

# **Constructions of Disease in Mayo Village**

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**ABSTRACT:**

Understanding how individuals and institutions negotiate illness and construct ideas about disease is important to public health efforts across the globe. Countries in sub-Saharan Africa suffer from a variety of health problems that many regions of the world have long since eradicated. Economic hardship, combined with high rates of communicable diseases, food poverty, lack of sanitation, and poor water quality make countries in sub-Saharan Africa some of the poorest and sickest in the world. Tanzania is a prime example. The purpose of this study was to explore how people in one rural, Tanzanian village construct ideas about disease – its symptoms, causes, and treatments – in relation to four independent variables: age, gender, education level, and religion. Data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009 and analyzed using descriptive statistics. For my study participants, disease in Mayo Village reflected the hard conditions of rural living, from daily physical labor to lack of access to medical services. Results also indicated that gender, age, education, and religion shape perceptions of disease in different ways. This study has important implications for future public health efforts in Mayo.

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## **INTRODUCTION:**

Poverty and health are deeply interconnected. Poor health can propel people into poverty, just as economic hardship prevents people from receiving appropriate medical care. This phenomenon is felt acutely in the developing world. Countries in sub-Saharan Africa are among the poorest and sickest in the world. According to the 2006 UN World Health Report, Sub-Saharan Africa (SSA) represents 11% of the world's population, but the region bears 24% of the global burden of disease (Xinhua). Infant and maternal mortality rates are twice as high in SSA as in other low-income regions. Maternal mortality in particular is over 40 times higher than in industrial nations (Shaw and Elmendorf, 1994).

SSA is faced with a variety of health challenges, including high incidence of preventable disease. SSA is home to 60% of all HIV positive people in the world even though it represents just over ten percent of the global population. Fifty-seven percent of the adults living with HIV in SSA are women ("Health Problems in Africa," Reuters 2005). In Africa as a whole, diarrheal diseases kill 2.2 million people per year and account for 7.7% of all deaths in Africa ("Health Problems in Africa," Reuters 2005). Malaria is another primary health concern for African nations, representing 10% of the continent's overall disease burden. Ninety percent of global malaria fatalities occur in Africa ("Health Problems in Africa," Reuters 2005). Africa continues to suffer from many diseases that industrial nations have long since eradicated. Measles, polio, and tuberculosis are still major health concerns in African countries.

Health challenges in SSA are compounded by a lack of access to proper medical facilities. Most countries in SSA are struggling economically and their health care systems suffer as a result. The World Bank and International Monetary Fund have placed many developing countries in SSA under Structural Adjustment Programs, which lead to cuts in national health care budgets. As a point of comparison, the Americas represent 14% of the

global population and receive health care from 42% of the world's health workers. SSA, representing 11% of the population, is cared for by only 3% of the world health worker population (Xinhua). Health care in SSA is overburdened and understaffed, while facing a disproportionate burden of disease.

Tanzania is an appropriate case study of the health and economic problems faced by the greater East African region. Tanzania is the third poorest country in the world according to Purchasing Parity Power (Matthews, pers. comm., 2009). The average life expectancy in Tanzania is only 48 years (WHO, 2006). The infant mortality rate, at 78 per 1,000 live births, is slightly better than the African average of 100. However the maternal mortality rates in Tanzania are higher than in Africa as a whole. In Tanzania, the maternal mortality rate is 1,500 per 100,000 live births and rising, compared to 910 in the African region (WHO, 2006). Mother and child health are a focus of public health policy in Tanzania.

The high prevalence of malnutrition, food poverty, and communicable diseases exacerbates child mortality rates and those of HIV/AIDS victims in SSA (WHO, 2006). HIV is a major concern in Tanzania with prevalence rates estimated at 7-10%. The primary causes of death in children under 5 in Tanzania are: neonatal causes, malaria, pneumonia, diarrhea, HIV/AIDS, measles, and injuries (WHO, 2006).

Disease is related to overall conditions of sanitation and water quality. Water borne diseases have been a focus of the World Health Organization in recent years. In Tanzania only 62% of people living in rural areas have access to improved water sources. Even less (41%) have access to improved sanitation in rural villages (WHO, 2006). These environmental factors have a strong impact on health in much of Tanzania.

The Tanzanian health care system is designed to operate at every level, from village health workers to international consultation (see Appendix A). The system is organized into seven-tiers: primary health care providers, village dispensaries, ward health centers, district

hospitals, regional hospitals, national specialists, and consultation with other countries (Mollel, pers. comm, 2009). Under President Nyrere, health care in Tanzania was provided free of charge. As the population grew and the government transitioned away from socialism, this was no longer feasible. Today medical services are paid for by a combination of national health insurance and cost-sharing strategies (Mollel, pers. comm., 2009).

Ideally, this system would provide adequate coverage for every Tanzanian. However there are a variety of barriers to care in Tanzania. There are not enough medical facilities in the country and those that do exist are often overworked and under funded. For example, there are 250 districts in Tanzania, but only 55 district hospitals (Mollel, pers. comm., 2009). The private sector, dominated by faith-based organizations, acts as a “second hand of the government” by building some private hospitals. Because centers of care are so few and far between, transportation is the major barrier to health care in Tanzania. Medical facilities at the ward level and above are inaccessible to many of their constituents. The system of referrals is in place, but there is no infrastructure to support it (Mollel, pers. comm., 2009).

Western-style medicine is not always available to Tanzanians. Western medicine is based on the scientific method and uses diagnostic tools such as x-ray machines and blood tests. Western medicine uses pharmaceuticals as a main form of treatment. This method of medical care is the norm for most people in developed regions of the world. However in Tanzania, many people rely on a combination of western and traditional medicine to care for their families. Traditional medicine in Tanzania uses mainly plant remedies and spiritual methods of treatment.

Most of the health practitioners in Tanzania are categorized as “other” health workers (61.3%), while physicians make up only 1.7% of the health workforce (WHO, 2006). This indicates a strong presence of traditional healers as the most accessible disease specialists in Tanzania. There is one western medical doctor for every 20,000 Tanzanians, while the ratio

of traditional healers is 1:350. Traditional medicine is even being used to combat AIDS in Tanzania, especially to treat opportunistic infections (Kornel).

The Tanzanian government officially banned traditional medicine in January 2009 after an increase in the killing of albinos for medicine. The hair and body parts of albinos are used in potions, and approximately 40 albinos have been killed in Tanzania since 2007 (McNeil, 2009). The government has revoked all licenses of traditional healers, however many healers in rural areas may not know it.

