

## FACTORS ASSOCIATED WITH THE PREVALENCE OF HELICOBACTER PYLORI INFECTIONS AMONG PATIENTS AGED 10-25 YEARS ATTENDING MAKONGE HEALTH CENTRE III, BUIKWE DISTRICT. A CROSS-SECTIONAL STUDY.

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### ABSTRACT

#### Background.

H.pylori is a flagellated gram-negative, microaerophilic, helical bacterium about 3.5 µm long, its infections are most often contracted in childhood and are known to cause Peptic ulcer. To determine the prevalence, Socio-demographic factors, and knowledge about Helicobacter Pylori infection among patients aged 10-25 years attending Makonge Health Centre III, Buikwe district.

#### Methodology

A cross-sectional study with a simple random sampling technique was used and data was collected using a standard semi-structured questionnaire analyzed using descriptive frequencies, and percentages using Microsoft Excel and Microsoft Word and presented in tables and pie charts.

#### Results

From the results, majority, 64(67%) of the respondents tested negative, the majority of the respondents were both 10-17 years and 18-25 years were 29(78%) and 35(59%) H.pylori negative respectively, and the majority of both males and females tested H.pylori negative with 33(70%) and 31(53%) respectively and majority 78(81%) of the respondents had ever heard about H.pylori with low knowledge on causes, prevention, signs, and symptoms

#### Conclusions

From the results, majority of respondents tested negative and the minority tested positive hence low prevalence, the ages 10 to 17 and ages 18 to 25 tested negative and the majority were female, married, and urban residents and had at least attained primary school education and the majority were not taking alcohol. Therefore, higher socio-demographic status was a high predictor of H. pylori infection. In the study to assess levels of knowledge among the respondents, the majority had ever heard and the minority had never heard about H.pylori infection and the majority did not know the cause, preventive measures, signs, and symptoms.

#### Recommendations.

MOH should sensitize the community to test for H.pylori whenever they get signs of ulcers and conduct mass screening by the facility and health workers health educate the community about causes, Signs, symptoms, and preventive measures of H.pylori infection.

**Keywords;** Prevalence, Helicobacter Pylori Infections, Makonge Health Centre III,

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### INTRODUCTION

#### Background

H.pylori is a flagellated gram-negative, microaerophilic, helical bacterium about 3.5 µm long and it's commonly found in the stomach, colonizes mucosa, and sometimes the epithelial cells. (Cardos, et al, 2021). H.pylori infections are most often contracted in childhood. Infected individuals mostly remain asymptomatic, but about 30% can develop mild to severe upper gastrointestinal disorders such as gastritis, gastric ulcer, gastric cancer, and MALT lymphoma. (Stefano, et al, 2018) but the transmission route is not yet clear; person-to-person

transmission by either the oral-oral route(kissing) or fecal-oral route is most likely and also environmental contamination such as contaminated water and food is possible.(Stefano, et al, 2018)

Globally, Helicobacter pylori is an infectious bacterium that has infected almost half the world's population, making it the most widespread infection in the world, and a major health concern due to rising antibiotic resistance.(Galoş, et al, 2023). Helicobacter pylori affects 70% to 90% of the population in developing countries due to poor socio-economic status, whereas it is around 50% in developed countries, 69.4% in South America, 66.6% in Western Asia, 34.3% in Western Europe, and 37.1% in North America. (Negash, et al, 2018) In developing

countries, an early childhood acquisition of *H.pylori* is 30 to 50% reaching over 90% during adulthood. Unless treated, colonization persists. *H.pylori* infection has been attributed to poor socioeconomic status, poor hygienic practice, and overcrowding, a whole mark in developing countries. (Negash, et al, 2018) and is associated with several upper gastrointestinal diseases including gastritis, dyspepsia, peptic ulcer, duodenal ulcers, and gastric cancers such as gastric mucosa-associated lymphoid tissue lymphoma and gastric adenocarcinoma. In addition, idiopathic thrombocytopenic purpura and iron deficiency anemia have also been associated with *H.pylori* infection. (Edity, et al, 2021).

