

## Mothers' Knowledge, Practice, and Home-Based Management Regarding Prevention of Helicobacter Pylori in Barout Village at Beni-Suef Governorate

(1) Mona Hamdy Taha Abd El- Gwad, (2) Eman Mohamed El- Sherbieny, (3) Laila Awdian Ali

<sup>(1)</sup> B.SC. Nursing - Beni-Suef University

<sup>(2)</sup> Assistant Professor of Community Health Nursing, Faculty of Nursing – Beni-Suef University,

<sup>(3)</sup> Assistant Professor of Community Health Nursing, Faculty of Nursing – Beni-Suef University,

### Abstract

**Background:** Helicobacter pylori infection invariably causes active chronic gastritis. **Aim of the study:** to assess mothers' knowledge, practice, and home-based management regarding the prevention of helicobacter pylori in Barout, Beni-Suef. **Research design:** A descriptive design was utilized to achieve the aim of the current study. **Sample:** A convenient sample composed of all mothers attending the Mother and Child Health Center in Barout Village in Beni-Suef Governorate. **Tool of data collection: Tool (I) Part (I):** Mothers' demographic characteristics, **Part (II)** Knowledge questionnaire for mothers **Part (III):** mothers reported practices regarding the prevention of H. pylori. **Results:** The findings of this study revealed that 37.7% of studied mothers had poor knowledge levels and 80.3% of them had unsatisfactory home-based practices regarding H. Pylori Infection. Also a statistically significant positive correlation between total knowledge and home-based practice of the studied mothers. **Conclusion:** Mothers' knowledge, and home-based management practices regarding the prevention of helicobacter pylori in Barout village at Beni-Suef governorate need to improve. **Recommendation:** Regular training programs to attend women in Mother and Child Health Center to improve their knowledge and home-based management practices regarding the prevention of Helicobacter Pylori which can reduce the morbidity of the disease.

**Keywords:** Helicobacter Pylori, Home Based Management, Mothers' Knowledge, Mothers' Practice.

### Introduction

Helicobacter Pylori is a gram-negative bacterium that colonizes the stomach of approximately two-thirds of the human population, and it is involved in the pathogenesis of gastroduodenal diseases. H. pylori Infection (HPI) is generally acquired during childhood and persists lifelong in the absence of treatment with antibiotics. HPI is a common cause of digestive illnesses, including gastritis (the irritation and inflammation of the stomach lining) and peptic ulcers (sores in the lining of the stomach, small intestine, or esophagus) (Park & Tsunoda, 2022).

Helicobacter Pylori is one of the most common chronic infections that infect approximately 4.4 billion individuals worldwide. The area with the highest reported prevalence was reported in Africa (70.1%) while the lowest prevalence was reported in Switzerland (18.9%). The prevalence of HP shows large geographical variation with infection rates much higher in developing

countries (in some areas > 85 %) than in Europe and North America (approximately 30%-40%). In various developing countries, more than 80% of the population is HP positive, even at young ages (De Brito et al., 2019).

The Helicobacter Pylori is contagious, although the exact route of transmission is not known. Person-to-person transmission by either the oral-to-oral or fecal-to-oral route is most likely. HP may also be transmitted orally using fecal matter through the ingestion of waste-tainted water. Many of the reported factors for HPI included poor hygiene, deficient sanitation, crowded living conditions, and environmental contamination (Ahmad, 2022).

Helicobacter pylori is the most common human pathogen and affects various gastroduodenal diseases. It is responsible for the onset of several gastric pathologies ranging from gastritis to gastric carcinoma. It is a well-defined spiral-shaped, gram-negative bacteria (Peng, et al., 2019). Helicobacter pylori has been recognized as a major pathogen of humankind for nearly four decades. However,

despite the impact of treatment of infected individuals and the reduced transmission of infection in communities in which socioeconomic living standards have improved, it continues to be the most common human bacterial pathogen, infecting perhaps half of the world's population. As a result, it is still a major cause of morbidity and mortality worldwide (Kwiecien, et al., 2019).

Mothers play a critical role in the family, which is a powerful force for social cohesion and integration. The mother played an important role in all aspects of family health including keeping the family healthy, preventing ill health, and dealing with illness. The mother's responsibility during illness is symptom recognition; decisions on whether the individual will take on the sick role; a role in medical consultations; decisions around treatment including medications; and dealing with the consequences and actions of illness (Kamai et al., 2023).

Community Health Nurse (CHN) plays an important role in preventing HPI and changing the behavior of mothers by increasing their knowledge and related healthy practices regarding HPI. CHN provides mothers with the information about HPI definition, causes, risk factors, modes of transmission, and preventive practices such as hand washing, hygienic food practices, and maintaining healthy environmental conditions (Ibrahiem & Saad, 2021).

