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Assessment of Knowledge, Practices, and Attitude among El Minya Nursing Institute Students Regarding Helicobacter Pylori Disease

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ABSTRACT

Background: Helicobacter pylori (H. pylori) is a virulent pathogen causing gastritis and ulcers followed by serious complications. Nurse's role in this assessment is vital for empowering students to make informed decisions about their health and well-being. **Aim**: This study aimed for assessment of El-Minya nursing institute students' knowledge, practices and attitude regarding helicobacter pylori disease. **Research design:** Descriptive research design was used in this study. **Sample**: Convenient sample included 157 nursing institute students. **Setting**: Minya nursing institute, Minya governorate. **Tool for data collection:** One tool, Interview questionnaire included five parts, **1st part:** Demographic characteristics of nursing students, **2nd part:** Past and current medical history of students, **3rd part:** Nursing institute's students' knowledge, **4th part:** Nursing students' attitude about H. pylori disease and **5th part:** Nursing student's reported practice questionnaires. **Results**: 83.4 % of nursing institute student had poor total knowledge. 60.5 % of them had unsatisfactory total reported practice and 79.9 % of them had negative total attitude regarding helicobacter pylori disease. **Conclusion:** Majority of the studied nursing institute students had poor total knowledge, also less two third of them had unsatisfactory total reported practices, and more two third of them had negative attitude regarding H. pylori disease. There was statistically significant relation between nursing institute student's total knowledge about H. pylori with marital status, age, and family monthly income, there was statistically significant relation between nursing institute student's total reported practices about H. pylori with age, marital status, and number of family members and there was statistically significant relation between nursing institute student's total attitude about H. pylori with all items of demographic characteristics except sex. **Recommendations:** Design health education program for nursing institute students' knowledge, practices and attitude which include all information about helicobacter pylori disease.

Key words: ***Assessment, Attitude, El-Minya Nursing Institute, Helicobacter Pylori Disease, Knowledge, Practices and Students.***

Introduction

Helicobacter pylori (H. pylori), are bacteria that can cause an infection in the stomach or duodenum (first part of the small intestine). It's the most common cause of peptic ulcer disease. H. pylori can inflame and irritate the stomach lining (gastritis). Untreated, long-term H. pylori infection can lead to stomach cancer (rarely). It mostly occurs in student. Only 20% of those infected have symptoms. Symptoms include dull or burning stomach pain, unplanned weight loss and bloody vomit. H-pylori-caused ulcers are commonly treated with combinations of antibiotics and proton pump inhibitors ***(Nigam, 2022).***

At the world proximally 54% (over 3, 5 billion) person is known to be infected with Helicobacter pylori, mainly in the developing countries. H. pylori vary in prevalence widely with over 80% of Japanese and South American adults infected compared with approximately 40% in the United Kingdom (UK) and 20% in Scandinavia Local differences in prevalence occur where there has been substantial immigration from countries with a higher prevalence ***(John, et al., 2019).*** In Egypt the rate of infection with Helicobacter pylori has increased significantly in recent times, as studies have shown

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that nearly 70 million people are infected with the disease, most of them are young people, and among the highest governorates in Egypt affected by the disease is Minya Governorate which represent 37 %, then Cairo Governorate (34%) ***(Renuka et al., 2019)***.

Knowledge, and practices towards H. pylori among students play a crucial role in preventing and managing the infection. Understanding the basics of H. pylori, including its transmission routes, symptoms, and potential complications, is essential. Educating students about the bacterium can help them recognize early signs of infection and seek timely medical intervention. Practices such as maintaining good personal hygiene, washing hands regularly, consuming clean and properly prepared food and water, and avoiding sharing eating utensils can significantly reduce the risk of infection ***(Liang & Wang, 2024)***.

