ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

COMMUNITY PARTICIPATION IN THE TREATMENT AND PREVENTION OF ENTEROHELMINTHIASIS OR INTESTINAL WORM INFECTIONS IN CHILDREN BELOW FIFTEEN YEARS IN THE NDOP PLAIN OF THE NORTH WEST REGION OF CAMEROON

Dr. SRRI Martha NTONIFOR

Article DOI: https://doi.org/10.36713/epra12408
DOI No: 10.36713/epra12408

ABSTRACT

This paper seeks to investigate the effectiveness of community participation in the promotion, treatment and prevention of enterohelminthiasis in children from zero to fifteen years in the Ndop plain community. Community participation is premedical in the implementation of PHC system as requested in Alma Ata and the Bamako initiate respectively. To gain knowledge of the phenomenon we conducted a study where we used both the qualitative and quantitative methods of research. The data was collected using a questionnaire, observation and in-depth interview techniques. From the facts gathered and analyzed, we noticed that community participation through community representatives in co-management, public participation in health financing, services of community health workers doesn't correspond to the realities of rural or community life. This explains why enterohelminthiasis in children especially between the ages of 2-15 years is difficultly controlled.

KEY WORDS: ***Community, Community participation, Enterohelminthiasis, Children below fifteen years***

INTRODUCTION

Enterohelminthiasis or soil transmitted helminths or intestinal worms is one of the Neglected Tropical Diseases (NTDs) and a major public health challenge in rural communities. WHO (2022) affirms that soil transmitted helminthes are among the most common infections worldwide and affect the most poorest and deprived communities given that more than 1.5 billion people or 24% of the world's population are infected. These infections are said to be distributed mostly in tropical and subtropical areas with the greatest number in sub-Saharan Africa. It has been noted that over 267 million preschool children and 568 million school children live in areas where these parasites are intensely transmitted. According to the Cameroon Health Sector Strategy (2016- 2017) more than 10 million Cameroonians are infected. Just like Schistosomiasis, roundworms and whipworms infect more than 6 million persons, and hookworms about 2 million. School-age children (6-15 years) are the most vulnerable group (50% for schistosomiasis and 38% to 47% for intestinal helminthiasis) (Moh, 2016). These parasites are transmitted by the ingestion of the egg passed through the excrement of the infected person. The eggs are ingested through contaminated water sources, unwashed or not well cooked vegetables, unwashed contaminated fruits and raw tubers. Children who play in contaminated soil and later put their hands in the mouth without washing will obviously ingest the larva. The adult worm live in the human intestines where they feed on the tissues of the host including blood which might lead to loss of blood, iron, protein, increases malabsorption of nutrients, compete for vitamin A in the intestines, and loss of appetite which will lead to less nutritional intake. If not treated, the presence of these worms in humans and more especially children will lead to anemia, body weakness, dysentery, diarrhea and abdominal pain, impaired growth and physical development while heavy infections can cause intestinal obstruction which might lead to death (WHO, 2022).

As per its treatment delegates at the world health assembly in 2001 unanimously resolved that endemic countries starts seriously to tackle worms especially schistosomiasis and soil transmitted helminths by controlling morbidity through periodic treatment of people at risk living in endemic areas. Promotiom, treatment and control measures will include health and hygiene education which will reduce infection and reinfection, and adequate sanitation which might not be effective in poor resource areas. According to WHO (2022) this periodic treatment and preventive procedures will reduce and maintain the intensity of infection and protect risk populations from morbidity. In this effort, WHO recommends albendazole (400 mg) and mebendazole (500 mg) for a deworming process which can be easily integrated with child health or school health programs, coupled in the generic ivermectin for the control of S.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

stercoralis. The albendazole and mebendazole is donated to National Ministries of Health while invermectin is available at affordable prices. The control of schissotomiasis and soil transmitted helminthes in Cameroon should be focused on regular and systematic deworming of the populations at risk, relying on community participation, partnership and multi-sectoriality (Moh, 2016).

As per effective healthcare, community participation can be implemented in a locality community where people live in a geographically constrained area and share common values, norms, beliefs and social amenities such as water source, primary health care service, and living and farming space. Community participation on its part has been conceptualised as a process focused on sustained active involvement of communities in service development (McEvoy, 2019). The PHC system adopted in Alma Ata advocates that community members be involve in defining their health issues of concern, making decisions, formulating and implementing policies in planning and implementation. In other words, community members are to be part of the processes of needs assessment, planning, mobilizing, training, implementing, monitoring and evaluation.

The research was conducted in the Ndop area of the North West Region of Cameroon given that it is not only a plain but also a wetland area. This area is characterized by swamps owing to the overflow banks of the Noun River especially during the months of July – September which are the wettest months of the raining seasons. The area is also surrounded by hills which favours deposits like cattle drippings washed down into the plain during the rains. Added to this the creation of the Bamendjin dam with the Ndop Plain hosting its reservoir has enable constants floods in the areas (WIRMVEM et al; 2013). During floods pit toilet drainage get mixed with water that floods into homes or living quarters (Fonge; 2012). All of these has made the area a health risk zone especially for children as the environment is favourable for the breeding of helminthes.

Human activity in the area is closed to nature as the main economic activities is farming both food cropping and livestock rearing especially pigs, cows and goats. Fishing too is a source of income thanks to the reservoir of the Bamendjin Dam and Noun River. Human activity therefore gets the people closer to where the micorganisms responsible for enteroheminthiasis breeds such as the soil.

METHODOLOGY OF STUDY

This study made use of the case study design even as a unique case was chosen. This was done because from casual observation, it was noticed that there is a relation between physical, socio economic and cultural environment and disease type and rate of infection (Dziedom et al; 2012). Our sample was chosen using the purposeful and simple random techniques. Out of the 13 different communities know as villages of the Ndop Plain Area, we chose Bamunka, Bamali, Mighang, Balikumbat, Baba 1, Bamessing, Bambalang, Bamukumbit, and Babungo . All with both semi- urban and rural characteristic that helped in the comparison of the data collected according to living conditions. Our key informants were chiefs of health care centers since community participation was to be evaluated with respect to the health care services available in the area. As per the qualitative aspect of the study we used non participant observation and semi structured interview to collect part of the data, this helped to describe the phenomenon in its natural form and context. Quantitatively, we designed a multi answer questionnaire which was used to collect data from care givers or parents. The questionnaire was administered to an average of 40 informants per community with a total of 525 informants both male and female with all age groups inclusive. All these techniques that were employed helped us acquire complementary data important for the analysis of the fact. The points of view of all our primary informants were used in the analysis of the data used in this article.