Mayo Village is a rural mountain village in Northeastern Tanzania. The village is isolated from many resources, medical and otherwise. A small government dispensary, which serves Mayo Ward, is a prime example of how the Tanzanian health care system is failing to provide resources in practice. Villagers still rely heavily on traditional medicine. The ways that people in Mayo Village combine western and traditional teachings to understand and treat disease in their isolated village is the perfect backdrop for a study in medical sociology.

Medical sociology is the study of health and health care at all levels, from how individuals construct notions of what illness is, to how social institutions work to provide (or restrict) medical services. Medical sociology at the micro level involves not only studying disease, but also looking at how people define illness and what choices they make regarding treatment.

In my study I examined how villagers construct ideas about disease – its symptoms, causes, and treatments – in relation to four independent variables: age, gender, religion, and education. I predicted that there would be differences in my descriptive statistics for each of my independent variables. For example, I predicted that older, less educated people would be more likely to use traditional medicine. Younger, more educated people would be more likely to use the dispensary. I predicted that women would mention children's diseases more often. I did not think that religion would have a pronounced impact on people's perceptions.



## STUDY SITE:

Mayo Village is located in the West Usambara Mountains. The Usambara Mountains are part of the Eastern Arc Mountains, a chain that stretches from southern Kenya down the eastern edge of Tanzania. These thirty million year old fault block mountains are home to unrivaled plant and animal biodiversity (Baba Jack, pers. comm., 2009).

Mayo Ward is comprised of 5 villages: Kwabosa, Kisiwani, Shembekeza, Mgughu, and Mayo. In 2007 Mayo Ward had 11,220 citizens, 21% of whom live in Mayo Village (Mayo Village Council). The current population of Mayo Village is 2,804 people living in 700 different households (Juma, pers. comm., 2009). These families are organized into approximately twenty sub-villages or hamlets. Each sub-village has its own leader. Sub-village leaders are usually men, but women presided over four of the sixteen hamlets I visited. See Appendix B for a list of hamlets in Mayo Village. For a map of Mayo, please refer to Appendix C.

Most houses are mud and stick dwellings with thatched roofs and are clustered together on the mountainside. A dirt road runs through Mayo, connecting it with nearby markets in Mgwashi and Bumbuli, held on Saturdays. The majority of citizens are Muslim, with Christianity as the second major religion. The local language is Kisambaa. Farmland covers large areas of the mountain slope and the fields are not terraced. Mayo villagers cultivate cash crops such as tea, coffee, and cardamom, as well as food crops like maize, cassava, and beans (Wandi, pers. comm., 2009). Mayo is home to one primary school, one secondary school, and a dispensary.

Although the population of Mayo Ward warrants a Ward Health Center, it currently only has a dispensary for the entire Ward (Bendera, pers. comm., 2009). Mayo Dispensary is

**Figure 1: Map of the Usambara Mountains**  
Note: Map created by Expedia.com and displayed online by the Eastern Arc Mountains Information Source.



located in Mayo Village and serves the greater ward area. The nearest hospital is six miles away in Bumbuli (Kreysler).

The Mayo dispensary was built in 1966 by the Tanzanian government. It continues to be funded by a combination of government and non-government support, including foreign aid. The small staff is comprised of one doctor and four nurses that manage to see about 30 people per day (Bendera, pers. comm., 2009). There is a constant crowd of twenty people, mostly mothers and children, waiting to receive treatment at the dispensary. The building is concrete with six rooms: a large waiting area, a room for medicines with a dispensing counter, Dr. Bendera's office, and three examination and procedure rooms. The walls are covered with Swahili- language health education posters (pers. obs., 2009).

Public health education is provided as an outpatient service by the dispensary. They educate villagers about safe water, malaria, and general hygiene. Every month there is a meeting at the dispensary to evaluate their health care services. The dispensary's next goal is to develop home-based care in Mayo Ward. Transportation is a major barrier to providing outpatient services in Mayo, including public health efforts. The economic and logistical challenges of providing health care in a rural, mountain village are problematic for the dispensary staff (Bendera, pers. comm., 2009).

Mayo villagers utilize a combination of western and traditional medical services. One hamlet leader estimated that there are 20 traditional healers in Mayo (Secretary of Hamlet 2, pers. comm., 2009). Traditional healers collect a variety of local plants that have medicinal properties and use traditional methods to cure physical and spiritual ailments. The dispensary is working with traditional healers to educate them about HIV/AIDS because cutting is still used as a treatment method by healers in the village (Bendera, pers. comm., 2009).

## **METHODOLOGY:**

The study was conducted during the spring of 2009 in Mayo Village, located in the West Usambara Mountains in Northern Tanzania. The sample frame was all of the heads of households (male or female) of Mayo Ward. The sample population was the heads of households (male or female) in Mayo Village. A “head of household” was defined as an adult (has children), man or woman, who is responsible for the family. The head of household is most likely the person responsible for the family’s health and decisions regarding treatment for all family members. These adults are also the primary community decision makers with the ability to impact public health initiatives.

The study involved three key informant interviews with medical professionals and semi-structured interviews with villagers. In mid-March, 2009, four days of site reconnaissance, key informant interviews, and preliminary data collection were conducted. This preparatory period helped to refine my study design and gain insight into the health problems I might encounter in Mayo Village.

Three key informant interviews were conducted with health-care providers in Mayo: one practitioner of western medicine (the Medical Officer at Mayo Dispensary) and two practitioners of traditional medicine (one male, one female). I chose the Medical Officer as my key informant for western medicine because he is the only doctor in Mayo Village (the dispensary also has 4 nurses). He speaks English fairly well. Julita, my translator during the preparatory days and a resident of Mayo Village, identified the two traditional healers, one male and one female. I conducted a preliminary interview with each practitioner during prep days, asking about the main diseases in Mayo Village (symptoms, causes, and treatment methods). This gave me an idea of what diseases might appear in my study. The three key informant interviews provided context for my research on health in Mayo.

I also tested my survey instrument on six villagers selected out of convenience. Pre-testing my methods helped me to refine my questions and add a qualitative component. Please see Appendix D for a copy of my final interview script.

