when they do come here* [church] *and proclaim or announce it, then, we are also aware of it, so that we can even sit down..."* **IDI_28y_Female_CG_R**.

Sharing information about MDA days and the virtues of medication is one way to involve parents. This information illuminates and guides parents' decisions about drugs and whether to allow their children to participate in the anti-helminthiasis program. This is advocated by one of the rural drug distributors as follows.

> *"As I said, eh...., before they will bring in these drugs, eh..... I will like, those who will bring it, the agent or agencies to do advertisement on television and then the newspapers before they will bring these drugs to our school to be given to the pupils, so that the parents will be informed about it"* **IDI_33y_Male_CDD_R**.

In addition to information sharing, awareness and education of caregivers, the distribution of ALB and MEB for helminthiasis is a vital facilitator of the MDA program. As its name implies, the school-based program is implemented in a school setting. This makes it possible to reach several school-aged children at the same time without enough difficulty. The program, as implemented in schools, provides the opportunity for all students to take part. As a result of this initiative, the proportion of students who will take the medication is supposed to be very high, knowing the relationship between the students and their teachers. There is minimal risk of students refusing to take medicine.

Knowing the level of health involvement of parents and others involved in childcare is crucial. They may decide that following the administration of a medication that has caused side effects to the child, to not give the medicine a second time to the child, significantly if it costs them additional expenses. Therefore, free management of the side effects of medication is considered a facilitator. It must be recognised that CDD regularly does this free of charge.

> "*well as said earlier, some may have rashes on their skin, others may have tough skin, others also complain about itchy eyes. So, we tell them that whatever symptoms they may experience, they should tell so that we find ways of resolving the issue by sending them to the health centres. For that one, we do not take money... If I am not around, we tell them to go to the clinic, and we add that nobody will take their money so they should go without hesitation.... if they do not respond to treatment, the health workers give them referrer note to take to the Nsuta clinic*" **IDI_50y_Male_CDD_R**.

Parents when they hear that their children are receiving medication at school they are worried about their nature and as soon as they observe the slightest signs, they come to see the teachers to ask for explanations. Explaining the abnormal manifestations after taking the medication relieves the parents.

"a parent came to the school to complain to me that it was the drug that the child has taken which was given the child some issue. But I had to explain to them that some of these little things were expected. .... they come there very angry. But after discussion with them and telling them that some of these things small-small side effect is expected, most at times erm they will go from the school with a clear mindset because we have explained everything to them" **IDI_39y_Male_CDD_U**.

Community leaders, or opinion leaders as they are called, are key players in the implementation of policies and programs, particularly the MDA campaigns. In Ghana, these community leaders or local traditional and religious leaders greatly influence their communities. They are often able to get their communities to accept or reject a program. Failure to involve them means that an essential part of the key actors in the implementation of MDA programs is omitted. Faced with this situation, the leaders themselves have recognised their place and influence in the community.

"...if the leadership in the community says we do not accept this thing, it has a great influence on the community members. So sometimes it works. And that one goes back to alter what I initially said about the social and the cultural factors. Because if someone thinks that the community especially the leadership does not accept the MDA programme, then everyone will follow..." **KII_38y_Male_CL_U**.

Contrary to what is indicated in the barrier section of these results, the motivation of CDDs is a crucial facilitating factor in mass drug distribution campaigns against helminthiasis and other diseases. During this study, participants often cited elements such as the desire to help their communities as the motivating factor for their volunteer work. Alongside this, there is also the demand from the hierarchy that leads them to perform their work unconditionally.

"We do it because we want to help the children in our community. We know that if

they are healthy, it helps all of us parents and teachers" **IDI_26y_Male_CDD_U.**

"It is GHS who asks us to do this, and at the school level, it is the headmasters who instruct us to do this or that... it's for the good of the children that we do it" **IDI_39y_Male_CDD_U.**

"As a classroom instructor, whatever is about the children is my own, I do it with all my whole heart" **IDI_33y_Male_CDD_R.**

Also, it should be noted that despite the lack of a bonus for fixed-term contracts, some people like the work of distributing medicines to children *"So it* [workshop during MDA] *has thought me a lot and I have learnt a lot too. Therefore, I am happy doing the work"* **IDI_50y_Male_CDD_R.**

However, it must also be recognised that this "privilege" that they consider led them to play the role of health agent in their family. They believe that they have some knowledge that can guide them in the choice of medication in case of illness of a child around them.

"...personally, when we go for a workshop, I learn so many things so right now if one of my nephews is to get sick, I would know the medicine I would give to him to suppress the disease" **IDI_50y_Male_CDD_R.**

4.6.Organisation and delivery of MDA

This section is devoted to the experiences and attitudes of participants towards the delivery of the MDA programme. Specifically, these are CDD duties during MDA, their selection criteria and both caregivers and CDD's experience such drug reactions on children.

The distribution of medicines to children is another long list of activities for teachers. They play the role of informants, counsellors to parents, distributors of medicines and reporters of

data on children who have taken the medicines. This range of tasks in addition to the regular duties are a lot for these teachers. To get by, some of them ask for help from their co-workers. Here is a quote from one of the CDDs who met in a rural area that describes all the activities carried out during the MDA period.

> *"I am the campaigner, I am the distributor, I am the record keeper, at times I have to ask one or two of my colleagues to help me. But for the whole issue, I think I am in charge of everything, everything that we have to do concerning it, I do it"* **IDI_39y_Male_CDD_U**.