This research was inserted into structuralist constructivist approach of Bourdieu Pierre, the health belief model of Becker, the community participation approach and the theory of Multiculturalism by Lupton. Bourdieu prone that practices are not objectively determined nor a product of freewill and so people internalize the structures of the social world. But all of these is done through the network of relationships which can be cultural, economic, social, political and/or symbolic with political power endorsed with a lot of authority which is able to influence the other fields. With this he went further to postulate that variation in taste can bring differences or unifies while class on the other hand governs the capacity to participate. Community participation in the treatment of enterohelminthiasis in the Ndop Plain community is determined by people's access, perceptions and knowledge of the services available. Apart from that, personal relationship with personnel and personnel's attitudes also counts. Lupton (2003) emphasis on the culture of the people in the implementation of health care procedures which was noticed during this study as community members are faced with both the traditional and personal herbal medicine and modern Becker health facilities. Becker (1974) in the health belief model says that the chances of person to adopt a healthy behavior depends on the outcome of the assessment of the threat of the health problem and the pros and cons of taking action. So community member's perception of the severity of the illness, those who are reminded of the problem, knowledge, and benefits of participation, will determine the likelihood of getting involve in preventive measures. Patricio and Morgan (2020) cites that the wildly used approach for the community participation is the continuum participation which emphasis the way communities participate in health action. Here, communities participate through mobilisation, collaboration, and empowerment which are levels related to the scope of influence. The health practitioners mobilises the community to follow their recommendations in the presence or absence of disease. Collaboration on its part is within the health services where community members makes donations, time, and services for needs and actions defined by the health professionals. Meanwhile empowerment is community development where human condition is primordial. The community plans and

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

execute health activities using health professionals. This aims at promoting community development to change the living conditions of the population through power-sharing between health systems and the population.

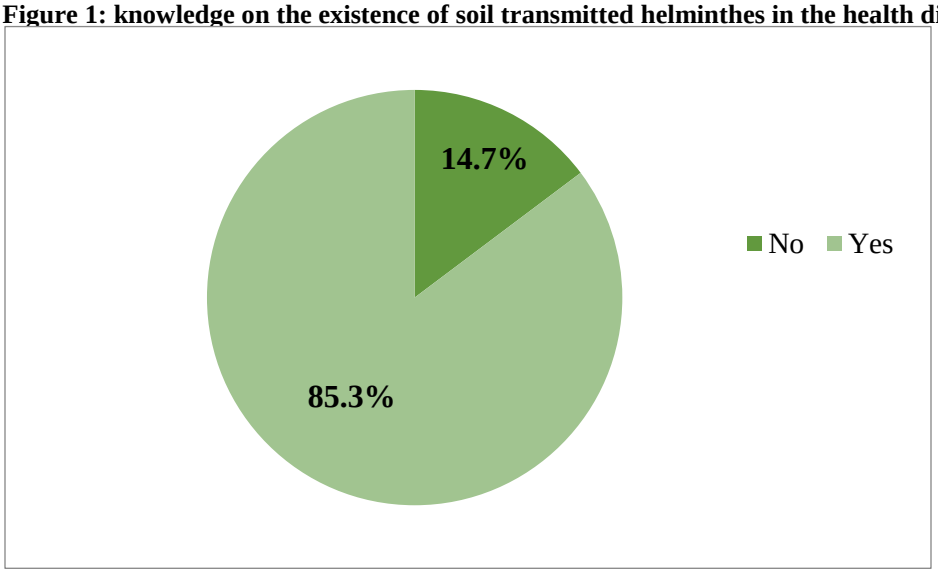
The delivery of healthcare services in the Ndop Plain health district as in other health districts in Cameroon depends on a dialogue structure based on co-financing, co-management and community participation. In this perspective, community participation is to be expressed in public participation in health care financing, participation of representatives of communities in co-management, advocacy, communication and social mobilization of civil society organizations, services of community health workers, and community initiatives for the promotion of health. In this respect, community participation will entirely depend on the abilities of the community representatives and the community health workers who acts as the link between the health facility and community members. They carry the task of identify community health needs, mobilizing and training community members in participating in community health projects such as immunization campaigns and environmental upkeep projects. But community participation is not entirely new to African communities for it is a great aspect of African communal life expressed through solidarity development. Generally community action is needed depending on the importance placed on issue at stake meaning that not all ailments might need community action for promotion and prevention. In any case, the effectiveness of any approach is tested by its outcome especially as it is difficult to isolate the levels community participation as per participation continuum in the Ndop Plain Health District.

Community Knowledge on soil transmitted helminthiasis

As per our study, the community member's knowledge of helminthiasis was measured in terms of knowledge of the existence of the organisms in the environment, its physical signs and symptoms and measures put in place by medical system to control the infections. The Ndop Health District is situated in the Ndop Plain of the North West region of Cameroon and is comprises 13 different cluster settlements of different villages. The health areas in the health district are carved out following the population size and the distance from one health area to another. Each health area has a modern public health facility known as an integrated health center which is the first point of contact with the population according to PHC system. Administratively, the area is a division with a divisional headquarters in Bamunka also known as Ndop urban in health terminology. In this area a greater part of life is concentrated with both urban and rural features. It is here that the district hospital is situated coupled with abundant social amenities such as pipe borne water, electricity supply and educational facilities. The Ndop plain region is an endemic zone for soil transmitted helminthes because it has favourable weather conditions for the breeding of the microorganisms and most importantly with the creation of the Bameindjin Dam in 1975. This dam brought about environmental conditions and human problems of the region due to lack of flood control measures during the rainy seasons. This led to unclean water sources and environmental health issues (Mbih et al; 2014). Despite these, areas such as Mighang and Bambalang were noted with about 40% and 30% infection rate respectively according to the chiefs of personnel of their various integrated health centers. Notwithstanding, 14% community members still showed a lot of ignorance and unawareness of these infections in the area especially in the rural areas.

Figure 1 below shows that among the 529 respondents, 78 respondents had never seen or heard about intestinal worms with 61 respondents coming from the rural areas. This gave us a total of 14.7% of community members who had never heard about or seen intestinal worms. This means that a greater number of the people have either seen and/or heard of organisms but it was observed that there is an epidemiological transition as lifestyle changes.

Figure 1: knowledge on the existence of soil transmitted helminthes in the health district



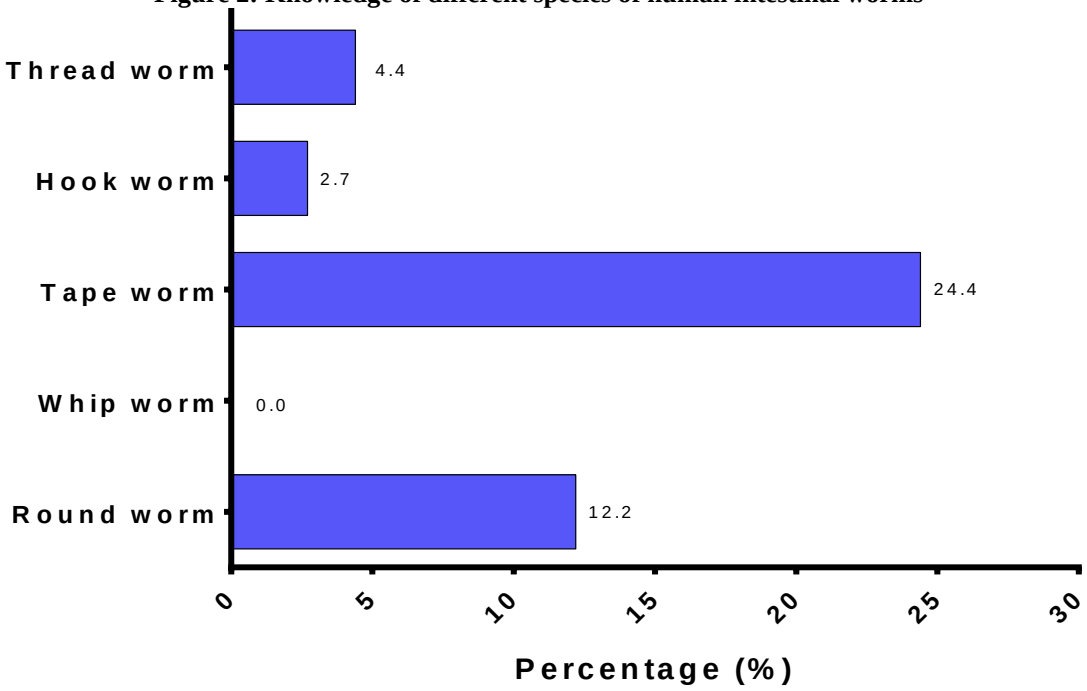
ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