Final interview data with Mayo Villagers was collected over 13 days from April 13, 2009 to April 27, 2009. Men and women from 16 of the 20 hamlets of Mayo Village were interviewed. Interviewees were located using convenience-sampling, often with the help of the local hamlet leader. Two women and two men were interviewed from each hamlet, with small adjustments made when, for example, all the men from a given hamlet were out in the farms that day. A total of 60 villagers were interviewed, 30 men and 30 women.

Interviews were conducted with the help of a translator, Beatrice, who spoke Kisambaa, Kiswahili, and English. Semi-structured interviews were chosen as a methodology to provide a balance of consistency in questions with the freedom to have interviewees clarify or expand on a response. Interviewees answered my questions using both Kisambaa and Kiswahili, which Beatrice translated into English on the spot. Interview notes were taken in English. Most interviews took 30-45 minutes and were conducted in the home of the interviewee or an empty, dry building in the hamlet. Every attempt was made to interview villagers in private to prevent contamination of the responses and to make the interviewees as comfortable as possible, especially when discussing personal suffering, STDs, and other sensitive subjects

Data was analyzed using descriptive statistics.

## RESULTS AND DISCUSSION:

The results of this study provide insight into the major health problems in Mayo Village as conceptualized by sixty village residents. In the following sections I will discuss the demographic characteristics, major diseases, common symptoms, causes of disease, and treatment choices for my sample population. I will present overall trends for each topic followed by a discussion of the independent variables.

### Demographics:

This study includes the opinions of sixty Mayo Villagers, thirty men and thirty women. The youngest respondent was 18 years old and the oldest was 80. Seventy-three percent of the study group (44/60) was heads of households in middle age, between 30 and 69 years old. The study group was majority Islamic (80%, 48/60) and 20% (12/60) Christian. One quarter (15/60) of my study population had never gone to school, while the majority (71.7%, 43/60) attended primary school. Only two interviewees attended secondary school. Male respondents were more educated than female respondents. Only two men had never gone to school, while thirteen women (43%, 13/30) were uneducated. The other 57% (17/30) of women had attended some primary school, but none had gone to secondary school. Most men (87%, 26/30) attended primary school and the two secondary school interviewees were both men.

### Diseases:

Study participants identified 45 different diseases that are a problem for Mayo Village (Table 1). The names of diseases include body parts as well as conventional disease names.

*Table 1: Major Health Problems in Mayo Village*

AIDS	Foot	Polio
Back	Gonorrhea	Rash
Blood pressure	Hair	Rib
Breast	Hand	River Blindness
Cancer	Hernia	Schistosomiasis
Chest	Head	Stomach
Children's	Heart	Tuberculosis

Cholera	Leg	Teeth
Coughing	Leprosy	Throat
Craziness	Lungs	Tiredness
Dehydration	Malaria	Typhoid
Diarrhea	Measles	Urine
Ear	Neck	Waist
Epilepsy	Nose	Weakness
Eyes	Pneumonia	Wounds

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. 282 different diseases were mentioned of 45 different types, shown above.

For my sample population, the five major health problems in Mayo are: malaria, stomach, chest, back, and head diseases (Table 2).

*Table 2: Top 5 Health Problems in Mayo Village*

1. Malaria
2. Stomach
3. Chest
4. Back
5. Head

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009.

Malaria was characterized by headache, shivering and coldness, body tiredness and weakness, vomiting, loss of appetite, joint pain, and fever. Stomach diseases were described mainly as a stomachache, with diarrhea, vomiting, and body tiredness as other common characteristics. Coughing and chest pain were the two main symptom-types for chest diseases. Back diseases consisted of back pain that makes daily activities difficult. Finally head diseases were described as head pain, often with the addition of symptoms such as trouble with bending or standing, weakness, shivering, sweating, and sight problems. See Appendix E for a complete list of the symptoms, causes, and treatments for each of the five major diseases.

These top five diseases fit with the main disease problems in Tanzania. Malaria is a major concern in Tanzania, although it is less so in the Usambara region. However, malaria is often used as a general term for sickness. It is given as an explanation for many symptoms without an actual diagnosis of malaria (pers. obs., 2009). Stomach diseases may represent

some water-borne diseases, as well as those that were listed by specific names (cholera, diarrhea, typhoid, schistosomiasis, etc.). Water-borne diseases are a concern even in a mountain village such as Mayo because of waste-removal and water preparation practices. Chest, back, and head diseases reflect the hard lifestyle in Mayo. Villagers work long days in the farms and travel for miles along dirt paths, often with a heavy burden. The five major health problems as identified by my study population match the overall health issues of Tanzania and the region.

The perceptions of the top five diseases in Mayo Village differed according to certain independent variables. Gender differences in the top five diseases appear in Table 3.

*Table 3: Top 5 Health Problems in Mayo Village by Gender*

<u>Male</u>	<u>Female</u>
1. Malaria	1. Stomach
2. Chest	2. Head
3. Back	Foot
4. Stomach	4. Back
5. Head	Chest

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Men, n=30; Women, n=30.

Men listed the same top five diseases as the total, however in a slightly different order. Malaria remained the number one disease for male respondents. However, malaria did not even appear in the top five diseases for female respondents. Stomach diseases are the number one problem listed by women. Foot diseases were tied for the second major problem in Mayo Village according to female interviewees. Women in Mayo are responsible for carrying firewood, water, crops, and market produce to and from their homes, often on their heads. They log many miles up and down the mountains providing for their families, which would indicate a higher awareness of foot pain as a problem in Mayo.

The top five diseases by age are listed in Table 4.

*Table 4: Top 5 Health Problems in Mayo Village by Age Group*

<u>Age 10-29</u>	<u>Age 30-49</u>	<u>Age 50-69</u>	<u>Age 70-89</u>
1. Malaria	1. Malaria	1. Stomach	1. Back
2. Foot	2. Stomach	2. Malaria	2. Chest

	Head	3. Chest	3. Back	3. Head
4. Back		4. Foot	4. Head	4. Eyes
Chest		5. Back	5. Chest	Malaria
Heart				
Stomach				
Teeth				

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Interviewees were grouped into four age categories for analysis. Age 10-29, n=7; Age 30-49, n=22; Age 50-69, n=22; Age 70-89, n=9.

Malaria is the number one disease for respondents under 50, but it drops down the list as age category increases. Back pain becomes the number one disease for the oldest age set. Eye diseases also make the list for respondents in their 70s and 80s. Back pain and eye failure are both diseases of old age, which my oldest respondents would be acutely aware of.