### Significance of The Study:

More than 50% of the world's population suffers from *H. pylori* or *H. pylori* (stomach germ) in the upper digestive tract, and the spread of this infection in the recent period, especially in developing countries. In the Middle East, the infection spreads by 60-90%, while in Egypt it spreads from the age of 20-40 years by 50-70%, and it spreads among children by 30%, and by 90% among those over 50 years old. In the U.S., *H. pylori* bacteria are found in about 5% of children under the age of 10. Infection is most likely to occur in children who live in crowded conditions and areas with poor sanitation (Chen et al.,2021).

Most people infected with *H. pylori* never develop clinical symptoms socially children, even though they have chronic gastritis. But about 10-20% of them are the ones who suffer from it. Symptoms like gastritis or ulcers in the stomach or the first part of the small intestine. Which may end with the development of some types of cancer, such as stomach cancer, with a rate of 1-2% throughout life, and a risk of less than 1% of developing lymphoma, this is why it is called The silent infection, which necessitates awareness of the symptoms and the risks that it causes, and an increase in the culture of mothers to care about the health of their children and avoid dangerous complications (Liou et al., 2020).

Additionally, *Helicobacter pylori* (*H. pylori*) (formerly known as *Campylobacter pyloridis*) has been studied for over a century due to its association with peptic ulcer disease and gastric cancer. Its prevalence has been declining due to improvements in hygienic conditions and effective curative and preventive approaches. However, it is still present in different communities and continues to spread, increasing its global presence in both developing as well as developed countries. Extensive research has been ongoing to eradicate this pathogen, and at present, scientists have discovered different management options (Hassan et al., 2019).

Studying *H. pylori* infection in MCH is very important, it can enable a better understanding of the risk factors and consequences of infection. In South America and Asia, the incidence of *H. pylori* is 69.4% and 66.6% respectively while reaching 79.1% in Africa. In the Middle East, *H. pylori* prevalence ranges from 60-90%. In Egypt, *H. pylori* affects 90% of people who are more than 50 years old, while the incidence ranges from 50% to 70% for people who are from 20 to 40 years old. *H. pylori* infection constitutes a public health problem often with serious complications especially in a developing country like Egypt (Ahmad, 2022).

Community health awareness is an essential aspect of preventative healthcare. Therefore, it is very crucial to provide health awareness to prevent *Helicobacter pylori* infection among

family members and to establish the best practices in the prevention of *H. pylori* infection. (Ueda et al., 2019)

### **Aim of the study:**

The study aims to assess mothers' knowledge, practice, and home-based management regarding the prevention of helicobacter pylori in Barout, Beni-Suef through assessing:

1. Mothers' knowledge regarding the prevention of helicobacter pylori
2. Mothers' practice at home regarding the prevention of helicobacter pylori
3. Relationship between mothers' knowledge of mothers' practice at home regarding prevention of helicobacter pylori

### **Research questions**

1. What is the mothers' knowledge regarding the prevention of helicobacter pylori?
2. What are the mothers' home-based practices regarding the prevention of helicobacter pylori?

### **Subjects and methods:**

The subject and method of this study were portrayed under the following four designs as follows:

- I. Technical Design
- II. Operational Design
- III. Administrative Design
- IV. Statistical Design

#### **I. Technical Design**

The technical design includes research design, setting, subject, and tools for data collection.

#### **Research design:**

A descriptive research design was utilized to achieve the aim of the current study.

#### **Setting:**

The study was conducted at the Maternity Center of Health (MCH) [Mother and Child Health Center] in Barout Village in Beni-Suef Governorate. It is a large entrance. One floor with nine rooms included a pediatric examination room; dental; a family planning consultant and devices; vaccinations rooms; a pregnancy follow-up room; a room to

administer the Corona vaccine, two bathrooms, two nursing rooms, and a laboratory room.

### **Subject:**

All available mothers who had children in preschool and school age and attending the MCH during the data collection period who agreed to participate were included in the current study sample. The researcher took all available mothers who attended the MCH for six months.

### **Sample type:**

A convenient sampling technique was employed in the current study.

### **Tools for data collection (Appendix IV):**

*Data from the current study was collected by utilizing the following tool:*

**The first tool is the structured interviewing questionnaire:**

This tool was developed by the investigator after reviewing the national and international related literature. It contained three parts:

**Part I: Mothers' demographic characteristics:**

This part was concerned with demographic characteristics of mothers such as age, sex, marital status, level of education, occupation, residence, family type, and the number of home rooms.

**Part II: Knowledge questionnaire for mothers:**

It aims to evaluate mothers' knowledge regarding the prevention of *Helicobacter pylori*. It consisted of 24 multiple-choice questions, mother was asked to choose more than one answer, The scores ranged between, (2) for complete correct answer, (1) for incomplete correct answers and (0) for don't know.