Caregivers have some doubts about the ability of teachers (CDDs) to distribute medicines to children because they are not health workers for them, so any provision of health care services must be provided by professional health workers.

> *"But when the kids go home telling their parents that my teacher gave me a drug, probably they might not say a nurse, but I think we also as the community would have to get this information to help the parents to understand that these teachers who are giving the drugs in the school have been trained"* **KII_60y_Male_CL_U**.

In addition, the selection of these CDDs does not follow any specific pre-established criteria. The criteria vary from one agent to another.

> *"We have the CHPS coordinator, she is a woman, so most at times we assist her. Mostly we are good to the school children from primary to J.H.S they know me very well. So, anything that goes on I am always around to help them"* **IDI_33y_Male_CDD_R**.

> *"…in this school I am the CHPS coordinator here, that is the health coordinator. The headmaster assigned me to this program and a workshop was been held, and I was been engaged in it"* **IDI_26y_Male_CDD_U**.

Parents' non-involvement or relatively low standard of living affects the process of distributing medication to children. Often, children come to school without having eaten breakfast and taken the medication, which often causes reactions. This is a major difficulty faced by CDD.

> "*...the problem that we normally get is that mostly they* [students] *don't eat before they take the drugs. Normally we administer it after the first break. But they will come and tell you that sir I did not get money to buy food so I can take the drug. So, these are the issues that we normally confront them....*" **IDI_39y_Male_CDD_U**.

Some parents have found that the MDA program has contributed to the improvement of their children's health through the distribution of ALB and MEB.

> "*Yes, when you give them the albendazole and the other one, it helps them in their moving and also give them strength*" **IDI_50y_Male_CDD_R**.

At the same time, others focused on the side effects of medications on their children that frighten them at times.

> "*Yeah, it's the reaction. It is very good but at times, the way it behaves, normally, at times, we are also afraid of it but it's all the same, yeah*" **IDI_28y_Female_CG_R**.

This same observation is shared by one of the CDDs we met in rural areas.

> "*Ohhh most at times the children feel dizzy and at times they have body itching but is just for a short period or hours*" **IDI_33y_Male_CDD_R**.

4.7. Conclusion of results

Some participants of this study had good knowledge about STH; however, others had no knowledge because they attributed the causes of STH infections to sugary foodstuffs and even believe that there is a traditional treatment (use of herbs and plant leaves) that is more effective than the modern one that recognizes ALB and MEB as being very effective in the fight against STH, and which they perceive as poison. The lack of information on the MDA programme and the drugs distributed the lack of motivation of the CDD are among the major barriers to implementing the MDA programmes.

CHAPTER FIVE

5. DISCUSSION

5.1. Introduction

This chapter is devoted to the discussion of the main results of the study, according to its specific objectives and in comparison, to previous studies on the knowledge and perceptions of caregivers of school age children about anti-helminthiasis MDA.

5.2.Knowledge on helminthiasis

Study participants demonstrated broad and varied knowledge of the causes of helminthiasis. This study showed that some of the caregivers believe that helminthiasis is caused by evil spirits and eating sugary food such as toffees, biscuits, and drinking kalypo. This finding is in-line with the conceptual framework that showed the direct influence of sociocultural factors such as beliefs, religion and culture on participants' knowledge about STH transmission mode. Aniwada et al. (2016) reported that 244 participants or 67% of the participants in their study stated that STH infections can be avoided by not eating sugary foods. However, this finding is contrary to WHO's (2016) assertion on the causes of helminthiasis linked to poor sanitation and open defecation. From the same study majority of the caregivers also believe that helminthiasis is caused by open defecation. This finding is consistent with WHO's (2016)'s assertion that helminthiasis is caused by poor sanitation and open defecation. This is also consistent with conceptual framework that showed the relationship between caregivers' personal situation (age, gender, education level, area of residence) and their knowledge about STH. Those in urban areas with a high level of

education have more knowledge about STH transmission mode and its consequences on human beings, chiefly children.

Even though CDD's are very important in the MDA process, they also demonstrated varied knowledge of helminthiasis' causes. Findings from the CDD's perspective revealed that helminthiasis is caused by certain parasites in the soil, especially when a child gets in contact with the contaminated soil through play. This finding is consistent with CDC's (2019) assertion that when hands or fingers that have been contaminated with soil are put in the mouth or by eating vegetables or fruit that have not been thoroughly cooked, washed, or peeled, by walking barefoot on the infected soil or with any other direct contact with the skin, and it is often children who end up on the floor playing. CDDs demonstrated some knowledge of STH parasites as demonstrated in the conceptual framework, the better trained and motivated they are for the good of all.

Concerning the knowledge of community leaders on the causes of helminthiasis, it was found in this study that community leaders linked the causes of helminthiasis to filthy places and salty environments. This finding partially agrees with WHO's (2016) assertion that helminthiasis is caused by poor sanitation. However, a salty environment as a cause of helminthiasis is not in agreement with WHO's assertion. According to WHO (2016) and CDC (2019), the dumpsites, toilets (open defecation places) unclean water sources are the areas of high-risk transmission of STH. From scientific indication, helminthiasis is not only caused by open defecation but also poor sanitation and hygiene. According to a study done in Nigeria in 2018 to identify high-risk locations for STH virus transmission, dumpsites or rubbish bins had the highest incidence (74.2 %), followed by toilets (36.5 %). The lowest frequency was seen near homes, with just (1.6 %) (Oyebamiji et al., 2018).