Attitudes towards H. pylori are equally important. Promoting a proactive and positive attitude towards health and hygiene can empower students to take responsibility for their well-being and that of others. Reducing stigma associated with the infection encourages open discussion and cooperation in health-promoting activities. By fostering a supportive environment, students are more likely to adhere to preventive measures and treatment protocols if needed ***(Shaheen et al., 2024).***

Community health nurse (CHN) play an important role in health promoters, community health nurses work to create a supportive environment that encourages healthy behaviors. Nurses collaborate with school administrators to implement policies that promote cleanliness and food safety, and nurses engage with parents and the broader community to reinforce these practices at home ***(Damayati et al., 2024).*** Nurses monitor the overall health of the student population, identifying trends and potential outbreaks of H. pylori infection. Nurses use this data to inform public health strategies and interventions, ensuring a proactive approach to managing and preventing H. pylori infections among students. Through their comprehensive efforts, community health nurses play a critical role in safeguarding student health and fostering a culture of wellness and prevention ***(He et al., 2024).***

Significance of the study

Helicobacter pylori infection can be significant and impact overall health. One of the most common complications is the development of peptic ulcers, which are open sores that form on the stomach lining or the upper part of the small intestine, leading to pain, bleeding, and potential perforation. Chronic gastritis, or long-term inflammation of the stomach lining, is another frequent outcome, which can progress to atrophic gastritis, a condition characterized by the loss of stomach lining cells and reduced stomach acid production. This can impair digestion and nutrient absorption ***(Alhazmi et al., 2023).***

In 2023, the World Health Organization (WHO) advocated for the eradication of H. pylori to reduce the global gastric cancer-causing mortality rate, and in 2022, it identified clarithromycin-resistant H. pylori strains as a significant public health threat. In Egypt the rate of infection with Helicobacter pylori has increased significantly in recent times, as studies have shown that nearly 70 million people are infected with the disease, most of them are young people, and among the highest governorates in Egypt affected by the disease is Minya Governorate which represent 37%, then Cairo Governorate (34%) ***(Elbehiry et al., 2023).***

Many risk factors linked to socioeconomic and environmental conditions. Individuals living in crowded or unsanitary conditions, particularly in developing countries, have a higher likelihood of contracting the bacterium. Poor hygiene practices, as inadequate handwashing and consumption of contaminated food or water, increase the risk. Family history plays a role, as the bacterium can spread within households through close personal contact or shared eating utensils ***(Harper et al., 2023).***

Aim of the study

This study aimed for assessment of knowledge, practices, and attitude among El Minya nursing institute students regarding helicobacter pylori disease **through the following objectives:**

1. Assessing nursing institute students' knowledge regarding helicobacter pylori disease.
2. Appraising nursing institute students' reported practices toward helicobacter pylori disease.
3. Evaluating nursing institute students' attitude toward helicobacter pylori disease.

Research question:

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1- What is the nursing institute students' knowledge regarding helicobacter pylori disease?
2- What is the nursing institute students' reported practices regarding helicobacter pylori disease?
3- What is the nursing institute students' attitude regarding helicobacter pylori disease?
4- Is there a relation between nursing institute students' knowledge, practices, attitude and their demographic characteristics?

Subject and Methods

The subject and methods for this study will portray under the four main items as follows:

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

I. Technical Item:

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

Research design:

Descriptive research design was used for conducting the study.

Setting:

This study was conducted at Minya Nursing Institute. It contains three floors. The ground floor contains 2 classrooms, 2 offices for administrators, 2 bathrooms, and a prayer room, in addition to the office of the institute's dean and an office for the institute's director. On the second floor, there are 5 classrooms and 2 offices for teaching members, in addition to 2 bathrooms and a library. On the third floor, there is a laboratory for training students. 2 bathrooms, a computer lab, and a laboratory room

Sample:

Convenient sample was used in this study.

Sample size:

Total number was choosing (157) nursing Institute students. From Total number of students at El-Minya nursing Institute which represent (250) students in the previous academic year 2020- 2021.

Sample size was calculated by the following equation:

$$n=N\ (1+N \times (e))$$

n= sample size

N = population size = 250

E= (, 00025) level of perception

n = 250 (1+250 × (, 00025)) = (157) it is the actual size of sample were institute nursing students.