Table 5 lists the top five diseases by education level.

*Table 5: Top 5 Health Problems in Mayo Village by Education Level*

<u>None</u>	<u>Primary</u>	<u>Secondary</u>
1. Back	1. Malaria	1. Malaria
2. Chest	2. Stomach	
Head	3. Chest	
4. Foot	4. Back	
Stomach	5. Head	

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. None, n=15; Primary, n=43; Secondary, n=2.

The top five diseases for primary school attendees are identical to the top five for the total study group – primary does make up over 70% (43/60) of the total sample after all – with malaria as number one. Malaria is the number one disease for respondents who attended secondary school. However, malaria is not even on the list for people who did not receive any formal education. In fact, malaria was only mentioned by one of the fifteen people with no education.

Religion does not make an important difference for the top five diseases. The major diseases for Islamic respondents are identical to the total because they make up 80% (48/60) of my sample group.

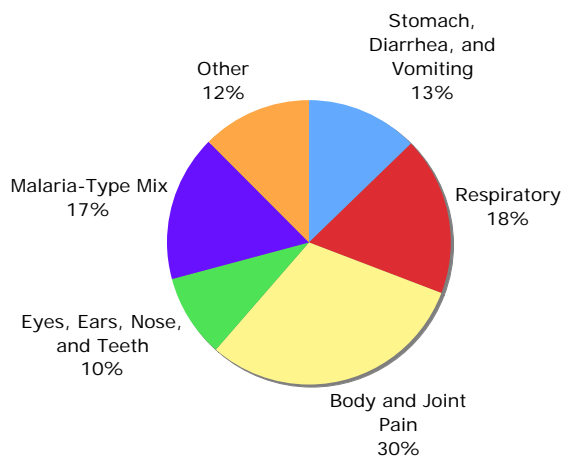
Malaria was the number one disease for men, respondents under age 50, and those with some type of education. Malaria is a relatively new disease phenomenon, defined and



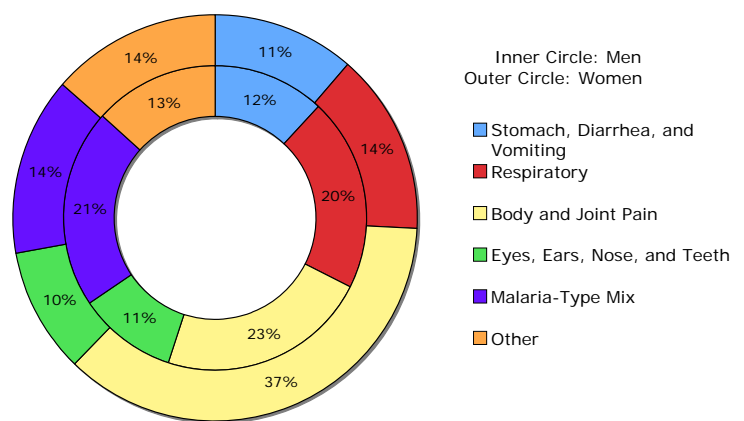
treated by pharmaceuticals. The Mayo Dispensary was built in 1966, bringing western medicine to Mayo. This includes public health information about malaria and mosquitoes. Respondents under age 50 probably grew up with some knowledge of the disease. Most men in my sample were also educated. School may have provided information about malaria or simply the ability to read malaria education posters on the walls of the dispensary.

### Symptoms:

It is important to analyze symptoms independent of the disease names. I asked my interviewees to list the symptoms for each disease they mentioned as a way to provide a detailed description of the illness. Sometimes the symptoms point to diseases other than the name might suggest. Overall my respondents described symptoms of six major types: stomach, vomiting, and diarrhea; respiratory problems; body and joint pain; problems of the eyes, ears, nose, and teeth; a malaria-type mix of symptoms; and other. Figure 2 shows the distribution of these symptoms.



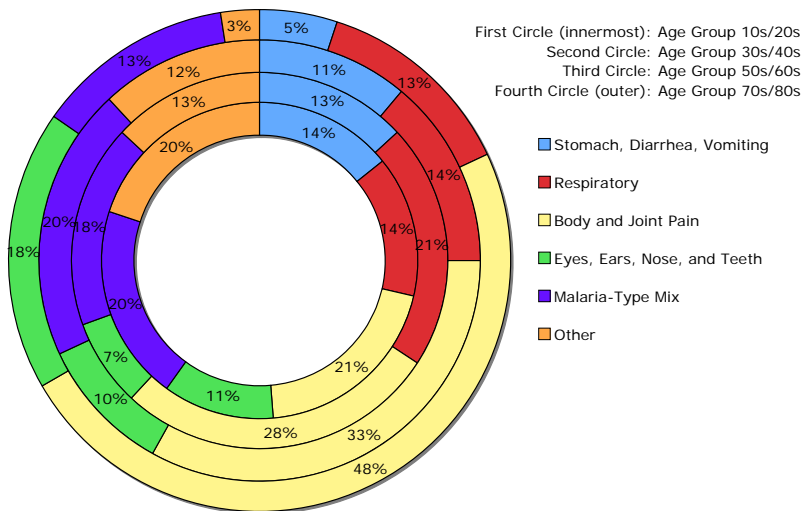
**Figure 2: Symptoms of Major Health Problems in Mayo Village** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009.



**Figure 3: Symptoms of Major Health Problems in Mayo Village by Gender** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Men, n=30; Women, n=30.

Figure 3 displays gender differences in symptoms listed. Women mentioned diseases that are characterized mainly by joint pain more often than men. This could be due to the

amount of physical work that women in rural villages perform every day. Body and joint pain also stands out when age is used to analyze symptoms (Figure 4).