**Total knowledge scoring system:**

Poor knowledge ---- < 60% of total knowledge score (1- 28 scores).

Average knowledge -----60- 75% of total knowledge score (29-36).

Good knowledge -----> 75% of total knowledge score (37-48)

**Part III: Mothers reported practices regarding the prevention of *H. pylori*:**

It was developed by the investigator after reviewing related literature. It was constructed to assess mothers' performance regarding the prevention of *Helicobacter pylori*. It included eight separate checklists for eight procedures (61 items) regarding house and environment (8 items), handwashing (8 items), choice of food (8 items), food preparation (5 items), food cooking (14 items), food separation (5 items), food refrigeration (4 items), and personal hygiene (9 items). Scores ranged between Always=4, usually=3, sometimes=2, rarely=1, and never=0, with higher scores indicating adequate practices.

#### **Total reported practices score.**

Unsatisfactory practice -----  
--<60% of total practice score.

Satisfactory practice -----  
-----≥ 60 of total practice score.

#### **Tools Validity**

The study tools were revised for clarity, relevance, comprehensiveness understanding, and applicability by a panel of five experts from the Faculty of Nursing, Beni-Suef University to measure the content validity of the tools and clarity. Modifications were made accordingly.

#### **Reliability**

The study tool was tested for its internal consistency using Cronbach's alpha. It was 0.837 and 0.932 for both knowledge and reported practice checklist tools respectively.

#### **Ethical Consideration**

Ethical approval was obtained from the scientific research ethical committee of the Faculty of Medicine Beni-Suef University to conduct the current study. Official permission was then taken from the authoritative personnel at the mentioned hospital and written or oral consent was obtained from all mothers. The purpose and the nature of the study were then explained to all participants before the interview. The investigator emphasized that participation in the study is entirely voluntary; anonymity and confidentiality were assured through coding the data and they were given the right to withdraw from the study at any time without giving any reasons.

## **II. Operational design**

The operational design includes the preparatory phase, pilot study, and fieldwork.

### **A. Preparatory phase**

This phase started with a review of current and past, national, and international related literature concerning the study subject, using textbooks, articles, journals, and websites. This review was helpful to the investigator in reviewing and developing the data collection tools, and then the investigator tested the validity of the tool through a jury of experts to test the content, knowledge, accuracy, and relevance of questions for tools.

#### **Pilot Study**

A pilot study was conducted on 10% of the mothers under study to evaluate the applicability, efficiency, and clarity of tools, and assessment of the feasibility of fieldwork, besides detecting any possible obstacles that might face the investigator and interfere with data collection. The pilot study subjects were included in the actual study sample.

### **B. Fieldwork (Implementation phase):**

Data collection of the study was started at the beginning of June 2021, and completed by the end of December 2021. The investigator attended the MCH at Barout village in Beni-Suef Governorate two days per week from 9 a.m. to 12 p.m. The purpose of the study was simply explained to the mothers who agreed to participate in the study before any data collection.

### **C- Ending phase:**

The investigator gave the mothers the interviewing questionnaire to fill out, then an observation checklist was filled in by the investigator. The data collection process consumed 15 to 25 minutes per participant.

## **III. Administrative design:**

Approval to carry out this study was obtained from the Dean of the Faculty of Nursing, Beni-Suef University, and official permission was obtained from the director of the outpatient clinics at the Barout Maternity Center of Health in Barout Village in Beni-Suef Governorate for conducting the study.

## **IV. Statistical design:**

The collected data were organized and analyzed using appropriate statistical significance tests. The data were collected and coded using the Computer Statistical Package for Social Science (SPSS), version 25, and was also used to do the statistical analysis of data. Data were presented using descriptive statistics in the form of frequencies and percentages. Pearson Correlation Coefficient and Paired Samples t-tests were used to compare frequencies between study variables.

Degrees of the significance of results were considered as follows:

p-value > 0.05 Not significant (NS)

p-value ≤ 0.05 Significant (S)

p-value ≤ 0.01 Highly Significant (HS)

## Results

Table (1) shows the socio-demographic characteristics of studied mothers. Regarding their age, 43.7% of studied mothers were aged between 30 and 40 years with Mean ± SD 34.72 ± 8.32 years. Concerning their marital status, the majority of studied mothers 80.7% were married. For their educational qualification, the higher percentages of studied mothers had technical and higher education 30.3% and 18% respectively. Regarding their occupational status, more than half of the studied mothers 57% were not working. By studying mothers' residences, nearly all of them 99.7% were rural residents.

Figure (1) shows the Total Knowledge among Studied Samples. 37.7% of studied mothers had poor knowledge levels, 27.6% had average knowledge levels and 34.7% of studied mothers had good knowledge levels regarding H. Pylori Infection.