Tool of data collection:

Data for this study collected by using the following one tool include:

Tool (1): An interview questionnaire: it included five parts:

Part I: Demographic characteristics of nursing institute students consisted of 8 items as: sex, age, marital status, place of residence.

Part II: Previous and current infected of nursing institute students consisted of 10 items as: suffering from chronic diseases, suffer from an intestinal disease, suffer from a tendency to vomit permanently.

Part III: Nursing institute student's knowledge about helicobacter pylori disease included 11 closed ended questions as: Meaning, causes, mode of transmission, signs and symptoms, what to do if symptoms of illness appear, treatment, pharmacological treatment.

Scoring system, it included 11 questions; the answer score 2 point for correct answer and complete, 1 point for correct answer and not complete and zero point to wrong or no answer.

The total scores for student's knowledge 22 points regarding helicobacter pylori disease divided into three levels as the following:

- Poor knowledge < 50 % (< 11 score)

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- Average knowledge 50 -70 % (11:15 score)
- Good knowledge > 70% (> 15 score).

Part IV: Reported practice of the nursing institute students about helicobacter pylori disease: It divided into 3 sub items as:

1- Nursing institute student's reported practice about dietary practices regarding helicobacter pylori disease included 16 closed ended questions as: Eat well cooked food, cover cooked foods to protect them from insects, eat vegetables and fruits without washing them, wash your hands well before peeling fruits or vegetables, eat foods from street vendor, check the validity of foods before using them, mix cooked foods with uncooked foods.

2- Nursing institute student's reported practice about personal hygiene regarding helicobacter pylori disease included 24 closed ended questions as: Wash your hands thoroughly with soap and water before eating, wash your hands well with soap and water after using the toilet, wash your hands using running water, continuous shortening of nails, bite your nails with teeth, keep the toilet clean after use.

3- Nursing institute student's reported practice about cleanliness of the bath room regarding helicobacter pylori disease included ٨ closed ended questions as: Cleaning the toilet daily, use cleaning chemicals such as Dettol and Phenic, use clean paper towels inside the bathroom, use the municipal bathroom permanently inside the house of worship or public places.

Scoring system: it included 48 questions; 2 points for always, 1 point for sometimes answer and zero point to never answer. The total score of students 96 points reported practices about helicobacter pylori disease classified into two levels:

- **Satisfactory practices ≥ 60 % (≥ 67 point).**
- **Unsatisfactory practices < 60 % (< 67 point).**

Part V: Nursing institute student's attitude about helicobacter pylori disease (pre – post format) included 8 closed ended questions as: Think that helicobacter pylori lead to cancer, think you have helicobacter pylori, think that helicobacter pylori are fatal, think that helicobacter pylori are an epidemic disease, think that helicobacter pylori are an infectious disease.

Scoring system: The total score of nursing institute students 22 points of attitude about helicobacter pylori disease classified into two levels:

The answers scored as 2 points for agree answer, 1 point for not sure answer and zero point to disagree answer.

The total score of nursing institute students 44 points for attitude about helicobacter pylori disease classified into two levels:

- **Negative attitude < 50 % (< 22 point).**
- **Positive attitude ≥ 50 % (≥ 22 point).**

Tool validity and Reliability:

A) Content Validity:

The revision of the tool for clarity, relevance, comprehensiveness, understanding and applicability was done by a panel of five experts all of them from Faculty of Nursing from Community Health department to measure the content validity of the tool and the necessary modification was done accordingly.

***B) Tool Reliability*:**

Reliability was applied for testing the internal consistency of the tool, by administration of the same tool to the same subjects under similar conditions two times. Answers from the repeated testing were compared (Test- re- test reliability was 0.89 for knowledge), Cronbach's Alpha reliability was 0.880 for reported practices and reliability was 0.899 for attitude.

Ethical consideration:

An official permission to conduct the proposed study obtained from the Scientific Research Ethics Committee Faculty of Nursing Helwan University. Participation in the study is voluntary and subjects was given complete full information about the study and their role before signing the informed consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it was not be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs respected.