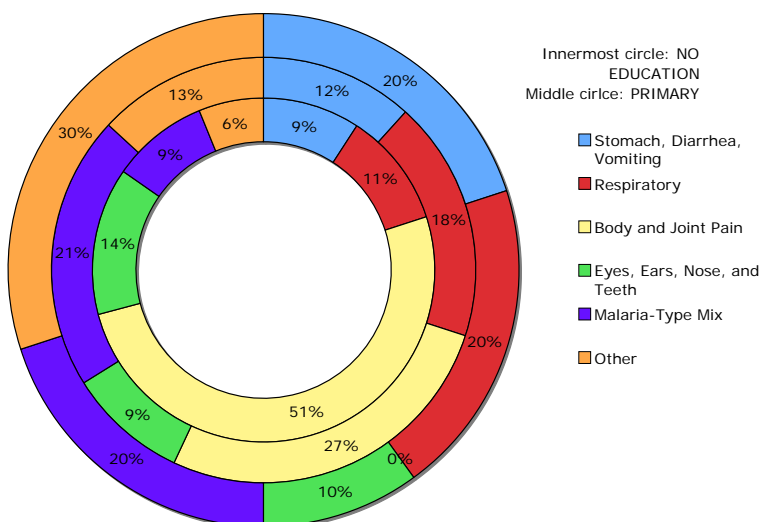


**Figure 4: Symptoms of Major Health Problems in Mayo Village by Age** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Age 10-29, n=7; Age 30-49, n=22; Age 50-69, n=22; Age 70-89, n=9.

Illnesses characterized by body and joint pain steadily increased in frequency as age increased. In the oldest age set, body and joint pain diseases made up almost half of the responses. Respondents over 70 also had the highest proportion of eyes, ears, nose, and teeth diseases.

Interviewees in the oldest age group seemed to mention symptoms of old age more often. People's perceptions of disease in

Mayo often reflected their own personal suffering.



**Figure 5: Symptoms of Major Health Problems in Mayo Village by Education Level** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. None, n=15; Primary, n=43; Secondary, n=2.

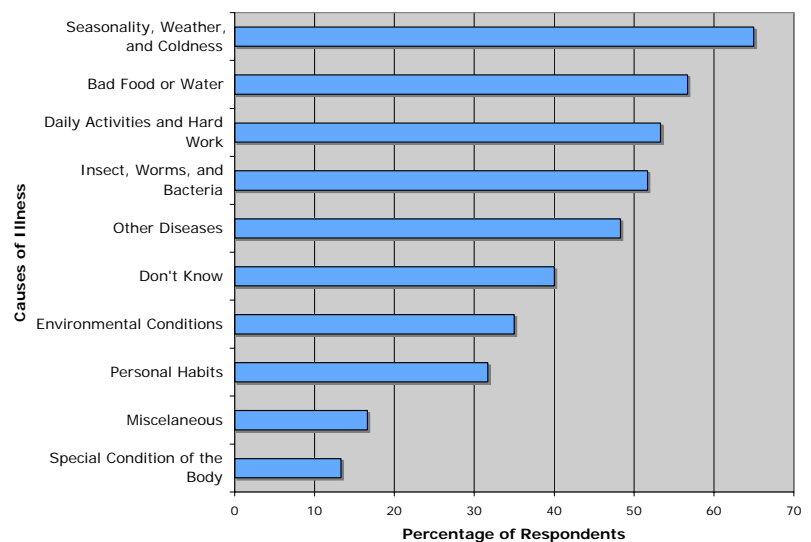
Figure 5 shows symptoms by education level. Body and joint pain make up half the symptoms for the uneducated and only a quarter for primary-educated and none for secondary school attendees. Increased education may provide access to non-labor intensive

jobs as well as knowledge of more complicated diseases.

There were no marked differences in symptoms for respondents of different religions.

### Causes:

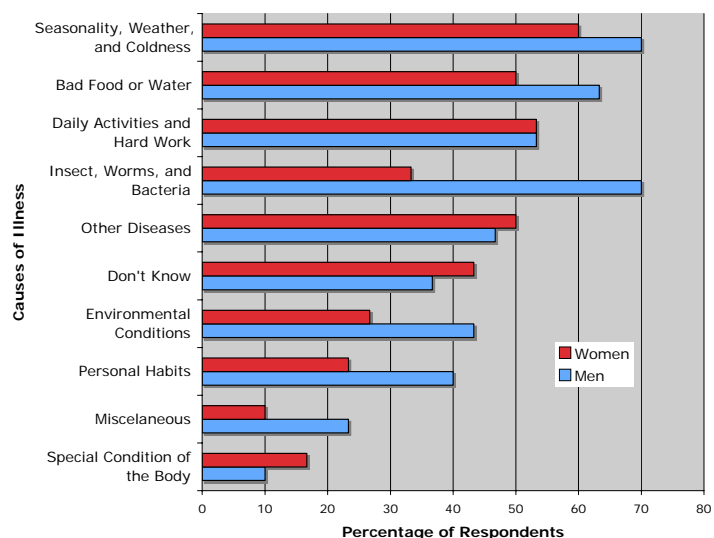
In my study a variety of explanations were provided for the causes of major health problems in Mayo Village (Figure 6). Sixty-five percent (39/60) of my study group mentioned seasonality, including weather and periods of coldness, as a cause for a major disease in Mayo. Over half of my respondents also cited bad food and water (34/60) and daily activities and hard work (32/60) as major causes of disease.



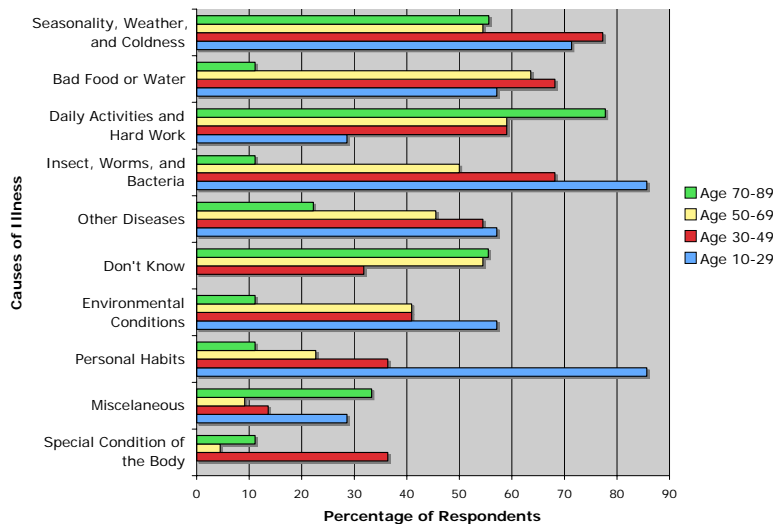
**Figure 6: Causes of Major Health Problems in Mayo Village** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009.

Figure 7 represents causes of disease by gender. Men mentioned insects, worms, and bacteria as a cause of a major disease more often than women did in my sample.