In Africa, the magnitude of *H.pylori* is 70.1%, and the main cause of gastric and duodenal ulcers in countries like Cameroon, Nigeria, and West Africa, the issue of differing prevalence based on geographical location. And south-west Nigeria reported a prevalence of 67.4% for dyspeptic patients, Ibadan reported a prevalence of 63.5% for patients with gastritis, and a study from Uyo, south Nigeria, reported a lower seroprevalence rate of 30.9% in children with a peak of 40.7% for the 6-10 years age group. (Smith, et al, 2019)

In East Africa, Peptic ulcer disease has a higher prevalence and requires early diagnosis and treatment of complications such as intestinal perforation can carry significant morbidity and mortality. Risk factors include old age, smoking, use of oral NSAIDs, and *H.pylori* infection (Doe, et al, 2021).

In Uganda, the magnitude of *H.pylori* in the outpatient department based on a test kit detecting IgG antibodies ranged between 65.7% and 85.6%. Besides, it is a common reason to seek PHC services and accounts for 10% of hospital admissions (Negash, et al, 2018)

### Specific objectives

To determine the prevalence of *Helicobacter Pylori* infection among patients aged 10-25 years attending services at Makonge Health Centre III in Kiyindi, Buikwe district.

To establish the Socio-demographic factors associated with the prevalence of *Helicobacter pylori* infections among patients aged 10-25 years attending services at Makonge Health Centre III, Buikwe district.

To assess the knowledge about *Helicobacter Pylori* infection among patients aged 10-25 years attending services at Makonge Health Centre III, Buikwe district.

## METHODOLOGY

### Study design

A cross-sectional study was used to collect qualitative and quantitative data due to the limited time frame allocated as well as the limited resources that were available for the study.

### Study Area

The study was conducted at Makonge Health Centre III which is located in Nakauma-Kiyindi town council in Buikwe district, Central Uganda. Where the highest population does peasant farming and fishing, Makonge Health Centre III is one of the best health facilities in the district with a high number of patients seeking health services including those referred from clinics around the district due to the many services offered at this facility. This area was chosen purposely due to easy access to respondents for data collection. The study was conducted from July 2023 to August 2023.

### Study population

The study population was based on patients aged 10-25 years. The researcher used this population in the study because most often young children are infected.

### Sample size determination

The sample was determined using the Kish and Leslie method to determine a large population in quantitative study design.

$$N = Z^2PQ / D^2$$

Where:

N = the desired sample size

Z = the standard normal deviation (1.96) at 95% confidence level.

D = level of precision

P = part of the population with *H.pylori* infection which can be estimated as 0.5

Q = (1-P) proportion of the population without *H.pylori* infection.

Therefore;

$$N = (1.96)^2 \times 0.5(1-0.5) / (0.1)^2$$

$$N = 96.04.$$

96 respondents

Therefore, a sample of 96 patients aged 10-25 years was included in the study.

### Inclusion criteria

All consented patients who were between the age of 10-25 years seeking health services at Makonge Health Centre III participated in the study.

### Exclusion Criteria

All unconsented patients and all patients below 10 years and above 25 years seeking health services at Makonge Health Centre III did not participate in the study.

### Sampling Technique

A simple random sampling technique was used for the selection of respondents to provide equal opportunities for all age groups 10-25 years and different sexes who consented to participate in the study.

### Sampling procedure

Using a simple technique, participants were selected whereby 1 to 10 were written on a small piece of paper, folded in a box, thoroughly shuffled and one piece of

paper after another was picked to select a study participant. Participants who picked one (1) were selected for a study of the day.

### **Data collection methods**

Data was collected using self-administered, semi-structured questionnaires, observations, and laboratory tests. This enabled data collection in a short period at relatively low costs and it was also easy to quantify the data for analysis.

### **Data collection tool(s)**

#### **Questionnaire**

A standard semi-structured questionnaire was used to collect data on knowledge and socio-demographic factors plus laboratory investigations. The prevalence of H. Pylori was established by testing the patients' stool samples for H. pylori antigens using antigen test strips. The strips will have an internal control and based on immunoassay for the detection of H. pylori antigens in stool as described in Appendix II.