Also, regarding symptoms of helminthiasis, it was found from this present study that the majority of the caregivers' and CDD's associate stomachache, loss of appetite leading to hunger, weight loss, and vomiting as symptoms of helminthiasis. This finding is consistent with the CDC (2019)'s assertion that people infected with STH early on often show no symptoms. If symptoms do appear, they may be mild and may include abdominal discomfort. In the advanced stage, severe infections can cause a blockage in the intestines and may interfere with children's growth. Other symptoms, such as coughing, weight loss, and vomiting, will appear, explaining the worm migration process throughout the human body. This finding is also similar to that of Curtale et al. (1998) who reported that cognitive impairment, intestinal blood loss that can lead to anaemia, intestinal obstruction leading to malnutrition, stunted growth, vomiting, abdominal pain and even death are some of the severe conditions of STH infections.

Moreover, in this study, caregivers associate hygiene practice, including personal and environmental hygiene, to the prevention of helminthiasis. This finding is in line with WHO's (2016)'s assertion that helminthiasis can be curbed by considering three major factors, including improved sanitation, chemotherapy, and health education. CDD's from this study also revealed that helminthiasis can also be prevented by periodical deworming and promoting a clean human physical environment. This finding agrees with WHO's (2016) assertion that anti-helminthiasis, including the use of albendazole or mebendazole, can help prevent helminthiasis. A similar finding that PCT is a common means of combating STH in Asian, African and Latin American countries was also reported by (Perdomo et al., 2017).

In terms of treatment, it was found from this study that caregivers linked prayers and the use of herbal medicine to the treatment of helminthiasis. These socio-cultural and religious aspects (prayer and herbal treatment) that participants identified as ways of dealing with STH

in this study converge with the conceptual framework that showed the link between these aspects and participants' knowledge of STH. However, this finding is not consistent with WHO's (2016) assertion that anti-helminthiasis, including the use of albendazole or mebendazole, can help treat helminthiasis. However, it was found from this study that the majority of the CDD's agreed that periodical deworming can help treat helminthiasis. This finding is consistent with WHO's (2016) assertion that anti-helminthiasis, including the use of albendazole or mebendazole, can help treat helminthiasis.

The above findings discussed above demonstrate a varied but limited knowledge on the cause, symptoms, prevention, and treatment of helminthiasis among caregivers, CDD's, and community leaders in general and suggest a need for a comprehensive STH education to increase knowledge and awareness of helminthiasis. Several studies have revealed that understanding the cause, symptoms, prevention, and treatment methods are important in mitigating helminthiasis. This comprehensive STH education should consider factors listed in the conceptual framework (caregivers' personal situation, sociocultural factors, factors linked to information sharing and those linked to CDD).

5.3.Participants' perception of MDA anti-helminthiasis

The majority of the study participants showed positive views about the anti-helminthiasis MDA program. It was found from this present study that caregivers perceive the MDA program to be useful in fighting helminthiasis. In the same study, it was revealed that the majority of the participants confirmed that the MDA program is beneficial to vulnerable groups who are not able to periodically deworm their children or pay hospital fees for children with STH infection. This study finding is like WHO's (2019) assertion that MDA is

a program set up to help school-age children in general but is sometimes implemented on behalf of children in school only due to lack of funding.

Also, caregivers revealed from this study that MDA campaigns against STH contribute to improving children's health in terms of their rapid physical development if they are protected from STH infections. This study finding is consistent with WHO's (2019) assertion that the MDA program is designed to curb transmission and reduce the prevalence of hookworm, Ascaris, and trichuriasis infections by 80% and the intensity of infection by 90%. on STH.

The current study showed that the majority of the CDDs' agreed that the distribution of anti-helminthiasis to school-age children is handy and helps them in their learning process. However, these study findings are not consistent with WHO's (2019) assertion that MDA is a program set up to help school-age children in general but is sometimes implemented on behalf of children in school only to lack of funding.

Moreover, the negative perception of some of the participants towards MDA anti-helminthiasis was also noted. The current study revealed that caregivers and CDD's expressed reservations about the anti-helminthiasis products distributed through the MDA program. They asserted that modern medicine drugs are not sufficient to cure STH infections but rather prefer the use of traditional medicine. Besides that, some of the participants believed that African governments are ready to do anything to make money, even if they have to poison their people in complicity with the West. This finding is similar to that of Kusi et al. (2020) where participants' most prevalent drug misconceptions were the belief that medicines were not safe and were only designed to promote family planning.

5.4.Factors influencing participants' perceptions

The present study revealed that all respondents were informed and familiar with the barriers and facilitators to adherence to MDA, which they confirmed has been evident for some years now. However, their opinion on the barriers and facilitators to adherence to MDA varied considerably. Concerning barriers to MDA implementation, it was revealed from this study that lack of information was one of the many factors that hinder participants from adhering to MDA. This finding is similar to Wanzira et al., (2018) assertion that MDA programs come with challenges including information dissemination about STH and MDA, lack of consent from parents and low trust in drug distribution, communication gaps between health workers, schoolteachers, and community people, lack of record-keeping, monitoring and follow-up after MDA program.

In terms of parents' non-involvement, it was found from the study that participants are not involved in the MDA process because of the poor medium of communication. It was also found that participants do not get the chance to be informed on the MDA program. This finding is consistent with Wanzira et al., (2018) assertion that MDA programs come with challenges, including communication gaps between health workers, schoolteachers, and community people.

