# Knowledge and Attitude toward Treatment among Helicobacter pylori Patients in Khartoum State (2020_2021)

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***Abstract—***

***Introduction:*** *Helicobacter pylori (H pylori) are a ubiquitous organism that is present in about 50% of the global population. H pylori is the leading bacterial cause of both malignant and non-malignant gasrtoduodenal disease and can lead to other serious complications. Sudan is one of the developing countries in which there is high prevalence without available and enough data about current situation. The last statistics had been done by ministry of health in Khartoum state in 2019 revealed that about 16242 persons were infected with h pylori from all ages and both sexes. Poor knowledge and wrong attitude toward treatment and route of transmission among helicobacter pylori patients will increase the prevalence and its complications in our country. Since there are no previous studies about the knowledge and attitude towards treatment among Helicobacter pylori patients in Sudan, we conducted this study to assess the knowledge and attitude among Sudanese helicobacter pylori patients towards treatment.*

***Methods:*** *A descriptive cross sectional study was done with sample size equal to 284. The data was analyzed using SPSS. A score was developed to assess the overall level of knowledge that ranged from 0 to 23.*

***Results:*** *Most of population had good level of knowledge 192 (77%). Also, a score from 0 to 3 was used to assess the level of attitude among the participants. The majority was found to have a positive attitude 127 (77%).*

***Keywords: Helicobacter pylori, Knowledge, Attitude, Patients.***

## I. INTRODUCTION

### 1.1 Background:

"Helicobacter pylori (H pylori) are a ubiquitous organism that is present in about 50% of the global population. Chronic infection with H pylori causes atrophic and even metaplastic changes in the stomach, and it has a known association with peptic ulcer diseases" [1]. The most common route of h pylori infection is either oral -to -oral or fecal –to- oral contact" [2], environment could be a route of transmission; in this contaminated food and water are likely vehicles [3]". In general, patients infected with H pylori are asymptomatic, and no specific clinical signs and symptoms have been described. When signs and symptoms are present, they may include nausea, vomiting, abdominal pain, heartburn, diarrhea, hunger in the morning and halitosis" [4]. "Even though H. pylori colonization is usually asymptomatic, it leads to chronic active gastritis in most patients and is associated with a number of other gastrduodenal diseases, including gastric and duodenal ulcer disease, distal gastric adenocarcinoma, primary gastric mucosal-associated lymphoid tissue (MALT) lymphoma, dyspepsia, atrophic gastritis, iron deficiency anemia, and idiopathic thrombocytopenic purpura. This is why H. pylori eradication is preferred for a long-term prevention of the above-mentioned complications and to prevent the recurrence"[5]. "The American college of gastroenterology (ACG) treatment guideline for first line and salvage therapies was last updated in 2017. Typically, H pylori treated with 2 to 3 antibiotics and a proton pump inhibitor (PPI). The 2017 guideline outlines evidence based. Frontline treatment strategies for providers in North America. These include clarithromycin triple therapy, bismuth quadruple therapy, concomitant therapy, sequential therapy, hybrid therapy, levofloxacin triple therapy and fluoroquinolone sequential therapy.

Clarithromycin triple therapy includes treatment with a PPI, clarithromycin and amoxicillin (metronidazole if the patient is allergic to amoxicillin). The guidelines notes that, when used in north America, the treatment should last for 14 days. The success of clarithromycin triple therapy depends on the rate of clarithromycin resistance.

Bismuth quadruple therapy is composed of a PPI or histamine 2 receptor antagonists, bismuth, metronidazole and tetracycline. The ACG guideline recommends giving this treatment for 10 to 14 days. Data from around the world suggest that bismuth quadruple therapy and clarithromycin triple therapy have similar efficacy, adherence and tolerability [6]. A study conducted by You Wu, Tun Su, et al to study the Chinese population awareness toward h pylori infection. They found that from all subjects who answered questions about h pylori infectivity, there is only 16% answered correctly to questions [7]. Another study, a literature review, was conducted by Lisa J.Driscoll, Heidie.Brown and et al. they used nine studies had been published between 1997 and 2014, eight of them were evaluating the risk people‘s perceptions toward h pylori infection, however, one of them studied the perception of all population. The studies suggest inconsistency between the population‘s perception and the established understanding of knowledge and attitude [8].