### **Data collection procedure**

A letter of introduction to the facility was obtained from Medicare Health Professional's College. Permission was sought from the Medical in-charge Makonge Health Centre III to carry out a study in their areas of jurisdiction. The researcher introduced himself to the patients and then explained the procedure, meaning of the study, level of confidentiality, and purpose of the study. The researcher also sought consent by offering a consent form to voluntary participants who were administered with questionnaires afterward. The researcher then asked the respondents to fill the gaps where necessary or tick in the box with appropriate answers (yes or no), those respondents who were unable to read and write were helped to read and interpret questions and were also guided when answering by research assistants.

piloting the study

This was done before the actual date of data collection especially in Kiyindi town council to assess the suitability of the area of study problem and remove biased questions from the questionnaire.

### **Independent variables**

The study involved factors associated with the prevalence of H.pylori infection among patients aged 10-25 years.

### **Dependent variables**

The study involved the prevalence of H.pylori infection.

### **Quality control**

All laboratory procedures were performed according to the standard operating procedures.

All the materials that were used in the entire procedure were checked for expiry dates before the start of the procedure. The strips were also checked for any kind of damage that would compromise their quality, ensuring proper storage of test strips at room temperature.

The validity of the test strips was shown by the appearance of a colored line in the control region (C) of the test strips.

Before running any batch, the strips were run with both known positive and Negative controls of the tests.

The positive test results obtained with the blood antibody tests and stool antigen strips were confirmed and recorded in the laboratory form and record book.

The questionnaire was pretested to ensure that tools can measure what is intended.

There was training of two research assistants on how the research was to be conducted and data collection.

### **Data analysis and presentation**

The data obtained was coded and entered using Microsoft Excel worksheets and Microsoft Word and presented in the form of tables, graphs, and pie charts according to age, sex, and common signs and symptoms.

### **Ethical considerations**

Before starting the study, a letter of introduction from Medicare Health Professionals' College and a copy of the research proposal were presented to the hospital administration of Makonge Health Centre III, for approval to commence with data collection.

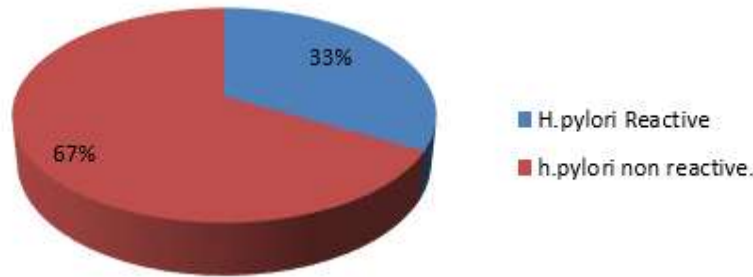
The researcher sought approval from the participants to engage them in the study and informed the participants about the purpose and objective of the study, confidentiality provisions, principles of privacy, and confidentiality was upheld.

**RESULTS.**

**Prevalence of Helicobacter pylori infections among patients aged 10-25 years attending Makongwe Health Centre III, Buikwe district.**

**Figure 1: Distribution of respondents according to the prevalence of H.pylori. (n=96)**

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Socio-demographic characteristics of respondents about the prevalence of helicobacter pylori infections among patients aged 10-25 years attending Makongwe Health Centre III, Buikwe district.

**Table 1: Distribution of respondents according to the Effects of age on the prevalence of H.pylori. (n=96)**

Age	Frequency (percentage)	Variables	Frequency	Percentage (%)
10-17 Years	37(39%)	H.pylori Positive	8	22
		H.pylori Negative	29	78
18-25 Years	59(61%)	H.pylori Positive	24	41
		H.pylori Negative	35	59
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, the majority, 59(61%) of the respondents were 18-25 years, 35(59%) of them tested H.pylori negative and the rest, 41% tested H.pylori positive. And the minority, 37(39%) of the respondents were 10-17

years old, 29(78%) of them tested H.pylori negative, and the other, 22% tested H.pylori positive.

**Table 2: Distribution of respondents according to the Effects of gender on the prevalence of H.pylori. (n=96)**

Gender	Number (Percentage)	Variables	Frequency	Percentage (%)
Male	47(49%)	H.pylori Positive	14	30
		H.pylori Negative	33	70
Female	49(51%)	H.pylori Positive	18	37
		H.pylori Negative	31	63
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, the majority, 49(51%) were females, where most of the female respondents, 31(63%) tested H.pylori negative, the rest, 18(37%) of females tested H.pylori positive and this indicated that the majority of

respondents who tested positive were females and the minority, 47(49%) were males and among them, 33(70%) tested H.pylori negative, the rest, 14(30%) of males tested H.pylori positive.