Figure 8 breaks down the causes of disease by age category. The use of insects, worms, and bacteria as an explanation for disease decreases with age. An opposite trend appears for “daily activities and hard



**Figure 7: Causes of Major Health Problems in Mayo Village by Gender** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Men, n=30; Women n=30.

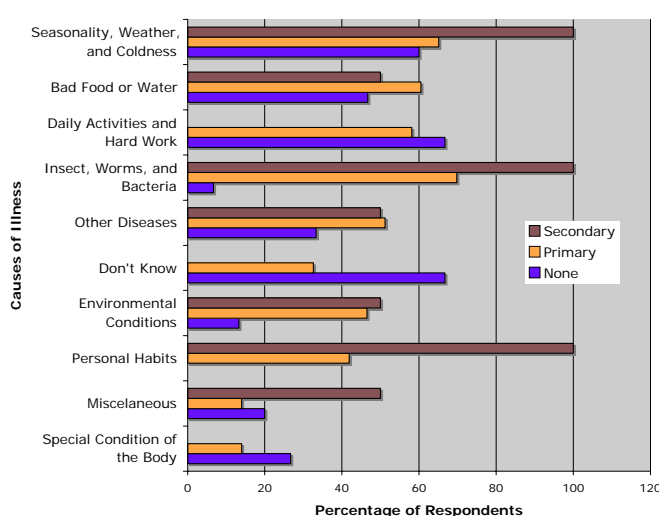


**Figure 8: Causes of Major Health Problems in Mayo Village by Age** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Age 10-29, n=7; Age 30-49, n=22; Age 50-69, n=22; Age 70-89, n=9.

work.” Often, respondents answered that they did not know the cause of a specific disease. However, no interviewees in the 10-29 age group said they did not know a cause. The number of “don’t know” responses increases with age. The youngest age group listed “personal habits”

more often than any other age group. “Personal habits” includes smoking, alcohol, sex, stress, anger, and body care. The youngest respondents were more likely to include personal agency in their explanations for disease.

Figure 9 shows causes of disease by education level. Respondents who attended secondary school cited insects, worms, and bacteria the most, followed by primary school attendees. Very few people with no education mentioned insects, worms, and bacteria as a



**Figure 9: Causes of Major Health Problems in Mayo Village by Education Level** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. None, n=15; Primary, n=43; Secondary, n=2.

cause for disease. Insects, worms, and bacteria are more technical, biological explanations for disease. It is possible that primary and secondary school science curriculums include information about insects, worms, and bacteria as vectors of disease. People in my study group who had never been to school said they didn’t know the causes of a

disease more often than those who had been to school. Neither of the two respondents who had attended secondary school said they didn't know a cause. Perhaps higher levels of education provided my respondents with specific information about causes, or at least the confidence in their own general knowledge to suggest a cause.

There were no major differences in the explanations for disease by religion.

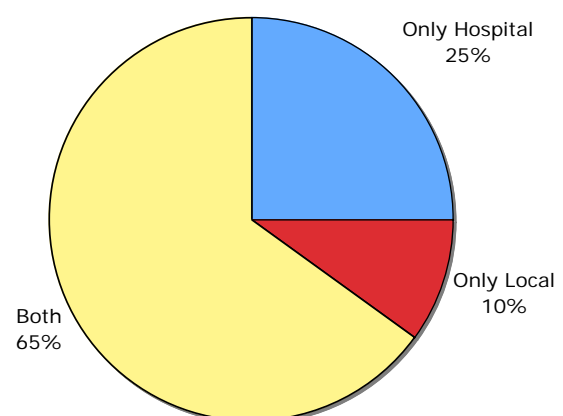
Younger, male, and more educated people in my study group tended to mention insects, worms, and bacteria more often as causes of disease. This mirrors the demographic pattern found with malaria in my study and discussed in a previous section. It is possible that the majority of "insects, worms, and bacteria" diseases were from malaria responses (with mosquitoes being the main cause). However, the ability to read, attend school, and exposure to the dispensary as a medical fixture in Mayo may also play a role here.

### **Treatments:**

People in Mayo Village use a mixture of western and traditional medicine. For villagers in my study, the Mayo Dispensary represents western medicine. Respondents also cited the hospital in Bumbuli and a *duka la dawa* (pharmacy) as locations for western medical treatment. In my study group the use of traditional medicine consisted almost entirely of self-care using local plants.

Traditional healers were only mentioned occasionally. Respondents referred to western medicine as "hospital medicine" and traditional medicine as "local medicine." I will use both sets of terms in my discussion, but all of the figures that represent interviewee opinions retain their language.

In my study group, some people chose to



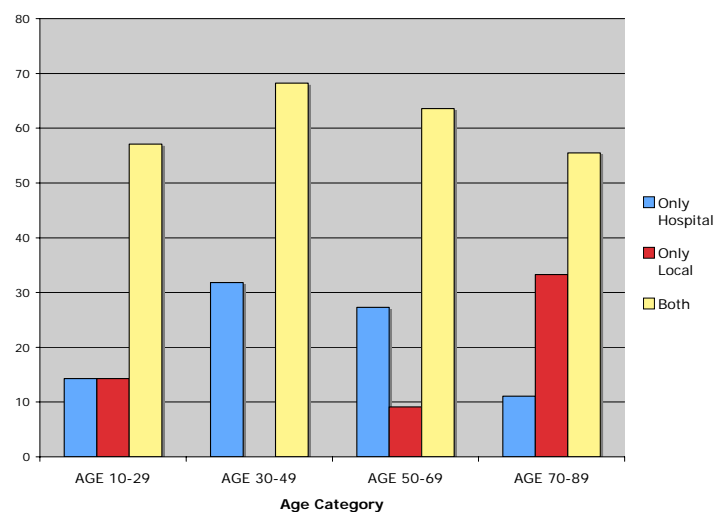
**Figure 10: Treatment Methods for Major Health Problems in Mayo Village** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009.

use only hospital medicine while others chose to use only local medicine to treat major health problems. Most people used a combination of the two. Some diseases warranted a visit to the hospital while for others, local medicine was more appropriate. Often, my respondents described a mix of both hospital and local treatments for a given disease. Figure 10 shows the treatment methods used by my study participants. Most people in my study group (65%, 39/60) used both western and traditional medicine. Only 10% (6/60) used strictly local treatments. There was no difference between males and females for treatment preference.