Figure (2) shows total home-based practice among studied samples, 80.3% of studied mothers had unsatisfactory practice levels, and 19.7% of studied mothers had satisfactory practice levels regarding H. Pylori Infection.

Table (2) showed that there is a statistically significant relation between studied mothers'

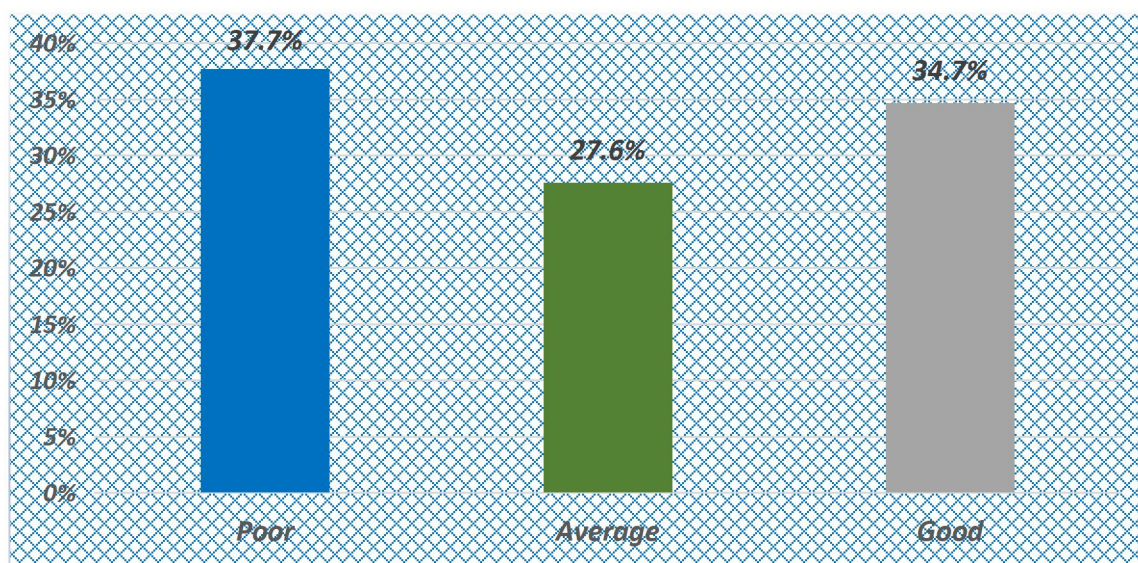
Knowledge and their characteristics except residence which mothers aged between 30 – 39 years, married, illiterate, and not working had poor knowledge scores regarding H. Pylori infection.

Table (3): showed no statistically significance relation between studied mothers' home-based practices and their characteristics as age, marital status, educational level, occupation, and residence.

Table (4): showed that positive correlation between total knowledge and total home-based practices scores among studied mothers ( $r = 0.205$ ;  $P \text{ value} < 0.001$ )

**Part I: Personal characteristics of the studied sample.****Table (1): Socio-demographic Characteristics among Studied Mothers (n=300).**

Socio-demographic Characteristics	No.	%
<b>Age</b>		
20 – <30	80	26.7
30 – <40	131	43.7
40 – < 50		
50 and more	28	9.3
Mean ± SD	34.72±8.32	
<b>Marital status</b>		
Married	242	
Divorced		
Widow	24	8.0
<b>Education</b>		
Illiterate	55	18.3
Primary education	49	16.4
Secondary education		
Higher education	54	18.0
Technical education	91	30.3
Postgraduate education		
<b>Occupation</b>		
Working	129	43.0
Not working	171	57.0
<b>Residence</b>		
Rural		
Urban	1	0.3