**Table 3: Distribution of respondents according to marital status on prevalence of H.pylori. (n=96)**

Marital status	Number (percentage)	Variables	Frequency	Percentage (%)
Single	55(57%)	H.pylori Positive	16	29
		H.pylori Negative	39	71
Married	29(30%)	H.pylori Positive	12	41
		H.pylori Negative	17	59
Divorced	12(13%)	H.pylori Positive	4	33
		H.pylori Negative	8	67
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, 55(57%) of the respondents were single, the majority, 39(71%) tested H.pylori negative, the least, 16(29%) tested H.pylori positive and it was the highest number of those who tested positive under marital status and 29(30%) of the respondents were married, majority, 17(59%) tested H.pylori negative and 12(41%) tested

H.pylori positive with the biggest percentage of those who tested positive under the marital status and lastly, 12(13%) of the respondents had divorced, majority, 8(67%) tested H.pylori negative and the rest, 4(33%) tested H.pylori positive.

**Table 4: Distribution of respondents according to education level on the prevalence of H.pylori. (n=96).**

Education level	Frequency (percentage)	Variables	Frequency	Percentage (%)
None	18(18.8%)	H.pylori Positive	12	67
		H.pylori Negative	6	33
Primary	38(39.6%)	H.pylori Positive	10	26
		H.pylori Negative	28	74
Secondary	25(26.0%)	H.pylori Positive	8	32
		H.pylori Negative	17	68
Tertiary	15(15.6%)	H.pylori Positive	2	13
		H.pylori Negative	13	87
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results of the study, the majority, 38(39.6%) of the respondents attended the primary level, and among them, 28(74%) tested H.pylori negative, and the least number, 10(26%) tested H.pylori positive. 18(18.8%) of the respondents never attended school, majority of them,

12(67%) tested H.pylori positive indicating the highest percentage of positive respondents under education level, and the least among them, 6(33%) tested H.pylori negative. 25(26.0%) of the respondents attended secondary level, and the majority of them, 17(68%) tested H.pylori negative and the minority, 8(32%) tested

H.pylori positive. lastly, 15(15.6%) of the respondents had reached a tertiary level, and among them, the majority, 13(87%) tested H.pylori negative, and the rest, 2(13%) tested H.pylori positive.

**Table 5: Distribution of respondents according to place of residence on the prevalence of H.pylori. (n=96).**

Response	Frequency (percentage)	Variables	Frequency	Percentage (%)
Rural areas	39(41%)	H.pylori Positive	20	51
		H.pylori Negative	19	49
Urban areas	57(59%)	H.pylori Positive	12	21
		H.pylori Negative	45	79
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, the majority, (57)59% of the respondents were urban residents, whereby the majority of urban residents, 45(79%) tested negative for H.pylori and the least number, 12(21%) tested H.pylori positive. 41% of the respondents came from rural areas, and the majority,

20(51%) of those respondents who came from rural areas tested H.pylori positive, minority 19(49%) tested H.pylori negative.

**Table 6: Distribution of respondents according to the Effects of alcohol and non-alcohol intake on the prevalence of H.pylori. (n=96).**

	Response	Frequency (percentage)	Variables	Frequency	Percentage (%)
Taking alcohol	Yes	33(34%)	H.pylori Positive	9	27
			H.pylori Negative	24	73
	No	63(66%)	H.pylori Positive	23	37
			H.pylori Negative	40	63
<b>Total</b>		<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, the majority, 63(66%) of the respondents don't take alcohol, the majority 40(63%) of the respondents don't take alcohol tested negative for alcohol, and the least number of the respondents, 23(37%) tested H.pylori positive, however, this showed the highest

seropositivity among the respondents who were tested. 34% of the respondents take alcohol, majority, 24(73%) of those respondents that take alcohol tested H.pylori negative, minority 9(27%) tested H.pylori positive.