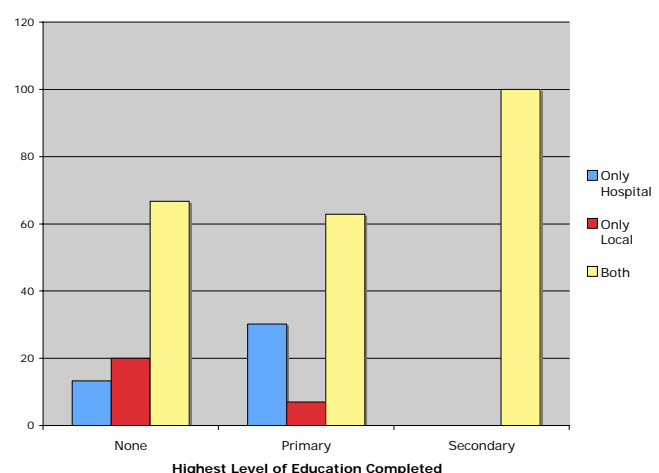
Figure 11 shows treatment choice by age group. Only local medicine is used most by the oldest age group and not at all by the 30 and 40 year olds. Older people began learning about medicines before a hospital existed nearby.

When treatment methods are broken down by education (Figure 12), the use of only local medicine decreases as education level increases. Perhaps the school curriculum supports (indirectly or directly) the use of western medicine.

Religion is a meaningful variable for understanding treatment choices in my sample group (Figure 13). A higher



**Figure 11: Treatment Methods for Major Health Problems in Mayo Village by Age** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Age 10-29, n=7; Age 30-49, n=22; Age 50-69, n=22; Age 70-89, n=9.



**Figure 12: Treatment Methods for Major Health Problems in Mayo Village by Education Level** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. None, n=15; Primary, n=43; Secondary, n=2.

percentage of Christians used only hospital medicine and no Christians reported using only local treatments.

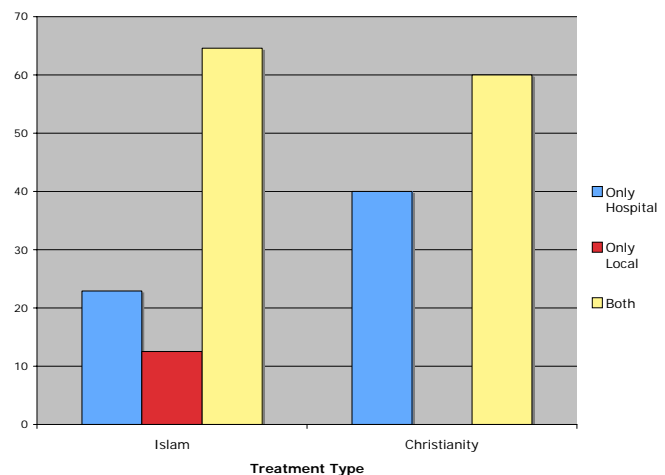
Overall, the results suggest that Mayo Villagers in my study use a combination of hospital and local treatments. Of the respondents who used both treatment methods, many explained that they prefer to use one type of medicine as a first-aid. If this method is unsuccessful they use the other type of

medicine. Figure 14 shows that half (20/39) of the people who use a mixture of hospital and local medicines prefer to use local treatments first. If local medicine is unsuccessful, they go to the hospital. Table 6 lists the reasons study participants prefer to use local medicine first.

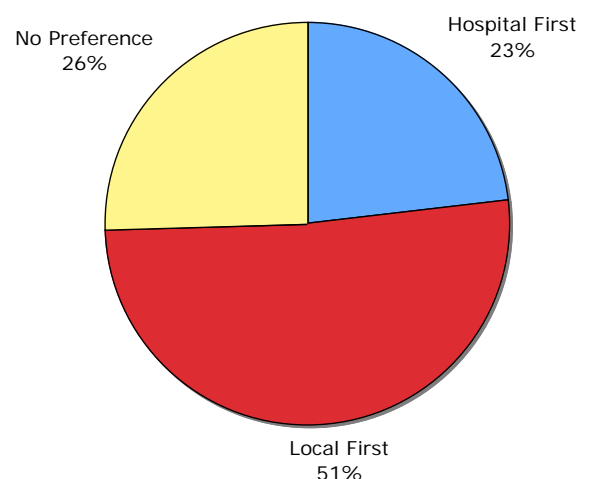
Table 7 lists the reasons that study participants prefer to use hospital medicine first.

*Table 6: Why Do You Prefer Local Medicine?*

- Money – I use local when I don't have money for the hospital (8).
- It is our custom to use local medicine first (5).
- If you know the local medicine, use it.
- My family (parents, grandparents, and ancestors) taught me to use local medicine (5).
- Access
  - Local medicine is easier to get.
  - Distance to the hospital is very far.
  - Leg pain prevents me from traveling to the dispensary.
- Quality
  - Local medicine makes me get well.



**Figure 13: Treatment Methods for Major Health Problems in Mayo Village by Religion** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Islam, n=48; Christianity, n=12.



**Figure 14: Treatment Preferences for Respondents Who Used a Combination of Hospital and Local Medicine** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. n=39.

- Hospital medicine is sometimes expired.
- Type of Disease
  - Local medicine is better at treating children's diseases.
  - If the disease is caused by seasonality you use local medicine (2).
  - I use local medicine as a test to determine the cause of the disease.
  - Inherited diseases were cured by local medicines by my grandparents so it is good medicine for me too.

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Numbers in parenthesis indicate frequency of a particular response.

*Table 7: Why Do You Prefer Hospital Medicine?*

- I don't have knowledge of local medicine (6).
- I stopped using local medicine because hospitals are available.
- Parents took me to the hospital so that is where I go.
- Getting care from the hospital is fast (2).
- I don't like local medicine, especially the practice of cutting.
- Powerful Medicine
  - Hospital medicine has higher power
  - Hospital medicine is important
  - Hospital makes me get well faster (3).
- Doctor
  - Hospital medicine is obtained from a knowledgeable doctor, whereas local medicine relies on your own knowledge (4).
  - The doctor gives you advice, when you go to the farm to get treatment you miss the advice.
  - Hospital gives you a diagnosis; "when you are sick and report to the hospital it is easier for you to recognize what you are suffering from."
- Type of Disease
  - For some diseases, there is no local treatment (ex. AIDS, river blindness).
  - Some diseases are never treated through local medicine.
  - It is dangerous to spend time on local medicine when the disease needs hospital medicine.
  - If bacteria caused the disease you use hospital medicine.
  - Non- inherited diseases use hospital medicine.