**Figure (1). Total Knowledge among Studied Samples.**

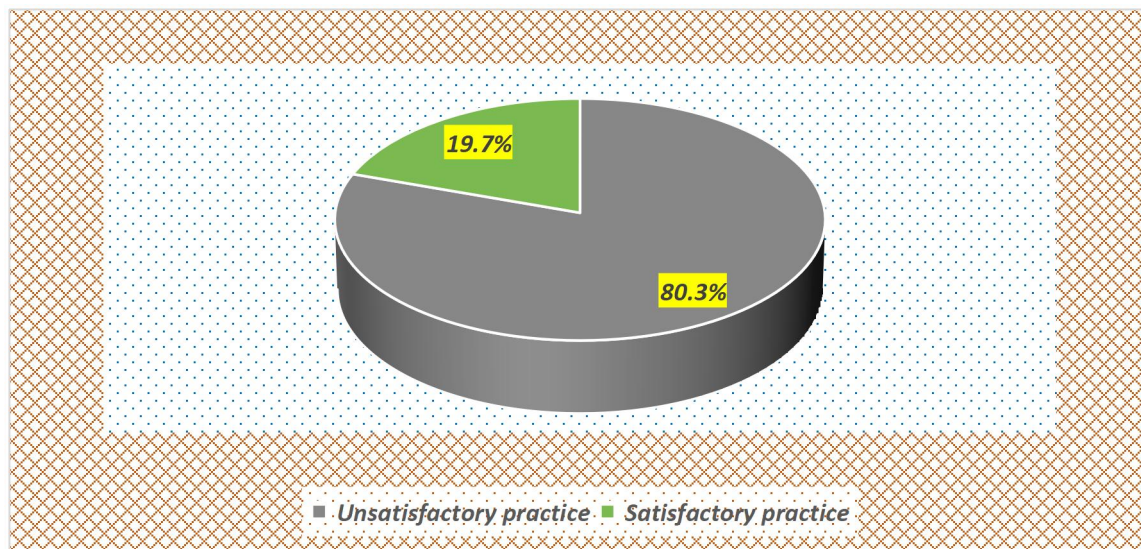


Figure (2) Total home-based practice among Studied Samples.

Table (2): Relation between studied mothers' Knowledge and their characteristics

Personnel characteristics	Total knowledge score						X <sup>2</sup> Sig.	P value
	Poor		Average		Good			
	No.	%	No.	%	No.	%		
<b>Age</b>							15.18	<0.001**
20 – 29	31	27.4	16	19.3	33	31.8		
30 – 39	46	40.7	44	53.0	41	39.4		
40 – 49	25	22.2	21	25.3	15	14.4		
50 +	11	9.7	2	2.4	15	14.4		
<b>Marital status</b>							11.64	<0.001**
Married	82	72.6	66	79.5	94	90.4		
Divorced	17	15.0	10	12.0	7	6.7		
Widow	14	12.4	7	8.5	3	2.9		
<b>Education</b>							88.55	<0.001**
Illiterate	46	40.7	9	10.8	0	0.0		
Primary education	15	13.3	13	15.7	21	20.2		
Secondary education	5	4.4	18	21.7	20	19.2		
Higher education	10	8.8	13	15.7	31	29.8		
Technical education	37	32.7	28	33.7	26	25.0		
Postgraduate education	0	0.0	2	2.4	6	5.8		
<b>Occupation</b>							21.39	<0.001**
Working	30	26.5	40	48.2	59	56.7		
Not working	83	73.5	43	51.8	45	43.3		
<b>Residence</b>							4.43	>0.05 NS
Rural	98	86.7	65	78.3	79	76.0		
Urban	15	13.3	18	21.7	25	24.0		



Table (3): Relation between studied mothers' home-based practices and their personnel characteristics.

Demographic characteristics	home-based practices scores				X <sup>2</sup> Sig.	P value
	unsatisfactory N=241		satisfactory N=59			
	No.	%	No.	%		
<b>Age</b>					5.48	>0.05 NS
20 – 29	58	24.1	22	37.3		
30 – 39	112	46.5	19	32.2		
40 – 49	48	19.9	13	22.0		
50 +	23	9.5	5	8.5		
<b>Marital status</b>					0.113	>0.05 NS
Married	194	80.5	48	81.4		
Divorced	28	11.6	6	10.2		
Widow	19	7.9	5	8.5		
<b>Education</b>					5.29	>0.05 NS
Illiterate	44	18.3	11	18.6		
Primary education	40	16.6	9	15.3		
Secondary education	35	14.5	8	13.6		
Higher education	38	15.8	16	27.1		
Technical education	78	32.4	13	22.0		
Postgraduate education	6	2.5	2	3.4		
<b>Occupation</b>					0.484	>0.05 NS
Working	106	44.0	23	39.0		
Not working	135	56.0	36	61.0		
<b>Residence</b>					0.048	>0.05 NS
Rural	195	80.9	47	79.7		
Urban	46	19.1	12	20.3		

Table (18) Correlation between Total Knowledge and Total home-based practices Scores among studied mothers

Variables	Total knowledge score	
	R	P value
Total home-based practices	0.205	<0.001**

## Discussion

*Helicobacter pylori* infection is associated with the development of chronic gastritis, peptic ulcer disease, and gastric cancer. Current clinical recommendations are that *H. pylori* test-and-treat should be individualized based on comorbidities and patient preferences

among populations at increased risk for certain morbidities (Guevara, & Cogdill, 2020). *Helicobacter pylori* screening and prevention among at-risk groups may reduce certain diseases and “test-and-treat” should be individualized based on comorbid illness and patient preferences (Chey et al., 2019).

Regarding age the current study results proved that nearly half of the studied mothers were aged between 30 and 40 years with Mean  $\pm$  SD (34.72 $\pm$ 8.32) year, The current study result agreed with the study by **Eltayeb, (2022)** cleared that; more than half of the studied sample had 31 to 40 years old.