Drugs side effect was also found from this study to be a barrier to adherence to MDA. Participants cited side effects of taking the medication as reasons for refusal. These side effects were linked to dizziness, vomiting, rashes, and headache. This finding is in line with Wanzira et al. (2018) assertion that MDA programs come with challenges, including side effects of medication.

The present study revealed a lack of motivation for CDDs as another barrier to MDA. The study showed that most CDD's are not motivated in cash or in-kind, which has resulted from them not having the edge to participate in MDA in their communities. This finding is consistent with Wanzira et al. (2018) assertion that MDA programs come with challenges, including a lack of motivation for CDD's. A study conducted in Kenya by Kusi et al. (2020) showed that community members and leaders cited extrinsic benefits, particularly monetary incentives, as a key motivation for CDDs.

The above findings discussed above demonstrate a varied but limited knowledge on the cause, symptoms, prevention, and treatment of helminthiasis among caregivers, CDD's, and community leaders in general and suggest a need for a comprehensive STH education to increase knowledge and awareness of helminthiasis. Several studies have revealed that understanding the cause, symptoms, prevention, and treatment methods are essential in mitigating helminthiasis.

5.5. Study limitations and strengthens

This study, like all others, has its limits. The first limitation is that the MDA helminthiasis program is an annual program. Recall bias may occur because respondents might have thought before describing their perceptions and knowledge of the program. After all, the last campaign was held a few months ago. Second, programme managers and other health authorities in the district were not interviewed due to lack of time, so their opinions were not included in this study. However, it does consider the views of key actors involved in implementing the programme at the community level (mass drug distributors, caregivers, and community leaders). The last one is related to the fact that this study was conducted in only one health district in the country and in record time and therefore does not allow a general

view on the knowledge and perceptions of caregivers on MDA but enable to understand the barriers and facilitators related to MDA campaigns in this district and those with similar characteristics.

CHAPTER SIX

6. CONCLUSION AND RECOMMANDATIONS

6.1.Conclusion

The results of this study highlighted the different knowledge of the participants. Among them, few had a good knowledge of STH infections, particularly the causes and/or modes of transmission, symptoms, and choice of treatment route in case of infections. Some participants attributed the causes of STH to eating habits consisting of eating sweet foods and transmission of parasites by flies and believed that these infections could be treated using herbs and decoctions even following the teachings of the Bible where all knowledge is described. It should also be noted that some participants have drawn up a list of causes or modes of transmission of infections recognized by modern medicine such as open defecation, walking barefoot, eating unhygienic foodstuffs, among others. There are even some CDDs that encourage the use of traditional medicine instead of modern medicine. Worse, others believe that these infections can be prevented through prayer.

Participant perceptions of the MDA program study identified. Some of this group of participants applauded the program and recognized the health benefits to children. On the other hand, others argued that the drug distribution programs are a way for the government to make money with Western partners who want to control Africans' fertility or poison them with this distribution of free expired drugs.

The implementation of the MDA program has been hampered by several factors including the lack of sufficient information about the program, the announcement of MDA days in

advance, obtaining parental consent before administering the drugs to children, and its implementation specifically in schools on the one hand. On the other hand, it was recognized that the motivation of CDDs and their consideration as intruders who act as health agents. However, they have no mandate or professionalism to do so; the effective involvement of local authorities and traditional leaders, the good sharing of information on the program would help minimize these challenges. Never assume that communities are sufficiently informed. Always repeat each activity, including education and awareness-raising, as if it were the beginning.

6.2.Recommendations

This final section of the study provides some recommendations to help improve STH infection control strategies. Based on the study results, the following strategies are recommended that are consistent with WHO guidelines for STH infection control and conform to implementation research requirements.

6.2.1. Recommendations for the NTD programme managers

1. Focussing more on information relative to the drugs being distributed during CDD training, not only on how to distribute them but also the importance of the drugs, the possible side effects and ways of their management, and why they target school-age children. This information will help them to answer any questions from community members.

2. Creating awareness about school-teachers involvement in the drug distribution process will reduce and/or improve the (mis)trust in them.

3. Extending anti-helminthiasis MDA programme beyond schools to cover many children includes all SAC (at school or no, valid or with infirmity). That can help controlling over STH transmission.

4. Operationalising information centres to help share information about MDA and churches, mosques, and markets information. This should not be one event time but a process.

5. Reviewing community/religious leaders, local authorities' involvement to make them a key and real stakeholder along the whole process of MDA implementation. Involving them in CDD identification and their selection criteria determination by considering their relationship with their communities, specifically caregivers. Taking also motivation of CDD as a crucial factor that should not be neglected during MDA.

6. Making available some '*placebo drugs*'' for the teachers to take before students to motivate them to take the '*real drugs*''.

7. Developing and implementing in the district a behaviour change communication programme that will consider the sociocultural factors.

6.2.2. Recommendations to CDD

8. CDD should be directly engaged with parents about MDA organisation, delivery, and consent before administrating the drugs to children. This can help CDD get information about children like their age, community's trust, and avoid any inconvenient link to taking the drugs without them having breakfast.

6.2.3. Recommendations for further research

9. Conducting more research is needed to identify and analyse influencing factors of caregivers' perceptions of MDA and how forward it is to handle them.