Note: This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Numbers in parenthesis indicate frequency of a particular response.

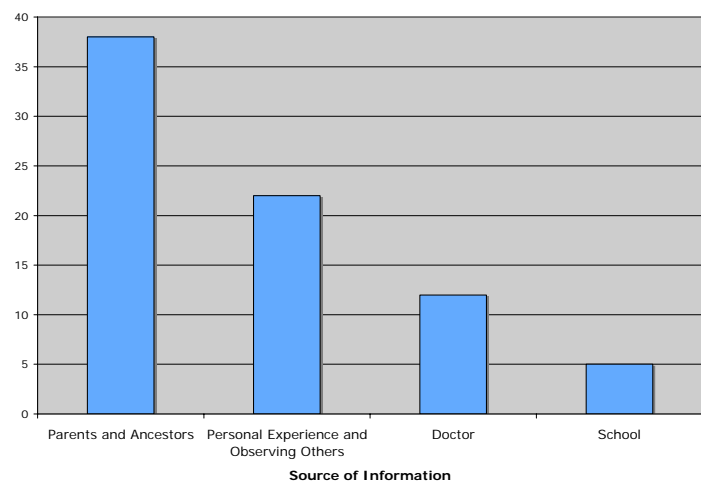
Money is a limiting factor for hospital treatment. One male respondent explained, "at a previous time there was no hospital so people started with local medicine. Now many hospitals are available so if you have enough money you start with the hospital. If you have no money you go to the forest to get local medicine." Access was also cited as a reason that obtaining hospital treatment is difficult. These results reflect larger problems with the Tanzanian health care system, as it exists in practice.



Hospital medicine seems to be held in high regard; the opinion of the doctor is considered valuable and knowledgeable. Pharmaceuticals are considered to be good medicine and even the only treatment for some diseases. Many respondents mentioned that local medicine was the only medicine available in Mayo before the dispensary was built. Village custom encourages the use of local medical practices even now that western medicine is available (although limited by cost and transportation).

### Sources of Medical Knowledge:

This study provides some insight into how sixty Mayo villagers construct notions of disease and morbidity. But where did these perceptions come from? Figure 15 shows the main sources of information behind my interviewees' knowledge. In my study group, most information about diseases and



**Figure 15: Where Did You Learn About These Diseases and Treatments?** This data was collected using semi-structured interviews with sixty non-randomly selected residents of Mayo Village during the month of April 2009. Percentages do not add up to 100 because some respondents cited multiple sources of information.

treatments was passed on from previous generations. This was especially true for knowledge of local medicinal plants. For a complete list of local plants mentioned by my interviewees, please see Appendix F. Information from the doctor was the third major source of medical information. This is an important finding for the dispensary staff and their future health education programs. Public health outreach should focus on families and education initiatives should acknowledge the importance of tradition in ideas about disease.

### Pre-Study Hypotheses:

Prior to my study I made predictions about the perceptions of disease in Mayo Village. As predicted, there were differences in my results according to four independent

variables: gender, age, education, and religion. These trends are discussed above. It was also predicted that older, less educated people would be more likely to use traditional medicine and younger, less educated people would be more likely to use the dispensary for treatment. This trend held true for my study group. I also hypothesized that women would mention children's diseases more often. In fact, "children's" was only mentioned as the name of a disease twice, both times by male respondents. This indicates that children's health is not a gendered responsibility for my study participants. Finally, I predicted that religion would not have a pronounced impact on people's perceptions of health problems. This was true for most topics. However, important differences appeared between Christians and Muslims for treatment preference.

## **LIMITATIONS AND RECOMMENDATIONS:**

### **Limitations:**

- Small study group and limited amount of time.
- Interviewees were chosen according to convenience. Access/proximity to the main roads/footpaths, distance from the dispensary, and distance from the sub-village leader's house could all be sources of bias that stem from a non-random sample.
- Translation. Interviewees gave their opinions in Kisambaa or Kiswahili and nuances as well as accuracy may have been lost when their answers were translated to English. Also, I often recorded data by paraphrasing and/or rewording a story or explanation for clarity, which provides an avenue for my own biases to influence the results.
- Other variables and false proxies. I only examined four demographic characteristics. It is very likely that other variables I did not account for influence people's perceptions of disease. It is also possible that one variable may be acting as a proxy for another. For example, education and gender were closely related, as most of my male respondents had gone to school.
- Ambiguity. I remained true to my interviewee responses for each question; however, sometimes this may not have represented their opinions accurately. For example, when "head pain" was given as the name of the disease but "malaria" was given as the cause I still classified the name of the disease as "head pain."
- Age. Many interviewees were unsure of their exact age, so the age variable may be biased.

### **Recommendations:**

- Continue this study with a random, representative sample of Mayo Village.
- Combine a sociological study of disease perceptions with a microbiological investigation. For example: determine villagers' perceptions of certain water borne diseases and their personal water treatment practices and compare those to a study of water quality in the area, sampling from the source and various points around the village.

## **CONCLUSION:**

This study explored how sixty residents of Mayo Village construct ideas of disease. The results indicate that attributes such as gender, age, education level, and religion help shape perceptions of health and illness. Diseases in Mayo Village reflect rural living, specifically women's work and the wear and tear on villager's bodies over the years. People in my sample who were male, young, and educated cited insects, worms, and bacteria as the main vectors of disease and considered malaria to be a major health problem. This points to the fact that malaria is a relatively new disease phenomenon and also the impact that western education and literacy have on people's perceptions. Both western and traditional medicinal practices are alive and well in Mayo Village, and residents value both treatment methods. Knowledge about diseases and treatments is passed from generation to generation. Future public health efforts in the area should acknowledge villager's current perceptions of disease and how those perceptions can change over time.

The results of my study reflect larger patterns of morbidity and mortality in Tanzania. My study participants cited infectious diseases, water quality, and environmental conditions as important aspects of Mayo's disease profile, matching national health issues in Tanzania. The future of health in Mayo Village will continue to combine both western and traditional solutions to the problems of poverty and disease. Understanding people's perceptions of health issues will help future public health efforts in the area. Like many villages in Tanzania, Mayo could benefit greatly from increased funding for health care services and general infrastructure. But in the meantime, Mayo villagers will continue to negotiate health and illness, despite the challenges of isolation and a broken health care system.

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