Regarding marital status, the majority of studied mothers were married. For their educational qualification, the higher percentages of studied mothers had technical and higher education respectively, and more than half of the studied mothers were not working.

The current study results were supported by the study done by **Alaridah et al. (2022)** knowledge and information sources of *Helicobacter pylori* among Jordanian population: a cross-sectional study *indicated that*; more than two-thirds were married and had higher education.

The current study results were supported by **Al Ghadeer, et al. (2021)** who studied public awareness and attitude towards *Helicobacter pylori* infection in Alahsa, Saudi Arabia, and found that; less than two-thirds of the studied sample had a university education, and more than half were not working.

Regarding residence most of them were rural residents; the study findings were supported by **Eltayeb, (2022)** who studied milestones of knowledge attitude and practice of the Saudi population towards *Helicobacter pylori* infection regarding mothers' age and residence concluded that; regarding information about *H. pylori* cleared that; more than two thirds from rural areas.

By our study, **Gravina et al., 2019 & Galal et al., (2020)** denoted that the *H. pylori* prevalence rate is high in rural areas. From the investigator's opinion; several factors including poor socio-economic status, poor sanitation, bad hygienic behaviors, and absence of safe water supply among people living in rural areas.

The study results were contradicted by **Wu, et al. (2020)**. Who studied awareness and

attitudes regarding *Helicobacter pylori* infection in Chinese physicians and the public population, cleared that; the majority of respondents lived in cities.

In the investigator's opinion, these findings reflected that low socio-demographic conditions presented in highly crowded living conditions are known to be risk factors that contribute to the acquisition and transmission of *H. Pylori* infection.

---

The current study results cleared that; more than one-third of studied mothers had poor knowledge levels, more than one-quarter had average knowledge levels and more than one-third of studied mothers had good knowledge levels regarding *H. Pylori* Infection.

Congruent with the current study results **Wu et al., (2020)** about awareness and attitudes regarding *Helicobacter pylori* infection in Chinese physicians and public population: A national cross-sectional survey, the study results estimated a lower level of knowledge among the Chinese population regarding *helicobacter pylori*.

On the other hand, the study results were inconsistent with the Egyptian study done by **Ibrahiem & Saad (2021)** found that; three-quarters of the family members had poor knowledge of pre-package health awareness about *Helicobacter Pylori* Infection. Also, the results of the study by **Malek, (2021)** about knowledge, attitudes, and practices of adults in the United Arab Emirates regarding *Helicobacter pylori*-induced gastric ulcers and cancers were in the same line with our study and indicated that; the majority of participants showed overall excellent practices.

In addition, the study by **Abongwa et al., (2019)** explored knowledge, practice, and prevalence of *helicobacter pylori* infection in the northwest region of Cameroon and concluded that; three-quarters of the studied sample had good practices.

In the investigator's opinion, the mother's good practice can be explained as the mother is the primary caregiver for their children, she also provides care for the child during their

developmental stages of life, as most of the mothers had 30 to 40 years and had higher education the mothers were experienced enough to had knowledge and practices, especially for hygienic practices regarding food preparation, cooking, and storage for their children,

Regarding the relation between studied mothers' knowledge, and their personnel characteristics. There was a statistically significant relation between studied mothers' Knowledge and their personnel characteristics except residence which mothers aged between 30 – 39 years, married, illiterate, and not working had poor knowledge scores regarding H. Pylori Infection.

The study results were in the same line with the study done by **Alaridah et al. (2022)** indicated that; there were highly statistically significant relationships between family members' socio-demographic characteristics' such as educational level, and no. of family members, and crowding index regarding total scores of knowledge's pre and post health awareness package. As well, as a statistically significant relationship between age and family history of infectious disease regarding total scores of knowledge pre and post-health awareness packages.

**Wu, et al. (2020)** studied awareness and attitudes regarding Helicobacter pylori infection in Chinese physicians and the public population: A national cross-sectional survey. There were significant differences in knowledge mastery about H. pylori among the general population in different age groups and education levels.

Also, **Abongwa, et al. (2019)** indicated that there was a statistically significant association between the knowledge of participants with age, level of education, and occupation. Also, there were significant differences between the practices of participants and their level of education and occupation p. value 0.0001.

On the other hand, this result contradicted **Van Loon et al. (2019)** about Socio-demographic, hygienic, and nutritional correlates of Helicobacter pylori infection of Bangladeshi patients found no association was observed between knowledge regarding H. pylori infection concerning the socioeconomic status and educational level in Bangladesh. Also, **Wang et al. (2019)**, about the assessment of prevalence and risk factors of helicobacter pylori infection in an oilfield Community in Hebei, concluded that there was no statistically significant relation between participant

knowledge regarding H. pylori and their age, gender, marital status, and residence.