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APPENDICES

APPENDIX A: PARTICIPANTS (CAREGIVERS) INFORMATION SHEET

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

Application for Ethics Approval

For Research with Human Participants

ERC GUIDE

NOTE: This serves as a guide to develop your Participants Information Sheet

Title: PERCEPTIONS AND KNOWLEDGE OF CAREGIVERS OF SCHOOL-AGE CHILDREN ABOUT ANTI-HELMINTHIASIS MASS DRUG ADMINISTRATION PROGRAMME IN SEKYERE CENTRAL DISTRICT, GHANA.

1. INFORMATION SHEET FOR CAREGIVERS

The Information Sheet provides information about the research for participants to make an informed decision of whether to participate in the study or not. It outlines the nature of the research, what the research involves, risks, benefits, compensation (if there is none, this should be stated).

Introduction

My name is Lansana Barry and, I am a Master student at the University of Ghana, School of Public Health and Department of Social and Behavioural Sciences. I can be contacted on 027 071 8381, Email: sympianke@gmail.con .

Background and Purpose of research

The purpose of the research is to assess the Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration (MDA) programme in Sekyere Central District, Ghana.

Nature of research

This study is assessing the Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis MDA. A total of 23 interviews will be conducted including caregivers of

school age children, mass drug distributors and community leaders. The information to be collected will be used to assess the perceptions and knowledge about anti-helminthiasis MDA, barriers and facilitators to MDA programme.

Participants' involvement:

- **Duration /what is involved:** Questions will be asked to each participant during the discussion, and we will record answers that will be given. It will take about 45 to 60 minutes.
- **Potential Risks:** The risks associated with this study are minimal. But given the COVID-19 pandemic that the world is facing, there is always a risk of contamination at the site where two or more people congregate.
- **Safety Provision for COVID-19 Pandemic:** You will be provided with alcohol-based hand sanitizer and face mask to protect you from COVID-19. You will wear the mask at all times during this interview. Social distance of at least 6 ft will be observed between the researcher and the participant during the interview. These same measures stated above, will be applied to the research team.
- **Benefits:** There are no direct benefits for participants who will participate in this study. However, the information you will provide will be analysed and used to guide policymakers for their future interventions.
- **Costs**: There will be no costs incurred by the participant.
- **Compensation:** Participants will not be given compensation for their participation. However, the researchers will reimburse participants' transportation costs where appropriate.
- **Confidentiality:** Information you will share with us during the interview will be confidential and used for the purpose of the study. After transcribing data, they will be anonymized and only the research team will have access to them.

- **Voluntary participation/withdrawal:** Your participation in this research is completely voluntary. You have the right at any time to decline or withdraw from the study. If you choose to withdraw, the information you provided will not be used in this study. Your withdrawal will not result in any penalties or negative consequences. Participation in this interview is voluntary, as well as the use of the recorder; you have the right to refuse to answer specific or all questions. However, I would be very grateful if you would provide me with as much information as possible and in all sincerity and accept the use of the recorder.
- **Outcome and Feedback:** After the study, the team will come back to the communities and presents the result of the study.
- **Appropriate alternative Procedures and Treatment:** not applicable
- **Funding information:** This research is fully funded by my scholarship, WHO/TDR.
- **Sharing of participants information/Data:** The investigator is the sole owner of the data that will be collected.
- **Provision of information and Consent for participants:** Copy of the information sheet and consent forms to be signed will be given to the participant to sign or thumbprint.
- **Who to Contact for Further Clarification/Questions**:

LANSANA BARRY, Principal Investigator
Phone :0270718381, **Email :** sympianke@gmail.com

Dr PHYLLIS DAKO-GYEKE, Supervisor of the study

Phone: 0207970370, **Email :** gyekenay@yahoo.com

NANA ABENA APATU: Contact person, Ghana Health Service
Phone: 0503539896

APPENDIX B: CONSENT FORM FOR CAREGIVERS

Title: "Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme in Sekyere Central District, Ashanti Region, Ghana".

INFORMED CONSENT FOR CAREGIVERS OF SCHOOL-AGE CHILDREN

Participant ID: CSAC /__/__/

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand. I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name of Participant.....

Participants' Signature .....OR Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in... (*name of language*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter..... OR Thumb Print .....

Date:.....

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language, he/she understood (*....name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature .....

Date.....

APPENDIX C: PARTICIPANTS (DRUG DISTRIBUTORS) INFORMATION SHEET

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

Application for Ethics Approval

For Research with Human Participants

ERC GUIDE

NOTE: This serves as a guide to develop your Participants Information Sheet

Title: PERCEPTIONS AND KNOWLEDGE OF CAREGIVERS OF SCHOOL-AGE CHILDREN ABOUT ANTI-HELMINTHIASIS MASS DRUG ADMINISTRATION PROGRAMME IN SEKYERE CENTRAL DISTRICT, GHANA.

2. INFORMATION SHEET FOR DRUG DISTRIBUTORS

The Information Sheet provides information about the research for participants to make an informed decision of whether to participate in the study or not. It outlines the nature of the research, what the research involves, risks, benefits, compensation (if there is none, this should be stated).

Introduction

My name is Lansana Barry and, I am a Master student at the University of Ghana, School of Public Health and Department of Social and Behavioural Sciences. I can be contacted on 027 071 8381, Email: sympianke@gmail.con .

Background and Purpose of research

The purpose of the research is to assess the Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration (MDA) programme in Sekyere Central District, Ghana.