A survey was conducted by sikandar khan sherwani, syed hani, shahzad munir and et al. the study evaluated the level of awareness toward h pylori in general physicians in mega city- Karachi, Pakistan. The result revealed that 70% of physician had heard about h pylori before, whereas about 8% heard about it for the first time. Furthermore, 34% believed that h pylori can cause cancer. Majority of them believed that water is the main route of transmission and about 46% agreed on dyspepsia as the major sign. Moreover, there is about 54% suggested invasive tests as the diagnostic test, also it was found that 59% of physicians aware about first line of treatment and 33% were aware about the second line of antibiotics. Finally, there is about 80% suggested two weeks as the duration of treatment [9].

### 1.2 Problem statement:

H pylori is a worldwide disease, Meta- analysis adopted by zamani, et al, included publications from 2000 to 2017 found that an overall prevalence of 44.3% worldwide and rate range from 50.8% in developing countries and 34.7% in developed countries [10]. From this meta -analysis we can determine the high prevalence of h pylori in developing countries, and as Sudan is one of these developing countries in which there is high prevalence without available and enough data about current situation. The last statistics had been done by ministry of health in Khartoum state in 2019 revealed that about 16242 persons were infected with h pylori from all ages and both sexes. H pylori is the leading bacterial cause of both malignant and non-malignant gasrtoduodenal diseases [11-12]. H pylori infection can lead to serious complications, and it has high prevalence in our country. Moreover, we have high rate of ignorance in Sudan which might increase the prevalence of h pylori since have poor knowledge about the disease and how it transmits and the preventive measures would absolutely increase the disease in our nation.

### 1.3 Justification:

Due to lack of data about the population‘s knowledge and attitude toward h pylori in the whole world and certainly in Sudan, also due to dangerous complications of h pylori. We would like to conduct this research which might be helpful in decrease the prevalence of H. pylori in our country through increase the knowledge about the disease and the available choices of treatment and the ideal duration of treatment, furthermore we need to increase the population‘s awareness toward the prevention.

### 1.4 Objectives:

#### 1.4.1 General objective:

To assess the knowledge of patients regarding h pylori infection and their attitude toward treatment.

#### 1.4.2 Specific objectives:

- To assess the patient's knowledge about h pylori.
- To assess the patient's attitude toward the treatment.

## II. METHODOLOGY

### 2.1 Study design: - descriptive cross sectional study.

#### 2.1.1 Study population:

H pylori patients from both sexes above 18 years old who live in Khartoum state and volunteer to be part of this study.

### 2.2 Sampling:

- Non Probability sampling.
- Volunteer (self-selecting) sampling.

### 2.3 Sample size:

Sample size was obtained using the underlying formula:

N=z2*p(1-p)/e2

N= sample size

Z=level of confidence which is 95%

Proportion of population who were aware about h.pylori infection p= as there is no previous data about it we considered it 50%.

e=margin of error which is 5%

n= (1.96)2*0.5(1-0.5)/(0.05)2

n=284.16

n=284

The sample size is equal to 284

### 2.4 Data collection:

A self –constructed Google form which designed in Arabic language to assess level of knowledge regarding h pylori and attitude of patients toward treatment. The Google form consists of 18 questions. Three of them are personal data, twelve questions are regarding knowledge and three questions are about attitude.

### 2.5 Data analysis:

Data was entered and analyzed using statistical package for the social sciences (SPSS) version 20, descriptive statistics (frequency and percentage) were used. A scoring system was developed to assess the overall level of knowledge and attitude.

## III. RESULTS

The overall number of the respondents was 258, most of them in the age group 18 to 28 years 189 (74.1%). More than third were from Khartoum locality 98 (39.7%). Female were the predominant group 191 (75.2%).

The participants were asked if they were infected with h pylori and accordingly 219/254 (84.9%) confirmed that they had the infection.