In the Ndop Plain especially in the rural areas, it was noted that most community members did not know the various species as per its common names talk less of its scientific names. They could only describe the worm by its structure or morphology for those who have seen the worms physically. They gave the following descriptions; *long worm big like snake, red and white worm, ring worm, short and open head worm, small worm, white and yellow worm, long and tinny, and thin and long worm.* Analyzing these, the research team noted that these worms were a physical description of the various type of intestinal worms they have seen physically. The *long worm big like snake* is the description of the ascaris lumbricoides which is a large round worm that can grow to 35cm for the male and the female up to 40cm (Owen: 1989) .The *red and white* worm is not actually the color of the whip worm specie but the research team saw it to be the whip worm because to a lay and illiterate person who cannot differentiate colours, there is no great difference between red and pink. The color of the whip worm specie is pinkish-white. On the other hand, *the thin/or long and thin worm* is the description of the thread worm which can be used to refer either to be of the family of the strongyloides stercolis or nematodes of the genus enterobius also known as the pin worm. The *white yellowish and small worm* are the hook worm specie for they are grayish white for the A. duodenal while the Nectar Americanas are similar to the morphology of A. duodenal with the male usually 5-9mm long (cited up). The A. duodenal is long and stouter. The *small worm* can also be used to describe the pin worm species whose eggs are not invisible to naked eyes for its small size. From the help of these descriptions of the morphology of these human intestinal worms, we realized that these infections are common in the area but for the fact that the community members don't know or are not familiar with the scientific or common names. The fact that they are able to describe the morphology of these worms indicates they have seen the adult worms with their naked eyes. The possibility of seeing these worms with the naked eyes implies that they have seen infected persons pass it out either through the nostrils, mouth or stool. This only happens in very severe infections.

Community member's knowledge of the prevalent species

As per figure 2 below we will notice that the community members are more familiar with the tape worm specie as per their description and those who knew the name, mentioned it. This goes along with livestock rearing which is one of their main activities, the rearing of pigs and cattle grazing.

Figure 2: Knowledge of different species of human intestinal worms



According to the community members, the prevalent intestinal worm is the tape worm with 24.4% prevalent rate as seen from the figure above, also described by its broad head and segmented body. But the medical team's point of view is contradictory to this fact. The in-depth interview with the personnel of the health centers shows that Ascaris Lumbricoide are the most prevalent. The chief of post of the Mbangsalle-Bamali health center (Benard), told the research team that *the round worms among the various type of helminthes are the more prevalent here*. The chief of the Bamessing health center confirmed this when he said. *Always, it is these round worms that are prevalent*. The chief of post of the Bamukumbit health center equally acknowledged this when he said, *the ascaris is the more common type that we have here*. When the health team asked the assistant laboratory technician of the Mighang health center (Gladys) of the most common diseases in the health zone,

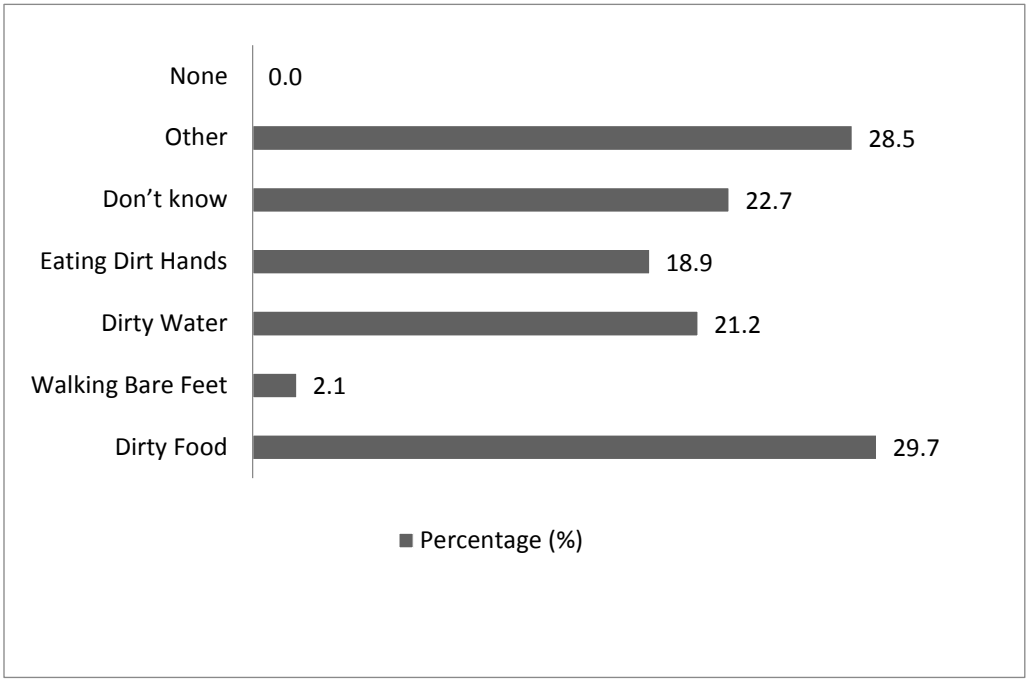
ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

she said, *according to me, the most prevalent diseases in his health area are malaria and ascariasis.* On the part of the medical doctor of the Bambalang Medicalised health center (Dr. William) said, *I don't know if it is the level of our laboratory here but what we mostly find here are the ascariasis.* Equally, the nurse of the Baba1 health center (Joseph) when asked of the most common diseases in the health area, he said, *malaria, typhoid, ascaris and anemia are the common diseases here.* But when he was asked of the most common human intestinal worm infections in the area, he said, *ascaris, flat worms (tapeworms) and we can get these tapeworms from pigs and meat not well cooked…tapeworms have flat heads*. Lastly, the chief of center of the Babungo health center (Felicitas) told us that, *the hookworm is the most prevalent worm in the zone. It is under the nematodes*. From all these responses, we realized that the most common human intestinal worm in the Ndop Plain region are the ascariasis, the tapeworm and the hook worm with the ascariasis being the most prevalent.