**Knowledge of respondents on the prevalence of helicobacter pylori infections among patients aged 10-25 years attending Makonge Health Centre III, Buikwe district.**

**Table 7: Distribution of respondents according to whether they had ever heard about H.pylori. (n=96)**

Response	Number (percentage)	Variables	Number	Percentage (%)
Yes	78(81%)	H.pylori Positive	22	28
		H.pylori Negative	56	72
No	18(19%)	H.pylori Positive	10	56
		H.pylori Negative	8	44
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results, 78(81%) of the respondents had ever heard about H.pylori, the minority, 22(28%) tested H.pylori Positive, and the majority, 56(72%) tested H.pylori Negative, and 18(19%) of the respondents had

never heard about H.pylori, the majority, 10(56%) tested H.pylori Positive thus the highest prevalence on knowledge and the rest, 8(44%) tested H.pylori Negative.

**Table 8: Distribution of respondents according to whether they know the cause of H.pylori and prevention. (n=78)**

Response	Number (percentage)	Variables	Frequency	Percentage (%)
Yes	30(31%)	H.pylori Positive	8	27
		H.pylori Negative	22	73
No	66(69%)	H.pylori Positive	24	36
		H.pylori Negative	42	64
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results of the study, the majority, 66(69%) of the respondents did not know the causes and prevention of H.pylori and most of them, 42(64%) tested H.pylori negative and the others, 24(36%) tested H.pylori positive.

The minority, 30(31%) of the respondents knew the causes and prevention of H.pylori and among them, the majority, 22(73%) tested H.pylori negative, and the rest, 27% tested H.pylori positive.

**Table 9: Distribution of respondents according to whether they know the signs and symptoms of H.pylori infection.**

Response	Number (Percentage)	Variables	Frequency	Percentage (%)
Yes	26(27%)	H.pylori Positive	06	23
		H.pylori Negative	20	77
No	70(73%)	H.pylori Positive	26	37
		H.pylori Negative	44	63
<b>Total</b>	<b>96(100%)</b>		<b>96</b>	

Source: Primary Data (2023)

From the results of the study, the majority, 70(73%) of the respondents did not know the signs and symptoms of H.pylori and amongst them, 26(37%) tested H.pylori positive, however, among the respondents who tested positive this shows the highest seropositivity under those

who the signs and symptoms of H.pylori infection and the others, 44(63%) tested H.pylori negative. The minority, 26(27%) of the respondents knew the signs and symptoms of H.pylori and among them, the majority, 20(77%) tested H.pylori negative, and the rest, 23% tested H.pylori positive.

## DISCUSSION.

Prevalence of H. pylori infection.

From the results, the Majority, 64(67%) of the respondents tested negative for H.pylori, and the minority, 32(33%) of respondents tested positive for Helicobacter pylori infection hence low prevalence, this could be because the majority of respondents were practicing H.pylori preventive measures such as good hygiene, hand washing, use of antibiotics combination with anti-acid proton pump inhibitor and low alcohol taking, among others, this goes in line with a cross-sectional study carried out by (Olapeju, et al., 2020) in southeast Nigeria at the Pediatric Patients Clinic at the tertiary hospital which indicated that the prevalence of H. pylori infection among the subjects was only 36.3%, this still goes in line with the study done by (Kakooza, et al, 2021) at Butembe Health Centre III Kyankwanzi district, Uganda, which showed that the overall prevalence of H. pylori infection was only 29.2%.

Socio-demographic factors associated with H.pylori infection.

From the results, out of the 96 respondents, 37(39%) were 10-17years old, the majority, 29(78%) were H.pylori negative and the rest tested H.pylori positive, and out of the respondents, 59(61%) were 18-25years, majority, 35(59%) were H.pylori negative and the rest tested H.pylori positive hence there was a low prevalence of H.pylori among respondents of all age groups, this study, however, disagreed with a study conducted in Kampala, Uganda by (Edity, et al, 2021) which indicated that the overall age-wise prevalence rate of H.pylori infection was highest among the young age group of 15-25 years (73%) with 25-35 years (67%) showing the highest rate of H.pylori seropositivity, this could be because of change in the geographical location of residential areas. Still, the majority, 33(70%) of the males tested H.pylori negative, and the majority of females 31(53%) tested H.pylori negative, thus indicating a low prevalence of H.pylori infection in both genders, this study, however, disagreed with a study carried out in Pakistan, by (Azziz, et al, 2021) which indicated that out of 214 patients who were enrolled, sex-wise distribution of prevalence was female (76%) and however it agreed with results of the males which had only (24%) positive and the rest being negative, this could be because of awareness in people about Helicobacter pylori infections.

Knowledge about patients regarding H. pylori.