**TABLE 1**
**SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS, KHARTOUM STATE 2021 (n ≈ 252)**

| Classification | Details | n | % | Total N |
|---|---|---|---|---|
| **Age groups (years)** | 18-28 | 189 | 74.1 | 255 |
| | 29 - 39 | 44 | 17.3 | |
| | 40 - 50 | 14 | 5.5 | |
| | more than 50 | 8 | 3.1 | |
| **Residence** | Khartoum locality | 98 | 39.7 | 247 |
| | Bahri locality | 39 | 15.8 | |
| | Omdurman locality | 46 | 18.6 | |
| | Ombada locality | 11 | 4.5 | |
| | Jabal Awlia locality | 18 | 7.3 | |
| | Sharg Alnile locality | 29 | 11.7 | |
| | Karriri Locality | 6 | 2.4 | |
| **Gender** | Male | 63 | 24.8 | 254 |
| | Female | 191 | 75.2 | |

A score was developed to assess the overall level of knowledge that ranged from 0 to 23. Those who scored from 0 to 11 were regarded as having poor knowledge; those above 11 were regarded as a good knowledge. Accordingly most of them had good level of knowledge 192 (77%).

**TABLE 2**
**LEVEL OF KNOWLEDGE OF THE PARTICIPANTS TOWARD H.PYLORI, KHARTOUM STATE 2021 (n ≈254)**

| Classification | Details | n | % | Total N |
|---|---|---|---|---|
| **Causative Agent** | Bacteria | 156 | 61.7 | 258 |
| | Viruses | 5 | 2.0 | |
| | Fungi | 5 | 2.0 | |
| | I don't Know | 87 | 34.4 | |
| **Is H.pylori a contagious disease?** | Yes | 102 | 40.3 | 253 |
| | No | 116 | 45.8 | |
| | I don't know | 35 | 13.8 | |
| **In your knowledge, is there a certain age for infection with H.pylori?** | Yes | 17 | 6.7 | 254 |
| | No | 207 | 81.5 | |
| | I don't know | 30 | 11.8 | |
| **In your knowledge, what are the modes of transmission of H.pylori?** | Polluted water and food | 141 | 55.5 | 254 |
| | Saliva from the affected person | 2 | .8 | |
| | All of the above | 86 | 33.9 | |
| | I don't know | 25 | 9.8 | |
| **In your knowledge, what are the symptoms of H.pylori?** | stomach pain | 37 | 14.6 | 254 |
| | nausea and vomiting | 3 | 1.2 | |
| | diarrhea | 1 | .4 | |
| | burning sensation | 14 | 5.5 | |
| | weight loss | 3 | 1.2 | |
| | No symptoms | 2 | .8 | |
| | All of the above | 193 | 76.0 | |
| | I don't know | 1 | .4 | |
| **In your knowledge, do H.pylori cause stomach ulcer?** | yes | 218 | 85.8 | 254 |
| | No | 9 | 3.5 | |
| | I don't know | 27 | 10.6 | |
| **In your knowledge, what are the complications of H.pylori?** | Inflammation of the stomach lining | 21 | 8.3 | 253 |
| | Gastric ulcer | 45 | 17.8 | |
| | Stomach cancer | 19 | 7.5 | |
| | Anemia | 2 | 0.8 | |
| | Esophageal cancer | 0 | 0.0 | |
| | All of the above | 130 | 51.4 | |
| | I don't know | 36 | 14.2 | |
| **In your knowledge, what is the treatment of H.pylori?** | Triple therapy | 109 | 42.9 | 254 |
| | Quadruple therapy | 8 | 3.1 | |
| | Surgery | 4 | 1.6 | |
| | Nutritional | 24 | 9.4 | |
| | traditional medicines | 24 | 9.4 | |
| | All of the above | 65 | 25.6 | |
| | I don't know | 20 | 7.9 | |
| **What does triple therapy contain?** | pain killers | 4 | 1.6 | 253 |
| | Antibiotics and antacids | 218 | 86.2 | |
| | I don’t know | 31 | 12.3 | |
| **How long is the treatment needed?** | 1 to 2 weeks | 118 | 46.6 | 253 |
| | Month | 68 | 26.9 | |
| | I don't know | 67 | 26.5 | |
| **In your knowledge, what are the ways to prevent H.pylori?** | Clean food | 7 | 2.8 | 254 |
| | clean water | 4 | 1.6 | |
| | Both | 229 | 90.2 | |
| | I don't know | 14 | 5.5 | |
| **Overall level of knowledge** | Poor | 56 | 22.6 | 248 |
| | Good | 192 | 77.4 | |

Also, a score from 0 to 3 was used to assess the level of attitude among the participants, 0 to 1 was regarded as negative attitude while 2 to 3 was regarded as a positive attitude, and as such the majority was found to have a positive attitude 127 (77%).