Community Members Knowledge of causes of disease

The ability of the community members to know the ways through which these diseases are contracted and managed is already a step towards its control and eradication because it can help prevent its infection and reinfection. Some of them knew of its existence and even name specific species, but were not able to tell the research team specific ways through which the infections can be contracted

Figure 3: Percentage of community awareness of causes of intestinal worm infections



From figure 3 above 22.7% of community members stated that they do not actually know the causes of intestinal worm infections in children despite the existence the integrated health centers in the area coupled with the fact that enterohelminthiasis is a public health problem. 28.5% of community members believed in the causes mentioned in the table but mentioned other causes that cannot be medically proven such as, *worms are natural, bad fruits, bad mangoes, eating rotted fruits and sweet things, climate change, cold food, cold food in the morning, sweets, mangoes and quavers, forbidden food, inherited, long nails, pork, sweet things multiply worms, raw food, sugar, banana, sweet food, paw-paw, biscuits, raw sweet potatoes, bonbon, mixture of all types of food, too much sugar, and unripe fruits.* The respondents of the semi-urban community specified the following; *absence of medicine, bad fruits, banana and other sweet food, cold food, eating too much sugar, exposed food and fruits., no deworming, not well cooked food, over feeding, rotted fruits, sugar and sweet food, sweet things, sweet things like banana and over ripe fruits, bonbon and biscuits, sweet things like groundnut sweet, sugar and sugar cane, too much sugar and lack of good feeding.* Fruits in itself are not a source of contraction of human intestinal worms unless eaten when there are already contaminated. The chief of post of the Babungo health center (felicitas) said, *one of the main cause is hygiene- the feeding habit related to hygiene. Most of them eat indiscriminately and some of them eat without washing hands. Some of them leave the toilet and eat without washing their hands.* This does not mean that the hands or food itself carries the eggs of the worms but if it gets in contact with eggs of the human intestinal worms, as it enters the mouth, which is one of the main routes of transmission, infection will be evident. The chief of post of the Bamessing health center (Ngwa) said, *we sometimes have serious cases of worm infections during the season of fruits because the children pick these dirty fruits and eat without washing. These fruits surely get in contact with the eggs as it falls off the tree onto the infected*

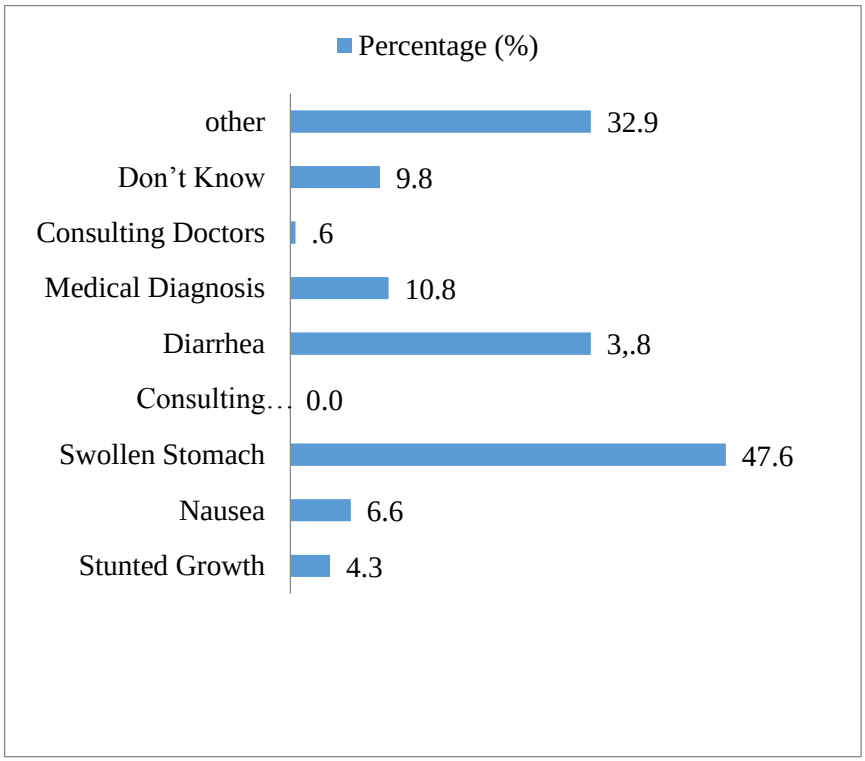
ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

soil. There are some children like the toddlers especially who eat the soils as the creep. The laboratory technical of the Mighang (Gladys) health center told us that *as for the ascarisis, it is mostly with little babies who creep*. *So as they creep and eat the soil they get it through intra-oral route. Some other children defecate around and so when little babies are feeding on it, they can easily carry it.* So whatever enters the mouth is a source of contraction except taken under very good hygienic conditions.

Knowledge of signs and symptoms of enterohelminthiasis in children

Patients are likely to be taken to the hospital for treatment of ailment when the disease starts manifesting its signs and symptoms such as loss of appetite, nausea, abdominal pain, swollen stomach, weight loss, etc. though not peculiar to intestinal worm infects only. these infections in some cases are asymptomatic and that why deworming is advised every after three months by the medical personnel. Proper knowledge on intestinal worm infections includes knowing its signs and symptoms. But the research team found out from community members of the study site to evaluate their level of understanding or knowledge of the signs especially in the case of children bellow five (15) of age which is our age limit. From the chart below, we would realize that most respondents indicated swollen stomach as a sign for the presence of human intestinal worms than any other. This can be seen as it comes first with 47.6%, followed by diarrhea with 32.9%, and other reasons not mentioned in the questionnaire with 32.9% , medical diagnosis with 10.8%, those who don't know any sign and symptom with 9.8%, nausea with 6.6%, stunted growth with 4.3%, and consulting doctors with 0.6%. Given that most people are aware of swollen stomach as a cause for these infections in children, it means if the infection does not present swollen stomach, there might still not know that it is the same infection.

Figure 4: percentage of awareness of signs and symptoms of presence of worms



Apart from the signs and symptoms in the chart above, community members in the rural areas mentioned others such as *big navel, blood loss, child's colour changes, consistent stomach ache, crying, eating too much, feel the worms moving in the body, fever, fever and vomiting, grumbling of stomach, mucosa in stool, large appetite, large appetite but thin, loss of appetite, loss of appetite and stomach ache, loss of appetite and vomiting, physical vomiting of worms and large appetite, stomach ache and vomiting, swollen face, swollen jaws and legs, vomiting, when child's hair is red, white eyes, and finally white eyes and vomiting*. In the semi-urban community the respondents specified; *constant stomach pain, cornea is light, grumbling stomach, eating too much but not looking healthy, fever, fever and vomiting, loss of appetite, loss of appetite and body weakness, loss of appetite and passing worms through stool, too much eating, vomiting and high temperature, vomiting and loss of appetite, vomiting and stomach pain, white eyes and stomach pain and finally white eyes*. Here we can find a wide variety of the signs and symptoms of the presence of human intestinal worm infection(s) in children of the Ndop plain region as presented by the community members in their common expressions. Their knowledge of these signs and symptoms can