From the results, the majority, 78(81%) of the respondents had never heard about H.pylori infection (ulcers), minority, 18(19%) of the respondents had never heard about H.pylori infection (ulcers). This could be that the majority of the respondents had got the information about the H.pylori bacteria infection from different sources, this study disagreed with a study conducted by (Driscoll, et al., 2017 ) about the knowledge, attitude, and practices regarding H. Pylori infection, the knowledge was reported to be poor across all studies, only 35% of the respondents answered that they had ever heard about H.pylori, this study still disagreed with a study carried out by (Lee, et

al, 2019) in Namutumba, rural Eastern Uganda to find out the knowledge about h.pylori, among the rural population whereby Only 3% of respondents had heard of Helicobacter pylori. Also, the majority, 66(69%) did not know the cause and prevention of H.pylori infection (ulcers), the minority knew the cause and prevention of H.pylori infection (ulcers), and the majority, 70(73%) of the respondents did not know the signs and symptoms and the rest 26(27%) of respondents knew signs and symptoms of H.pylori infection (ulcers). Thus respondents thought they had ever heard about H.pylori, were not well informed about it, this study however disagreed with a study done by (Pavle, et al, 2022) to assess the knowledge and factors regarding H. pylori infection in the general population of Croatia where only 43.1% of the respondents had low knowledge about H.pylori including its cause, signs and symptoms and prevention. This would be because of the difference in the development of the country's medical health in Croatia and Uganda in the Kiyindi town council.

## Conclusion.

The first specific objective of the study was to determine the prevalence of helicobacter pylori infection among patients aged 10-25 years attending services at Makonge Health Centre III in Kiyindi, Buikwe district. From the results, the majority of respondents tested negative and a minority tested positive thus a low prevalence of helicobacter pylori infection in Kiyindi town council, Buikwe district.

Another specific objective of the study was to establish socio-demographic factors associated with the prevalence of helicobacter pylori infections among patients aged 10-25 years attending services at Makonge Health Centre III, Buikwe district. From the results, the majority of respondents who were between the ages of 18 to 25 years tested positive, and the majority who were single and those who had divorced also tested positive and were from rural residences and had at most attained primary school education. Therefore, a low socio-demographic status was a high predictor of Helicobacter pylori infection.

From the results, the majority of respondents who were between the ages of 10 and 17 years tested negative and the majority who were married also tested negative most of the respondents were from urban residences and had at most attained secondary school education. Therefore, a higher socio-demographic status is not a higher predictor of helicobacter pylori infection. Perhaps alcohol and gender had no association with the prevalence of H.pylori infection.

The last specific objective of the study was to assess the knowledge of the patients aged 10-25 years attending services at Makonge Health Centre III in Kiyindi, Buikwe district. From the results, the majority of respondents had never heard of and the minority had never heard about H.pylori infection (Ulcer). Most of the respondents did not know the likely cause, preventive measures, signs, and symptoms of helicobacter pylori (ulcers). From these



results, I conclude that the respondents had insufficient knowledge of Helicobacter pylori infection.

### Recommendations.

MOH should sensitize the community to test for H.pylori whenever they get signs and symptoms of ulcers.

Health facilities should conduct mass screening of the community for H.pylori infection under supervision by the Ministry Of Health.

Health workers at Makonge Health Center should also health educate the community about the causes, Signs, symptoms, and preventive measures of H.pylori infection under supervision by the Ministry Of Health.

The community should also take the initiative to report to health workers in case of manifestation of any signs and symptoms of Helicobacter pylori infection

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### List of Abbreviations and Acronyms

AIDS: Acquired immunodeficiency syndrome  
DCM: Diploma in Clinical Medicine and Community Health  
DHO: District Health Officer  
DM: Diabetes Mellitus  
Et al: And others  
GIT: Gastro-Intestinal Tract  
H. Pylori: Helicobacter pylori  
HIV: Human immunodeficiency virus  
IgG: Immunoglobulin gamma  
MALT: Mucosa-Associated Lymphoid Tissue  
MOH: Ministry of Health  
NSAIDs: Non-steroid Anti-inflammatory Drugs  
PHC: Primary Health care  
PUD: Peptic ulcer disease

Sag: Stool Antigen

UAHEB: Uganda allied Health examination board

WHO: World Health Organization

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