In the investigator's opinion, most of the studied mothers had technical and higher education in our study so, mothers' education has a great impact on their knowledge and reported practice concerning H. pylori has shown an improvement in these areas related to having higher education than the non-educated ones.

Also, educated mother tends to marry and have their first child at a later age than uneducated women. They also are likely to have a strong or confident role in children's care and play a greater part in their family decision-making in the best for their children's needs. Their husbands tend to be economically better off than those of uneducated women. Educated mothers may also seek more effective use of health services which in turn affect the child's health.

Concerning the relation between studied mothers' home-based practices and their personnel characteristics, no statistically significance relation between studied mothers' home-based practices and their personnel characteristics as age, marital status, educational level, occupation, and residence.

This current result is inconsistent with **Abongwa, et al. (2019)** who confirmed that; there were significant differences between the practices of participants and their level of education and occupation p. value 0.0001.

Also, the study accomplished by **Amaral et al. (2020)**, about the prevalence of H. pylori among adults" proved that; there was a highly significant relationship between the low Socio-demographic, low educational level, and overcrowding with low practice level.

Concerning the correlation between total knowledge and total home-based practice scores among studied mothers. The current study results proved that positive correlation between total knowledge and total home-based practice scores among studied mothers.

The current results are supported by the results of a study done by **Ibrahiem & Saad (2021)** cleared that; there was a statistically significant strong direct correlation between total scores of knowledge and total scores of reported practices of health awareness package ( $p > 0.001$ )

In the investigator's opinion, gaining correct knowledge is an important part of promoting practice, so mothers' good knowledge is reflected

in having good practice because when one needs to improve one's behavior you should first provide him with enough correct knowledge.

## Conclusion

More than one-third of studied mothers had poor knowledge levels and nearly the majority of studied mothers had unsatisfactory home-based practices regarding H. Pylori Infection. Also, there is a statistically significant positive correlation between total knowledge and home-based practice of the studied mothers.

So, mothers' knowledge, and home-based management practices regarding the prevention of helicobacter pylori in Barout village at Beni-surf governorate need to improve.

## Recommendations

In the light of the present study findings, the following recommendations are suggested

- Regular training programs to attend women in Mother and Child Health Center to improve their knowledge and home-based management practices regarding the prevention of Helicobacter Pylori which can reduce the morbidity of the disease.
- A health educational package on the most common diseases given on follow-up plans, particularly for high-risk mothers and those who are illiterate. Additionally, it should be written in a clear, simplified, and comprehensive explanation to raise the awareness of mothers regarding these issues.

## For further research

Research to evaluate the effect of the educational program on Mothers' Knowledge, Practice, and Home-Based Management Regarding the Prevention of Helicobacter Pylori

- This study has to be repeated with a bigger sample across other locations with long-term follow-up to generalize its findings.

## References

**Abongwa, L. E., Samje, M., Antoine, K. S., Alberic, S., Elvis, M., Benardette, L., & Roland, F. (2019).** Knowledge, practice, and prevalence of helicobacter pylori infection in the northwest region of Cameroon. *Clin Biotechnol Microbiol*, 1, 135-43.

**Ahmad, W. (2022).** The Zingiber Officinale Roscoe Combat Helicobacter Pylori Infection in Human Gastrointestinal Tract Diagnosis and Treatment: Zingiber officinale Roscoe to Combat H. Pylori Infection. *Pakistan Journal of Health Sciences*, 13-18.

**Al Ghadeer, H. A., Muthana Al Sahlawi, S. B., Al Shaikh, S. M., Al, Z. M., Ghannam, H. S., Al Rabia, Z. H., & Al Ghanim, M. E. (2021).** Public awareness and attitude towards Helicobacter pylori infection in Alahsa, Saudi Arabia.

**Alaridah, N., Raba'a, F. J., Joudeh, R. M., Aljarawen, M., Jum'ah, M., AlHmoud, R. R., ... & Abu-Humaidan, A. H. (2022).** Knowledge and information sources of Helicobacter pylori among Jordanian population: a cross-sectional study. medRxiv.

**Amaral, O., Fernandes, I., Veiga, N., Pereira, C., Chaves, C., Nelas, P., & Silva, D. (2020).** Living conditions and Helicobacter pylori in adults. *BioMed research international*, 2020.

**Chen, X., Zhou, X., Liao, B., Zhou, Y., Cheng, L., & Ren, B. (2021).** The cross-kingdom interaction between Helicobacter pylori and Candida albicans. *PLoS pathogens*, 17(5),100-951

**Chey, W. D., Leontiadis, G. I., Howden, C. W., & Moss, S. F. (2019).** Response to Georgopoulos Official journal of the American College of Gastroenterology| ACG, 112(7), 1169-1170.