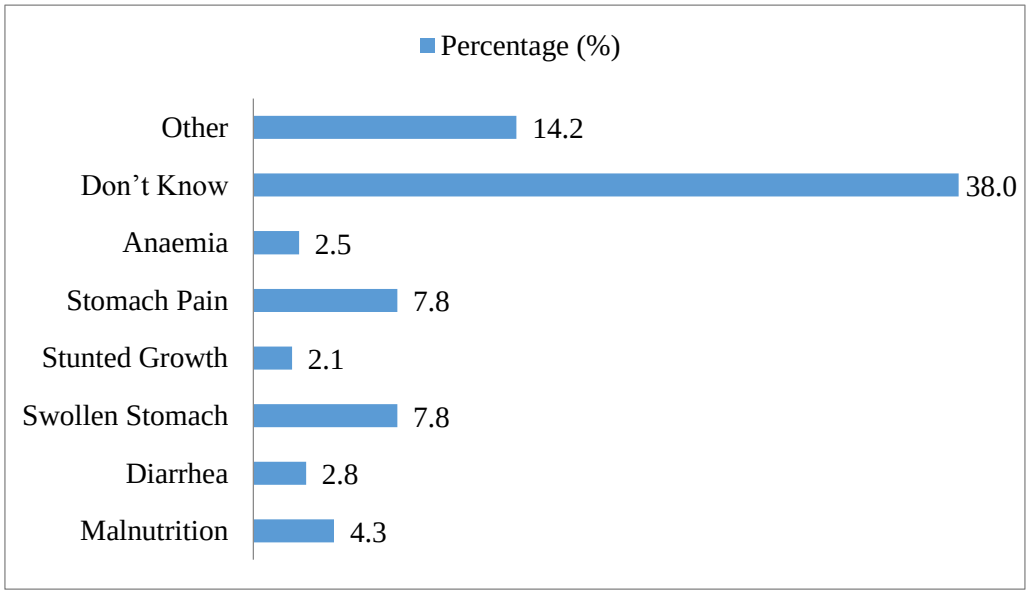
ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

enlighten us on the prevalence of these infections and equally the various type of worms prevalent in the area. For instance, white eyes or white cornea means loss of blood. This is indicative of the hook worm that hocks itself on the walls of the gut and sucks the blood it uses as food. We also have signs like, the loss of appetite that comes more often both in the rural and semi urban communities which is the sign of the presence of cestodes especially the dwarf specie that lives on the digested nutrient from the patient. The swollen stomach and stomach pain commonly notable in the rural community is common with ascariasis.

Knowledge of diseases related to enterohelminthiasis

Community members participation especially in the prevention of disease will depend if the peoples are aware of the risk involve with the disease. But the research team noticed that enterohelminthiasis does not present a lot of risk to the people as it ought to be. The chat below shows that many people in the Ndop Plain region don't know much about intestinal worm related diseases. It shows that 38% of the total population of respondents does not know that intestinal worm infection causes other diseases. Those who expressed a certain degree of knowledge on this could rightly mention stomach pain and swollen stomach which are some of the immediate or short term disorders that comes as a result of the presence of human intestinal worm infections. But long term disorder such as malnutrition and stunted growth are not widely known by the people which is very detrimental to child physical growth and even mental development.

Figure 5: Percentage of awareness of related diseases

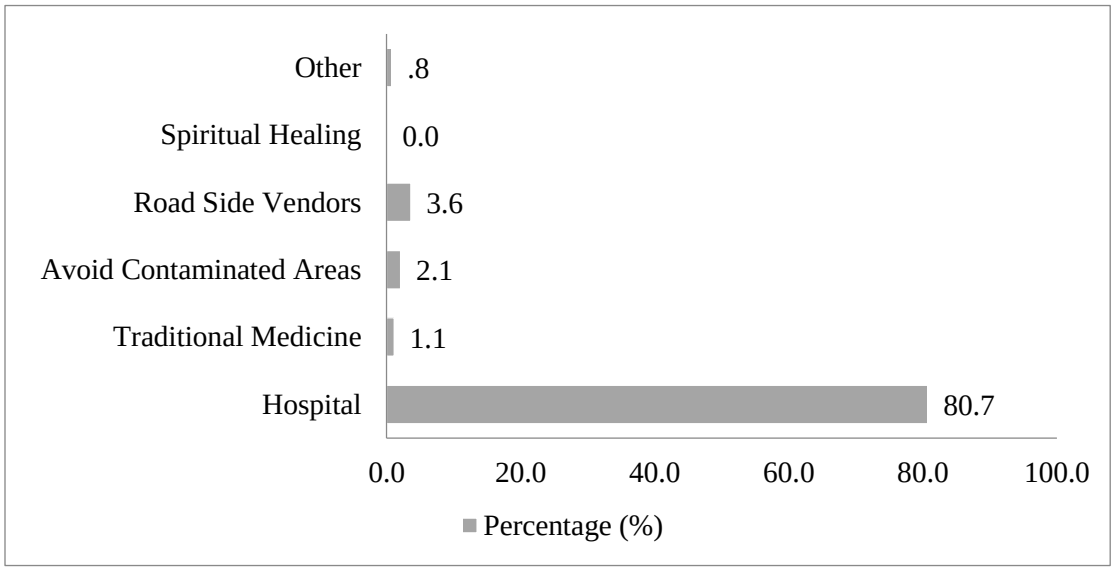


Knowledge of treatment methods

The responsibility of care taker is not just to know the type of ailment that a child is suffering of but also to be able to know how and where to get proper treatment. It's in this perspective that we found out from the Ndop Plain community members where they look for treatment when their children are infected by worms. Looking at the statistics presented in the chart below, we would realized that 80.7% of the total population of respondents would prefer to take their children to the hospital when they have worm infection. With the enormous display of ignorance in so far as knowledge on worms and its avenues of contraction, the few who are aware would prefer hospital than any other methods of treatment. That is why the rates at which people would choice others method are quite insignificant. Notwithstanding roadside vending of drugs still attract a good number of persons especially in our rural communities because the drugs are relatively cheaper and available at all times owing to community solidarity and face to face relationships. This equally shows that the people if they are given the opportunity to be well educated on health issues and facilities that health centers are offering, there will be mass participation. However more and more people believe in modern medicine now as compare to may be four decades ago where more accent was placed on witch doctors and traditional medicine.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

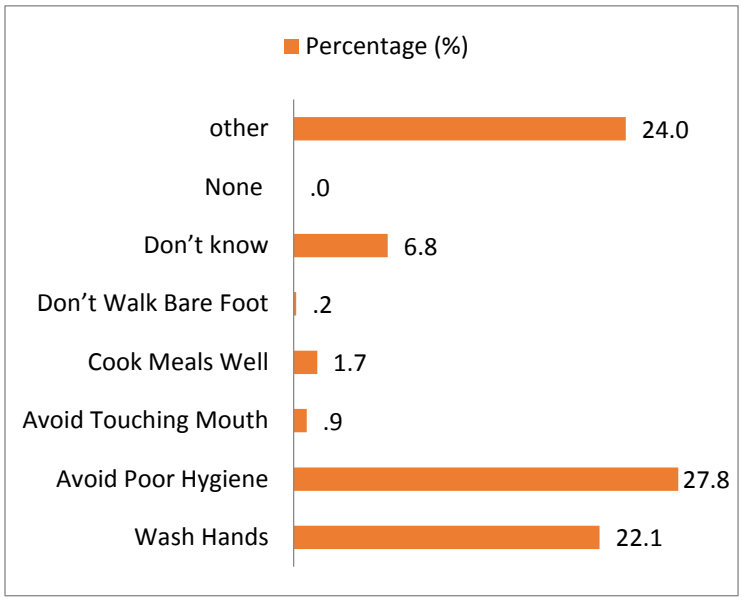
Figure 6: Percentage of choice of treatment for intestinal worm infections in children



Knowledge on preventive methods

In order for disease control to be effective in a community, community members have to know and be well acquainted with the various control methods. Though they understand that it is possible for enterhelminthiasis to be prevented, they do not actually know the various ways of prevention. The figure belows shows that avoiding poor and washing of hands is highest with 27.8% and 22.1% respectively. Walking bare foot comes last with 0.2% [t is not rare to find children walking barefoot especially in rural communities. On the other hand 6.8% have no idea about preventive measures while 24% of respondents indicated that they are others preventive measure that were not mentioned in the figure below/