Nature of research

This study is assessing the Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis MDA. A total of 23 interviews will be conducted including caregivers of school age children, mass drug distributors and community leaders. The information to be

collected will be used to assess the perceptions and knowledge about anti-helminthiasis MDA, barriers and facilitators to MDA programme.

Participants' involvement:

- **Duration /what is involved:** Questions will be asked to each participant during the discussion, and we will record answers that will be given. It will take about 45 to 60 minutes.
- **Potential Risks:** The risks associated with this study are minimal. But given the COVID-19 pandemic that the world is facing, there is always a risk of contamination at the site where two or more people congregate.
- **Safety Provision for COVID-19 Pandemic:** You will be provided with alcohol-based hand sanitizer and face mask to protect you from COVID-19. You will wear the mask at all times during this interview. Social distance of at least 6 ft will be observed between the researcher and the participant during the interview. These same measures stated above, will be applied to the research team.
- **Benefits:** There are no direct benefits for participants who will participate in this study. However, the information you will provide will be analysed and used to guide policymakers for their future interventions.
- **Costs**: There will be no costs incurred by the participant.
- **Compensation:** Participants will not be given compensation for their participation. However, the researchers will reimburse participants' transportation costs where appropriate.
- **Confidentiality:** Information you will share with us during the interview will be confidential and used for the purpose of the study. After transcribing data, they will be anonymized and only the research team will have access to them.
- **Voluntary participation/withdrawal:** Your participation in this research is completely voluntary. You have the right at any time to decline or withdraw from the

study. If you choose to withdraw, the information you provided will not be used in this study. Your withdrawal will not result in any penalties or negative consequences. Participation in this interview is voluntary, as well as the use of the recorder; you have the right to refuse to answer specific or all questions. However, I would be very grateful if you would provide me with as much information as possible and in all sincerity and accept the use of the recorder.

- **Outcome and Feedback:** After the study, the team will come back to the communities and presents the result of the study.
- **Appropriate alternative Procedures and Treatment:** not applicable
- **Funding information:** This research is fully funded by my scholarship, WHO/TDR.
- **Sharing of participants information/Data:** The investigator is the sole owner of the data that will be collected.
- **Provision of information and Consent for participants:** Copy of the information sheet and consent forms to be signed will be given to the participant to sign or thumbprint.
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LANSANA BARRY, Principal Investigator
Phone :0270718381, **Email** : sympianke@gmail.com

Dr PHYLLIS DAKO-GYEKE, Supervisor of the study

Phone: 0207970370, **Email** : gyekenay@yahoo.com

NANA ABENA APATU: Contact person, Ghana Health Service
Phone: 0503539896

APPENDIX D: CONSENT FORM FOR DRUG DISTRIBUTORS

Title: "Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme in Sekyere Central District, Ashanti Region, Ghana".

INFORMED CONSENT FOR COMMUNITY MASS DRUG DISTRIBUTORS

Participant ID: CMDD /__/__/

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand. I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name of Participant.....

Participants' Signature .....OR Thumb Print.....

Date:.....

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in.... (*name of*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter..... OR Thumb Print .....

Date:.....

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language, he/she understood (*....name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature .....

Date.....

APPENDIX E: PARTICIPANTS (COMMUNITY LEADERS) INFORMATION SHEET

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

Application for Ethics Approval

For Research with Human Participants

ERC GUIDE

NOTE: This serves as a guide to develop your Participants Information Sheet

Title: PERCEPTIONS AND KNOWLEDGE OF CAREGIVERS OF SCHOOL-AGE CHILDREN ABOUT ANTI-HELMINTHIASIS MASS DRUG ADMINISTRATION PROGRAMME IN SEKYERE CENTRAL DISTRICT, GHANA.

3. INFORMATION SHEET FOR COMMUNITY LEADERS

The Information Sheet provides information about the research for participants to make an informed decision of whether to participate in the study or not. It outlines the nature of the research, what the research involves, risks, benefits, compensation (if there is none, this should be stated).

Introduction

My name is Lansana Barry and, I am a Master student at the University of Ghana, School of Public Health and Department of Social and Behavioural Sciences. I can be contacted on 027 071 8381, Email: sympianke@gmail.con .

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Nature of research

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collected will be used to assess the perceptions and knowledge about anti-helminthiasis MDA, barriers and facilitators to MDA programme.

Participants' involvement:

- **Duration /what is involved:** Questions will be asked to each participant during the discussion, and we will record answers that will be given. It will take about 45 to 60 minutes.
- **Potential Risks:** The risks associated with this study are minimal. But given the COVID-19 pandemic that the world is facing, there is always a risk of contamination at the site where two or more people congregate.
- **Safety Provision for COVID-19 Pandemic:** You will be provided with alcohol-based hand sanitizer and face mask to protect you from COVID-19. You will wear the mask at all times during this interview. Social distance of at least 6 ft will be observed between the researcher and the participant during the interview. These same measures stated above, will be applied to the research team.
- **Benefits:** There are no direct benefits for participants who will participate in this study. However, the information you will provide will be analysed and used to guide policymakers for their future interventions.
- **Costs**: There will be no costs incurred by the participant.
- **Compensation:** Participants will not be given compensation for their participation. However, the researchers will reimburse participants' transportation costs where appropriate.
- **Confidentiality:** Information you will share with us during the interview will be confidential and used for the purpose of the study. After transcribing data, they will be anonymized and only the research team will have access to them.
- **Voluntary participation/withdrawal:** Your participation in this research is completely voluntary. You have the right at any time to decline or withdraw from the

study. If you choose to withdraw, the information you provided will not be used in this study. Your withdrawal will not result in any penalties or negative consequences. Participation in this interview is voluntary, as well as the use of the recorder; you have the right to refuse to answer specific or all questions. However, I would be very grateful if you would provide me with as much information as possible and in all sincerity and accept the use of the recorder.