**TABLE 3**
**ATTITUDE OF THE PARTICIPANTS TOWARD H. PYLORI, KHARTOUM STATE 2021 (n ≈224)**

| Classification | Details | n | % | Total N |
|---|---|---|---|---|
| **Is taking H.pylori drugs necessary?** | Yes | 234 | 92.1 | 254 |
| | No | 20 | 7.9 | |
| **Do you think there is harm in taking these drugs?** | Yes | 126 | 49.8 | 253 |
| | No | 127 | 50.2 | |
| **If the answer is yes, is the harm greater than the benefit?** | Yes | 33 | 19.9 | 166 |
| | No | 133 | 80.1 | |
| **Overall level of attitude** | Poor | 38 | 23.0 | |
| | Good | 127 | 77.0 | |

## IV. DISCUSSION

Our study estimated the prevalence in 255 participants from the seven Khartoum localities if they had/currently having H. pylori infection, and 85.8% perceived that they had it. A cross sectional study done in the United Arab Emirates which is known for its population influences from Africa, Asia and Europe, to determine the prevalence of H. pylori and the associated risk factors; showed 41% prevalence rate. The African residents presented the highest prevalence to H. pylori (18, 81.8%) compared to Asian (77, 46.7%) and Arab participants (50, 30.7%) [13]. This result is needs considerable attention to educate the general population especially the high risk ones in order raise the awareness and restrain the spread of the infection and/or managing it early and properly.

The majority of the participants were in age group of 18-28 years old, (74.1%) and decline markedly with age scoring the lowest in age group of more than 50 years old, 8/255 (3.1%). Darko et al. (Ghana) reported similarly that increased infection rate in younger population [14]. This is opposite to studies done in industrialized countries in Canada [15], United Arab Emirates [13] and in Oifiled community in china, in the later 2506 h. pylori positive out of 4796 participants showed an increasing trend of prevalence with age of 47.6%, 54.4% in age group of 19-30 and more than 50 years old respectively [16]. Beside the difference between developments in countries; our result could be owed to the frequent use of the younger population to the smart phones and accessing the social platforms more than the elders.

Khoder Gh. [13] reported females were infected more than males (53% vs 35%) which is comparable with our study (75.2% vs 24.8%) but differ with Wang [16] and worldwide prevalence of helicobacter pylori infection [10] in that gender has no significant role in prevalence.

The overall level of knowledge of the participants about H. pylori infection causes, pathology, way of transmission, risk factors and its complications was good about 77.4% which was they have a significant gap regarding its contagiosity and methods of treatment. Nearly half of them (45.8%) think H. pylori infection is not contagious and 13.8% of them don't know. Though 42.9% knows the triple therapy, only 25.6% knows all of treatment modalities and about 20% think that nutritional or traditional medicines alone is suitable for treatment. A literature review concluded that to adequately respond to current test-and-treat recommendations for treatment of H. pylori, general population education must be implemented, especially among at-risk populations [8]. Indeed a better preparation of the medical personnel in health care facilities to deliver the suitable knowledge and ensuring that infected/population at risk has a well cover of the H. pylori infection nature.

## V. CONCLUSION

This study highlighted how common h pylori infection is, though it presented a small sample of population but was significant enough to give information about the knowledge and attitude of Sudanese patients who live in Khartoum state. This global health problem affects all age groups in the developing countries especially the younger population, in opposite to the developed countries with less prevalence rates and higher numbers in elderly people. In our study the younger people were more affected and this might be due to how younger people use the internet more than the elder. Therefore, a survey with interview method would be effective. In spite of the good level of knowledge among the study population [8], all of

them lived in Khartoum, the capital of Sudan which is the most civilized area. Thus further researches in rural areas and more in-depth assessment of knowledge, attitude and practice are surely needed.

## LIMITATIONS

Face to face method to collect data was really hard to do due to sensible decline in the number of patients visiting hospitals due to corona epidemic. Thus we decided to conduct an online version of the questionnaire and decreasing the sample size to catch up the planned time frame.

## ETHICAL CONSIDERATION

Approval had been taken from Khartoum state ministry of health research department Participation in the online survey, implied consent for the study.

## CONFLICT OF INTEREST

All authors declared that there is no conflict.

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