Figure 7: Percentage of awareness of preventive methods



These measures include *avoiding sleeping food and sweet things, avoiding cold food, deworming constantly, avoiding sweet things like bon-bon and biscuits, cannot stop children from eating dirty, drink clean water, education, hospital treatment, medicine and avoid sweet things, no sugar, well cooked meat and worms are natural. All of these were the specifications coming from rural community members. Those of the urban community specified; avoid eating cold food, avoid giving sweet things to the children, avoid sleeping food and sweet things, constant deworming and avoid sweet things, medicine, prevent children from eating everywhere, deworm every six (6) months, confine pigs, proper preparation of pork,*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

stop sweet things and over ripe fruit, and taking vaccines. Some people live in total deception when it is believed that worms are natural or that people cannot live without worms or it is impossible to stop children from eating dirt. The chief of post of the Mbangsalle- Bamali health center (Benard) said *a lady brought her child here and we did the diagnosis and told her the child had worm infection, she said it would not be a problem because at certain times children should have worms. so we told her it is not normal and that something has to be done.* When we asked the chief of post of the Babungo health center (Felicitas) why community members of her health area think worms are natural she said "*that is the notion that most of them have. That everybody most have worms. It is a common thing for them.* This idea alone is able to influence people actions and reaction towards the treatment and prevention of intestinal worm despite it deadly consequences.

Other preventives methods that came in are justifiable like drinking of clean water, constant check and deworming. The health personnel was preoccupation with drinking clean water because portable wwater is rare in the Ndop Plain especially in the rural areas. Amongst the villages visited by the research team, Bamessing only declared of having portable water. The chief of the post of the Mbangsalle health center said, *here in Bamali especially in Mbangsalle, we have a problem of water. We don't have water, even well water. In the whole of Mbangsallee health area, there is no well except here at the health center, and this health area has eight (8) quarters. But there are rivers and that is where both animals and human beings drink their water*. Mbansalle- Bamali had a problem of availability of portable water but Bambalang had the problem of accessibility and maintenance of the sources of the portable water. One of the doctors of the medicalised health center in Bambalang said, *it is true we will fine boreholes in some areas but accessibility to these boreholes is sometimes a problem. Malfunctioning of some of the boreholes is also a problem. Yet some of them don't see why they should go through the stress of boiling water before drinking. If you educate them by telling them that when you fetch water, boil before drinking, they will say yes but when you observe them, they don't do it*. *In as much as there is little or no access to portable water and they equally don't see the importance of boiling water before drinking, there will obviously be health problems if not helminthiasis*. In the case of deworming, many respondents especially in the semi-urban area opted for deworming (constant or regular), but some people thought deworming was to be after three (3) months and some thought it was after six (6) months. The Albendazole program in the area is after six (6) months meaning that the knowledge of the people depend on their experiences. The medical doctor of the Bambalang health center blamed the complications of serious infectious to the Albendazole program. He said, *this, I will blame the Albendazole program that is not consistent and not efficient. When there are even effective, the covering is not very high. I can bet there are people here who have never been dewormed in their entire life and if it's a household where children pass out worms, then there will think that it's natural*. Sometimes after the treatment, a patient can be asked to repeat dosage after two (2) weeks and treatment after three (3) months regularly. But this depends on the discretion of the medical officer in question. But one of the major problems most health practitioners have especially in the study area is that most patients do not properly follow the doctor's prescription. The laboratory technician of the Mighang health center noted that; *sometimes the community members do express dissatisfaction of the services offered in the area though they are the real cause*. She said, *when drugs are prescribed, they do not follow the precise instruction on the time and quantity when administering.* This obviously will lead to ineffective treatment.

Mobilsation of community participation in the control of enterohelminthiassi

Being a public health issue, the control of enterohelminhiasis needs effective and mass community participation. But in the Ndop Plain Area of the North West Region of Cameroon community members do not effectively participate in the promotion, prevention and treatment of intestinal worms. They are nonchalant about the disease, they do not have effective knowledge on the infections, its signs and symptoms and control measures as already presented above. The most dangerous part of it all is that they have less knowledge on the risk factors related to the disease given that they are not well informed. This has an adverse effect on their participation zeal. Apart from that, some of them believe intestinal worm infections is normal. The main human activities carried out in the region are agriculture (crop production, animal and birds rearing) tapping, fishing weaving, and smelting. The fertility of the wetland gets community members busy all year round with the production of grains and vegetables. This makes it difficult for people to do other activities except on customarily forbidden working days which is once a week. As such health issues are not prioritized or taken to the integrated health center or any modern health facility only when other homemade measures are unsuccessful.

During the study the team noticed that the health center personnel found it difficult reaching out to community member which made a lot of people not to be aware of the services that are offered by the health facilities. The first challenge was at the level of language. Most of the health personnel were not indigenes and so could not understand the language of the people. Dealing with a population where most people are illiterates especially in the rural communities, with a language barrier added to that will surely not produce optimum feedback to any communication or message pass through. Using the dialect would be a major source of break-through. But PHC service delivery system, provision has not been made to solve this problem adequately because only the community health worker is expected to be a member of the community.

In the health center working strategy, there is the management committee and health committee. The communities have two representatives from each health zone selected by the community member of each zone from their community. Meaning that these community representatives can express themselves well in the language in which the community

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

members can understand. Secondly, the community members know them and have no reason of keeping anything away from them. So this community representatives acts as relay between the community and the health center. The chief of the post of the Mbangsalle-Bamali health center told us; *here we have two committees, the health committee and the management committee. The community has their representatives. Each quarter select their representative and each time we have or they have problems they are channeled through these community representatives. These community representatives also participate in disseminating information and when there is mass distribution of drugs and vaccinations they also participate*. Moreover, the chief of post of the Babungo health center told the research team that *the community really participates because most at times we work with community representatives-zonal representative whom the people believe in them most. When they take information from the health center to the people, they really participate. They are like a link between the health center and the community. So when they come here, we train them by telling them exactly what to do and when they go back to their various zones, they will break it down in the language in which the people will understand. So we have relay agents with whom we work and it really facilitate the activities.*

Notwithstanding, challenges in communication still comes up during face to face consultation with the doctor or midwife. In any case, this is the strategy put in place but what we observe was that many people know the existence of the health center but do not know most of the services offered. In this respect we come to understand that there is a difference between taking information to a person and educating the person on what to do or where to go when the members might have been informed. Training on what to do or where to go when faced with a particular health challenge is what the community members are not versed with. The doctor we interviewed in Bambalang medicalised health center (Dr. Kum) told us. *At the level of the community we have many problems. The first thing is education. We are trying to balance that up because here we just started the program known as community health workers. They are members of the community who came to the hospital, they have certain targets, and they are like an interface between the community and the hospital. They try to sensitize*. *Sensitization of the community members generally about health services and health tips on how to take care of themselves is another problem.*

Yes the dialogue structure places a responsibility of mobilising community community members to actively participate in health care development in communities which needs expertise from educationist, health workers, sociologists, anthropologists, communicators, and professional community development workers. Ottong (2010) defines mobilisation as the process of binging someone to do something while in normal circumstances the person would not do. This means convincing without cohesion. This is why community health intervention needs a multidisciplinary strategy which automatically makes community health worker not qualified to function in the caliber. This explains why the multidimensional channels used to trigger health information down to community members is of little effect. If many people do not like the idea of coming to the hospital, it means they do not master the importance of doing it. Information coming from the chief of center to community goes through the community health workers to the churches, quarter heads, community groups, community radios, town crier, and at times door to door. Yet not everybody gets the information because some community members admitted getting health information from their friends, family members, and neighbours.