**De Brito, B., da Silva, F., Soares, A., Pereira, V., Santos, M., Sampaio, M and Neves, P. (2019).** Pathogenesis and clinical management of Helicobacter pylori gastric infection: *World Journal of Gastroenterology*. 25(37). 5578-5589, DOI: 10.3748/wjg. v25.i37.5578

**Eltayeb, L. B. (2022).** Milestones of Knowledge Attitude and Practice of Saudi Population Towards Helicobacter Pylori Infection. *Biomedical and Pharmacology Journal*, 15(1), 379-386.

**Galal, Y., Ghobrial, C., Labib, J. and Abou-Zekri, M. (2020).** Helicobacter pylori among symptomatic Egyptian children: prevalence, risk factors, and effect on growth: *Journal of the Egyptian Public Health Association*, Pp:1794,

Available at <https://doi.org/10.1186/s42506-019-0017-6>

**Gravina, A. G., Federico, A., Dallio, M., Sgambato, D., Miranda, A., Tuccillo, C., ... & Romano, M. (2019).** Intrafamilial spread of *Helicobacter pylori* infection. *Journal of gastroenterology, hepatology, and endoscopy*, 1(1), 1-2.

**Guevara, B., & Cogdill, A. G. (2020).** *Helicobacter pylori*: a review of current diagnostic and management strategies. *Digestive Diseases and Sciences*, 65(7), 1917-1931.

**Hassan, A. M., Shawky, M. A. E. G., Mohammed, A. Q., Haridy, M. A., & Eid, K. A. E. A. (2019).** Simvastatin improves the eradication rate of *Helicobacter pylori*: upper Egypt experience. *Infection and drug resistance*, 12(12), 15-29

**Ibrahiem, D.A., Saad, A.M. (2021).** Health Awareness Package to Avert *Helicobacter Pylori* Infection among Family Members: Egyptian Journal of Health Care, Vol (12), (1), Pp:448-466.

**Kwiecien S, Magierowski M, Majka J, Ptak-Belowska A, Wojcik D, Sliwowski Z, Magierowska K, Brzozowski T. (2019).** Curcumin: A Potent Protectant against Esophageal and Gastric Disorders. *Int J Mol Sci* 24;20(6):1477.

**Kamai, E. M., Calderon, A., Van Horne, Y. O., Bastain, T. M., Breton, C. V., & Johnston, J. E. (2023).** Perceptions and experiences of environmental health and risks among Latina mothers in urban Los Angeles, California, USA. *Environmental Health*, 22(1), 1-13.

**Liou, J. M., Chen, C. C., Chang, C. M., Fang, Y. J., Bair, M. J., Chen, P. Y., ... & Helicobacter Consortium. (2019).** Long-term changes of gut microbiota, antibiotic resistance, and metabolic parameters after *Helicobacter pylori* eradication: a multicentre, open-label, randomized trial. *The Lancet Infectious Diseases*, 19(10), 1109-1120.

**Malek, A. I., Abdelbagi, M., Odeh, L., Alotaibi, A. T., Alfardan, M. H., & Barqawi, H. J. (2021).** Knowledge, attitudes, and practices of adults in the United Arab Emirates regarding *Helicobacter pylori*-induced gastric ulcers and

cancers. *Asian Pacific Journal of Cancer Prevention: APJCP*, 22(5), 1645.

**Park, A. M., & Tsunoda, I. (2022).** *Helicobacter pylori* infection in the stomach induces neuroinflammation: the potential roles of bacterial outer membrane vesicles in an animal model of Alzheimer's disease. *Inflammation and Regeneration*, 42(1), 39

**Peng C, Hu Y, Ge ZM, Zou QM, Lyu NH, (2019).** Diagnosis and treatment of *Helicobacter pylori* infections in children and elderly populations. *Chronic Dis Transl Med.* 5:243-51. 10.1016/j.cdtm.12.003

**Ueda, J, Yamaguchi, A. & Shibasaki, K. (2019).** The occurrence of *Helicobacter pylori* in saliva in preschool-age children. *Oral Science International.* 12. 5-8. 10.1016/S1348-8643(14)00028-7

**Van Loon FP, Clemens J, Albert MJ, Rao M, & Qadri F. (2019).** Socio-demographic, hygienic and nutritional correlates of *Helicobacter pylori* infection of Bangladeshi patients *Pediatr Infect Dis J* 2019; 15: 1113– 1118.

**Wang, W., Jiang, W., Zhu, S., Sun, X., Li, P., Liu, K., ... & Zhang, S. (2019).** Assessment of prevalence and risk factors of *Helicobacter pylori* infection in an oilfield Community in Hebei, China. *BMC gastroenterology*, 19, 1-8.

**Wu, Y., Su, T., Zhou, X., Lu, N., Li, Z., & Du, Y. (2020).** Awareness and attitudes regarding *Helicobacter pylori* infection in Chinese physicians and public population: A national cross-sectional survey. *Helicobacter*, 25(4), e12705.