- **Outcome and Feedback:** After the study, the team will come back to the communities and presents the result of the study.
- **Appropriate alternative Procedures and Treatment:** not applicable
- **Funding information:** This research is fully funded by my scholarship, WHO/TDR.
- **Sharing of participants information/Data:** The investigator is the sole owner of the data that will be collected.
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Phone: 0207970370, **Email :** gyekenay@yahoo.com

NANA ABENA APATU: Contact person, Ghana Health Service
Phone: 0503539896

APPENDIX F: CONSENT FORM FOR COMMUNITY LEADERS

Title: **"Perceptions and knowledge of caregivers of school-age children about anti-helminthiasis Mass Drug Administration programme in Sekyere Central District, Ashanti Region, Ghana".**

INFORMED CONSENT FOR KEY-INFORMANTS (COMMUNITY LEADERS)

Participant ID: KII /__/__/

PARTICIPANTS' STATEMENT

I acknowledge that I have read or have had the purpose and contents of the Participants' Information Sheet read and all questions satisfactorily explained to me in a language I understand. I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name of Participant……..

Participants' Signature ……..OR Thumb Print……

Date:……

INTERPRETERS' STATEMENT

I interpreted the purpose and contents of the Participants' Information Sheet to the afore named participant to the best of my ability in… (*name of*) language to his proper understanding.

All questions, appropriate clarifications sort by the participant and answers were also duly interpreted to his/her satisfaction.

Name of Interpreter.....

Signature of Interpreter..... OR Thumb Print .....

Date:.....

Contact Details

STATEMENT OF WITNESS

I was present when the purpose and contents of the Participant Information Sheet was read and explained satisfactorily to the participant in the language, he/she understood (*....name of language*)

I confirm that he/she was given the opportunity to ask questions/seek clarifications and same were duly answered to his/her satisfaction before voluntarily agreeing to be part of the research.

Name:.....

Signature..... OR Thumb Print .....

Date:.....

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name.....

Signature .....

Date.....

APPENDIX G: INTERVIEW GUIDES

Interview guides

1. In-depth interview guide for caregivers of school-age children

Identity of respondents			
A	*Interviewer Name & Signature*		
B	*Interview date*		
C	*Name of town/Village*		
Characteristics of Participants			
i	Age		
ii	Sex		
iii	Marital status		
iv	Education level		
v	Profession		
vi	Ethnic group		
vii	Religion		
viii	Area (Urban/Rural)		

No	Themes	Questions
1	**Caregivers' knowledge and perceptions of helminthiasis**	1. Have you ever heard of a disease that is transmitted through the soil? If yes, can you describe it? *Have you ever heard of Soil-transmitted helminthiasis?* 2. Explain to me what soil-transmitted helminthiasis is? Probe for an explanation if the meaning is not clear.

		3. To the best of your knowledge, what are the symptoms/warning signs of STH? *Which of these symptoms do experience: Loss of appetite, permanent hunger, anaemia, skin allergy, weakness, delay in physical development?* 4. What do you think are the causes of STH? Local beliefs on the causes of STH? Why? Parasite infections? Personal attribution of cause of STH? Why? 5. How would you explain the mode of transmission of STH? *Areas at risk of STH transmission.* *In your opinion, which of these is responsible for the transmission of STH: open defecation? barefoot? unhygienic water source? spiritual course? Any other?* *How does transmission occur?* 6. Tell us about the modes of transmission of Soil-transmitted helminthiasis? *Do you know what promotes the transmission of Soil-transmitted helminthiasis?* 7. What can be the means of prevention of Soil-transmitted helminthiasis? *What do you think you can do personally to prevent contraction the parasite?* *What can others do also to prevent themselves from contracting the parasite?* *Probe on hygiene: hand washing, toilet*

		use, shoe wearing, use of water from protected sources, immunization during MDA. 8. What do you understand by anti-helminthiasis mass drug administration? *What is the purpose of the treatment? What do you think about this purpose of the treatment? Do you believe in it or not? What thinks the other community member?* *How often is organised the anti-helminth MDA campaigns? What do you think about? How is organised the campaign: door-to-door? How is your attendance for treatment?* *What kind of medication is given?* *What dosage of the medication is given to your children?* *Do you miss the treatment some times? Why?* *How your children feel after taking the drugs?* 9. How do you feel about open defecation? *What are the effects of open defecation?* 10. Have you received information on how MDA works and how did you get to know about MAD? *If so, when did you receive the information, by who, and what kind of information did you receive? Where did you receive the information: media, health workers, community mass drug distributors, community leaders, Church, Mosque,*