Figure 8: Different means of getting health information on health issues

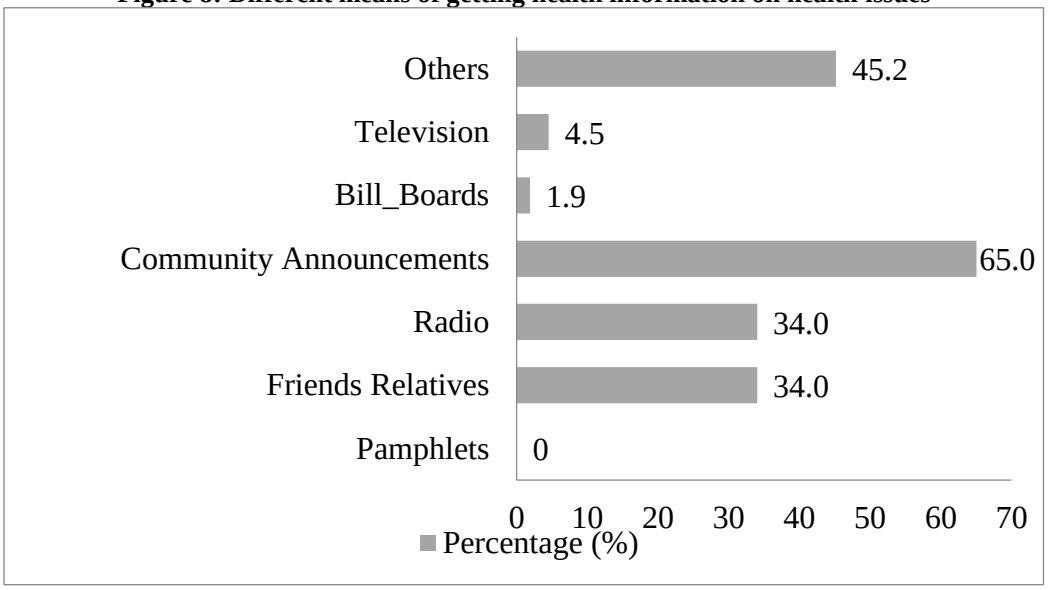


Figure 6 above, shows that majority of community members get health information through community announcement made by the town crier and friends. Apart from that, there are other sources that were not mentioned in the question such as; hospital

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

during special appointment in the hospital, during antenatal and post national consultation, churches, meetings or Njangi group, door to door announcement, schools, markets, mosques, quarter meetings, bars, during appointment for vaccine from the health committee member, hospitals lecture and through messages on phones. This mean many community members are always well informed as per health issues in the health district or health area but they have not been educated and controlled enough for active participation.

Moreover, the culture of the people is refractory to innovation in the domain of health as we could fine both traditional and modern health care facilities in the area. Dr. Kum said *for a long while most of the ideas on health or going to the hospital, depend on their culture. It is like if you tell them once I don't think they will get it. You need to tell them over and over again. It is like I heard it before, I did not go to the hospital and I am still fine, we need continuous education. If not nothing changes. We have even developed strategies where those community workers have to bring people to the hospital. In doing so, we register them under the World Bank project of poor and vulnerable. Sometimes we ourselves go to them once a month in their various quarters. We sit there and all the old fathers and mothers would come to us for consultation because we have discovered that if we are waiting for them here, they will not come though they need medical attention. They don't have the culture of going to the hospital, so we go to them. It is the same thing for vaccination. Some people here are resistance even to vaccination. A child less than one (1) year needs to come to the hospital five (5) times for vaccination. At birth it is easy because they are in the hospital but at one (1) month, two (2) months if the child is not sick, they will not come. Here it is a big problem. Why should I be going to the hospital? No matter what you tell them, they will not come. So sometimes we are forced to go to the home to give them the vaccines. Continuous sensitization here is really a problem, telling them once is not enough. They will receive you, welcome you and tell you they have understood but they will not come. It is a big challenge breaking through the community.*

CONCLUSION

Community participation in the treatment and prevention of enterohelmintiasis in the Ndop Plain Region of the North West Region of Cameroon is not very evident since there is a kind of verticalisation of diseases in the area. Those diseases that are heavily financed such as malaria. HIV/Aids, and tuberculoisis are well known by community members in terms of treatment and prevention. But emphasis is not laid on intestinal worms especially on the part of community members firstly because they have divergent perspectives opposite to the expectations of public health medicine. The community members are not conversant with causes, signs and symptoms, of the disease, related diseases, and methods of prevention. On the part of the medical facilities emphasis is not laid on the treatment of enterohelminthiasis as a major public health challenge especially in children as proper personal hygiene such as hand washing, cleaning fruits, edible raw tubers and vegetables, discriminate defecation, avoiding soil consumption, and walking bare foot are not emphasized as unhealthy. Even when told community members fine it difficult adopting the lifestyle because human activities in the area makes it challenging to care for their kids properly. Generally kids are left under the care of elder siblings who are equally children without fundament knowledge on personal hygiene. In as much as personal hygiene is a major cause of reinfection after treatment, there is also the issue of social integration. Community solidarity manifested through constant short duration and long duration visitation expressed during births, deaths, cultural festival and marriages makes possible for infected persons to share either their homes or belongings with other family members, friends or neighbours thereby facilitating infection or reinfection. Even when infected some parents do not actually see the need for proper diagnosis since they have not been thought to identify the risk factors of the disease. In the Ndop Plain health district there are no special programs to get the community engage in the promotion, prevention, and treatment of intestinal worms such educational programs for care givers and occasional screening since the infections are mostly asymptomatic. But there is the Albendazole program which most at times is not effective as most isolated communities and the Borroro communities at the hill tops are not accessed. But it should be noted that the rate of prevalence has dropped comparative to three decades when urban lifestyle had not reached urban Ndop as an epidemiological transition (Trudy;1989) was noted within communities like Bamessing that are closer to Bamunka- the semi urban areas. Finally we noticed that community participation in the promotion, prevention and treatment of entherohelminthiasis in the Ndop Plain of the North West Region of Cameroon is more of mobilisation as the people are called upon to obey the recommendations of the health professionals. Communities are included as per the dialogue structure in the aspect of decision making but do not actively participate in implementation of health activities because of lack of appropriate knowledge and implementation timetable which always conflict with community members personal timetables.

REFERENCES

1. *Arthur, G. et al. (1979). A New Health Science for Africa. Essex: Longman.*
2. *Asha. G. et al. (2015). Community participation in Heath systems research : A systematic review assessing the state of research, the nature of interventions involved and the features of engagement with co… PLOSONE 10(10) e0141091. Doi : 10.1371/journal.pone.0141091.*
3. *Biesbrouck, M. (1997). Life for my child; Diarrhea and acute respiratory infections. Namibia: Unitwin Publication Series.*
4. *Canute, N. A. (2013). Craft, industry and trade in the Ndop region in Cameroon in the nineteenth century and early twenthieth centuries. Pan Tikar Journal of History, Vol.1, No.1*
5. *Christian, A. & Canute A. N. (2020). Preventive Health care and Colonization Exploitation: A historical analysis of vaccination campaigns in British Southern Cameroon.*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

6. *Chollom, S. C. et al (2012). Prevalence and speciation of hookworm in Plateau State Nigeria. Journal of Parasitology and Victor Biology, Vol. 4(2)*
7. *Cockerham, W. C. (1992). Medical Sociology. 5th edition, Englewood Cliffs, New Jersey: Prentice Hall.*
8. *Curtis, S. (2004). Health and inequality: Geographical perspective. London: SAGE Publications Ltd.*
9. *David, P. (1989), Hong Kong: an epidemiological transition from third to first world" In S. Gèrald et E. Jeannée. (Eds.) Urbanisation et santé dans le tier monde: Transition epidémiologique, Changement social et soin de santè premiaires. Paris: ORSTOM*
10. *Dziedom, K.et al (2012). Impact of climate change on geographical scope of diseases. In N. Chhetri (Ed.). Human and social dimensions of climate. Edition 1. INTECH http://dx.doi.org/ 105772 /50646*
11. *Fanny. N.D-D (2019). Do communities really "direct" in directed community interventions? A qualitative assessment of beneficiaries. Perceptions at 20years of community directed treatment with ivermectin in Cameroon. Journal of tropical medicine and infectious disease. Vol.4, 105: doi: 10:3390/tropicalmed4030105. www.mdpi.com/journal/trpicalmed.*
12. *Feachem, R.G. et al (1983). Sanitation and disease: health aspects of excreta and waste water management. New York: John WILEY & Sons.*
13. *Foncho, D. A. et al (2009). Ethnobotanical survey of plants used to treat diseases of the reproductive system and preliminary phytochemical screening of some species of malvaceae in Ndop Central subdivision, Cameroon. Journal of medicinal plants research, Vol. 3(4) pp. 301-314*
14. *Fonge, B. A. et al (2012). Effects of land use on microphtes communities and water quality in Ndop wetland Plain, Cameroon", Journal of Agriculture and social sciences, Vol. 8, No. 2, pp 449*
15. *Haworth, E. et al (2008). Society, Health, Development. London: Pearson Company.*
16. *Helman, C. G, (2000). Culture, health and illness. Britain: Butterworth Heinemann*
17. *Jato, M. (1986). Principles and methods of health education for Africa, Yaounde: SOPECAM.*
18. *Klaus, M. L. (1989). Poverty, Sickness and Medicines: An unholy alliance? Geneva: IFPMA.*
19. *Lanee, S. et al (2004). Globalization and infectious diseases: a review of the linkages London: UNICEF/UNDP/WB/WHO special programmer for research and training in tropical diseases (TDR) special Topics No 3*
20. *Justine, I. D. et al (2018). Developmental origins of health and disease in Africa influencing early life. The Lancet Global Health, Vol.6 (3). Doi.10.1016/52214-109x (18)30036-6.*
21. *Kamjnsky, R, G. et al (2015). Growth retardation and severe anemia in children with Trichuris dysenteric syndrome. In Asian Pacific Journal of Tropical Biomedicine, Vol. 5*
22. *Larson, S. J. (1991). The measurement of health: Concepts and indicators. New York: Green House Press.*
23. *Luisi, D and Hamel. K. (2020). Community participation and empowerment in primary health care in Emilia- Romagna:A document analysis study. ELSEVIER. http://creative commoms.org/licenses/by/4-0. https://doi.org/10.1016/j.healthpol.2020,11.007.*
24. *Lupton, D. (2003). Medicine as culture. 2nd ed. London: SAGE Publications.*
25. *Manz, K. M et al (2017),Trichuris trichiura infection and its relations to environmental factors in Mbeya Region, Tanzania. PLOS ONE Journal. 12(4): e0175137. doi: 10.137/journal.pone.0175137.*
26. *Mcklory, A. & Townwend, P. K. (1989). Medical anthropology in ecological perspective. USA: Westview Press Inc.*
27. *Miller, J. D. R. et al (1996). Class action: improving school performance in the developing world through better health and nutrition. Washington D.C. World Bank.*
28. *MOH. (2016-2017). Health sector Strategy.*
29. *Montgomery, E. & Lysandra, V. (2012). "Biopsy interpretation of the gastrointestinal tract mucosa" Vol. 1: non- neoplastic, 2nd edition, New York: Lippincott Williams &Winlkins.*
30. *Morgan, L.M. (20001). Community participation in health: Perpetual allure, Persistent challenge. Health policy and Planning. Vol.16 (3): 221-230. Oxford University Press.*
31. *Mosha, A.C. (2011). Editorial introduction" In Climate change and poverty in Africa: challenges and initiatives. RDD vol.32, No 1, Japan: UNCRD.*
32. *Ndenecho, N. E. (2009). Cropping systems and Post-Cultivation vegetation successions: Agro-ecosystems in Ndop, Cameroon, Journal of Human Ecology. Vol. 27(1) pp. 27-33. https:doi.org/10.1080/09709274.2009.11906188(2017). Traditional health care systems and challenges in developing ethnopharmacology in Africa: Example of Oku, Cameroon. Studies on Ethno= Medicine. 5(2): 133-139. https://doi.org/10.1080/09735070.2011.11886400.*
33. *Ndiforchu, A.V. et al (2010). Primary health care: A guide for dialogue structure. Ministry of Public Health, Cameroon.*
34. *Norman, S. (1980). Health education: A manual for medical assistance and other rural health workers. Nairobi: AMRF (Africa medical and research foundation).*
35. *Owen, L. (1989). Parasitic diseases. In Gastrointestinal disease: Patholophysiological diagnosis, Management. 4th edition, Philadelphia: WB Sounders Company.*
36. *Patricio, J.B.J. and Marcigli, B, M, (2020). Community participation in the fight against covid 19: Between utilitarian and social justice. Reports in Public Health. Doi:10.1590/0102.311x00151620.*
37. *Read, M. (1966). Culture, Health, and Disease. London: Tavistock Publications*
38. *SALEM, G. (1998), La sante dans la ville : Géographie d'un petit espace dense Pikine (Sénégal). Paris: Karthala et Orstorm*
39. *Stukas, A.et al (2002). Community involvement: Theoretical approaches and educative initiatives. Journal of social issues. Doi:10.1111/1540.00268.*
40. *Sonu, M. & Gomase, V. (2016). Production of MHC binding peptides and antigenic peptides in ascaris lumbricodes. Journal of Autoimmune Disorder Vol. 2 No2:18*
41. *Trudy, H. (1989). Urbanization and primary health care (with special reference to the situation in African countries In S. Gèrald et E. Jeannée. Urbanisation et santé dqns le tier monde: transition epidémiologique, changement social et soin de santè premiaires. Paris : ORSTOM*

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 9| Issue: 2| February 2023|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2023: 8.224 || ISI Value: 1.188

42. *Wirmvem, M. J. et al (2013). Sources of bacteriological contamination of ground water and health effects in Ndop Plain, North West, Cameroon. Journal of Environmental Science and water resources, Vol. 2(4) PP. 122-132. ISSB22770704*
43. *Walana, W. et al (2014). Prevalence of hookworm infections: A retrospective study in Kumasi, Ghana. Science Journal of Public Health. Vol. 2(3). pp. 196-199. Doi:10.11648/j.sjph.20140203.19*
44. *Wacquant, L. (2006). Pierre Bourdieu. In Key comtemporary thinkers. New edition, London: Macmillan.*