		friends, family?
2	**Adherence to Mass Drug Administration (MDA)**	11. Has the anti-helminth MDA impacted your children health? *Positively? Negatively? How?* 12. Tell me your motivation for adhering to MDA against STH or your nonadherence to the campaign? *Is there any way of protecting or immunizing your children traditionally or spiritually?* 13. How would you describe MDA against STH? 14. What have been your experience during MAD campaigns in your community? 15. How do health professionals or community drugs distributors perceive or treat you? *Choice of words, the tone of voice (shouting or normal voice) facial expression (welcoming or not welcoming)?*
3	**Cultural factors that influence caregivers' perceptions about anti-helminthiasis MDA**	16. What are the factors that influence your perceptions about anti-helminthiasis MDA? 17. What are the factors that influence your community about anti-helminthiasis MDA? 18. How are you used to treat helminthiasis in your community? 19. What do you think about anti-helminthiasis mass drug administration? *Do you think that the drugs that they are distributing can prevent children to contract the parasite?* 20. Can you describe how anti-helminthiasis mass drug administrations are organised in

		your community? *Is there anything that can prevent immunizing your children? If yes, please explain them.* 21. What are the major challenges that you are facing during mass drug administration? *Is there any culturally sensitive? Explain it.* 22. How would you them to be solved 23. How do therapists and religious leaders think about STH parasites, how it can be treated? *Is there any talisman, concoction, or another thing that you or your community used to treat STH?*
3	**Community members' experiences with the MDA**	24. Can you tell me about your experience with MDA in your community? *Good or bad? Explain.*
4	**The attitudes of caregivers toward the delivery of MDA in the community**	25. What attitudes do you have towards MDA in your community? 26. How do you interact with community drug distributors? *Why?* 27.

2. In-depth interview guide community for mass drug distributors

	Identity of respondents		
A	*Interviewer Name & Signature*		
B	*Interview date*		
C	*Name of town/Village*		
	Characteristics of Participants		
i	Age		
ii	Sex		
iii	Marital status		
iv	Education level		
v	Profession		
vi	Ethnic group		
vii	Religion		
viii	Area (Urban/Rural)		

No	Themes	Questions
1	**Mass drug distributors' knowledge of helminthiasis**	28. What are you distributing the Albendazoles and Mebendazoles to school-age children against? 29. Explain to me what soil-transmitted helminthiasis is? *Probe for an explanation if the meaning is not clear.* 30. STH is one of the neglected tropical diseases worldwide. I would like to know more about this major public health condition. What is the cause of STH? *What predominant conditions do you think account for STH incidence here? Social factors; open defecation? poor sanitary condition?* 31. Throughout your years of practice, what is

		your opinion has been some of the common symptoms of STH? 32. Can you explain to me how the STH transmission occurs? 33. Describe to me the main effective STH infection control measures that are adopted here? 34. For you, how do caregivers of school-age children perceive helminthiasis Mass Drug Administration (MDA)? *Why?* 35. How are the side effects of anti-helminthiasis drugs and how are they managed?
2	**Challenges face Community mass drug distributors**	36. Tell me your motivation for being a community mass drug distributor? *What are some benefits of being a community mass drug distributor?* 37. Tell me how is your interaction with the caregivers of children/community. *During MDA campaigns? Out of MDA campaigns? How is your interaction with community leaders/religious?* 38. What do you think can be done to encourage caregivers of children to adhere to the MDA? 39. What are the current major barriers you face during MDA campaigns? *What do you need to do your work well?*
3	**Supervision and monitoring**	40. How is supervision practised during MDA campaigns? 41.
4	**Adherence to Mass Drug Administration (MDA)**	42. Has the anti-helminth MDA impacted your children health? *Positively? Negatively? How?*

		43. What are the factors that influence caregivers' perceptions about anti-helminthiasis Mass Drug Administration programme? 44. What are the community members' experiences with the Mass Drug Administration? 45. What are your attitudes toward the delivery of Mass Drug Administration? *What are some attitudes of caregivers and toward the delivery of Mass Drug Administration? Good or bad?*

3. Key informant interview guide

	Identity of respondents		
A	*Interviewer Name & Signature*		
B	*Interview date*		
C	*Name of town/Village*		
	Characteristics of Participants		
i	Age		
ii	Sex		
iii	Marital status		
iv	Education level		
v	Profession		
vi	Ethnic group		
vii	Religion		
viii	Area (Urban/Rural)		

No	Themes	Questions
1	**Community leaders' knowledge of helminthiasis**	46. What are community mass drug distributors distributing the Albendazoles and Mebendazoles to school-age children against in your community? 47. Explain to me what soil-transmitted helminthiasis is? *Probe for an explanation if the meaning is not clear. What is the cause of STH?* *What predominant conditions do you think account for STH incidence here? Social factors; open defecation? poor sanitary condition?* 48. For you, how do caregivers of school-age children perceive helminthiasis Mass Drug

		Administration (MDA)? *Why?* 49. How are the side effects of anti-helminthiasis drugs and how are they managed by caregivers of children in this community? *What is used to be their reaction regarding these side effects?*
2	**The organisation of mass drug administration campaigns in the community**	50. How mass drug administration is organised in your community? *Who is involved in the MDA campaigns?* *What is the role of each?* 51. Overall, what are your perceptions of the STH MAD in your community?
3	**Barriers & facilitators to mass drug administration campaigns in communities**	52. As a key community leader, what are the barriers to MDA? *Social/cultural factors, how?* *Misinformation, how?* *Religious/spirituality factors, how?* 53. what can be done to overcome these barriers? *As a community leader, what are you doing to overcome these obstacles?* *What do you need to help you deal with these barriers?* 54. What do you think can be done to encourage caregivers of children to adhere to the MDA? 55. Can you describe the attitudes of both community drug distributors and caregivers/community members during MDA campaigns? *What would you suggest for better*

		organisation?