II) Operational item:

1) Preparatory phase:

It included reviewing of related literature and theoretical knowledge of various aspect of the study using books, articles, internet and magazines to develop tool for data collection.

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2) Pilot study:

A pilot study conducted on 10 % of the student equal 16 students under study to assess the feasibility, practicability, clarity and objectivity of the tools. Based on the results, no modification was done. Students in the pilot study were included in the main study sample because no modifications were done.

Field work:

- Actual field work carried out in the period from beginning of October 2022 up June 2023 years, two days per week Tuesday and Thursday from 9 am -12pm and interview student in Minya Nursing Institute at Minya governorate till the needed sample completed, interview of nursing institute students, Written approval obtained from students after the investigator introduced him-self for each students, then explained the purpose of the study to assess of El-Minya nursing institute students' knowledge, practices and attitude regarding helicobacter pylori disease. Study collected through structured face to face interview and the entire tool filled by the investigator.

- The questionnaires were distributed and completed by the investigator.
- The investigator utilized one tools which was consisted of five parts, each part took 20 -30 minutes and met the nursing institute students two days per week.
- The study sample equal 157 students divided the sample to 10 groups each group about 15 to 16 students.

Preparatory phase:

Tool of data collection development review of past and current related literature covering various aspects to assess of El-Minya nursing institute students' knowledge, practices and attitude regarding helicobacter pylori disease. Using available books, articles and magazine.

III) Administrative Item:

After explanation of the study aim and objectives, an approval to carry out this study was obtained from Dean of Faculty of Nursing, Helwan University and official permission was obtained from the director of Minya Nursing Institute at Minya governorate.

IV) Statistical Item:

Upon completion of data collection, data computed and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. The P value set at 0.05. Descriptive statistics tests as numbers, percentage, mean standard deviation (± SD), was used to describe the results. Appropriate inferential statistics such as "F" test or "t" test used as well.

- Degrees of Significance of the results were:
- Non-significant (NS) if $p > 0.05$.
- Significant (S) if $p < 0.05$.
- Highly significant (HS) if $p < 0.01$.

Table (1): Number and Percentage Distribution of the Nursing institute student's Demographic Characteristics (n=157).

Demographic data	The nursing institute student	
	No.	%
Sex:		
Male	**110**	**70.1**
female	**47**	**29.2**
Age:		
16-17	**73**	**46.5**
18-19	**84**	**53.5**
Marital status:		
Single	**20**	**12.7**
Married	**137**	**87.3**
Place of Residence		
Rural	**117**	**74.5**
Urban	**40**	**25.5**
The number of rooms in the house		
Sufficient for the number of individuals	**117**	**74.5**

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Not sufficient for the number of individuals	**40**	**25.5**
Job		
Student	**157**	**100**
Family monthly income		
Not enough	**120**	**76.4**
Sufficient for basic needs only	**37**	**23.6**

Table (1): Shows that, 53.3 % of nursing institute student's age between 18 to 19 years .Also, 87.3 %of the nursing institute student's marital status was married. Moreover, 80.72 % of the nursing institute students place of residence were in rural area. More ever, 76.4 % of them family monthly income was not enough.

Table (2): Number and Percentage Distribution of Previous and Current Infected of Nursing Institute Students of El- Minya Nursing Institute about Helicobacter Pylori Disease (n=157).

Items	No.	%
Suffer from chronic diseases		
Yes	**57**	**36.3**
No	**100**	**63.7**
If yes, what is it? (n= 57)		
Diabetes	**35**	**61.4**
Heart disease	**22**	**38.6**
Suffer from an intestinal disease		
Yes	**100**	**63.7**
No	**57**	**36.3**
Suffer from a tendency to vomit permanently		
Yes	**111**	**70.7**
No	**46**	**29.3**
Suffer from stomach pain frequently		
Yes	**120**	**76.4**
No	**37**	**23.6**
Significantly underweight		
Yes	**142**	**90.4**
No	**15**	**9.6**
Take medications that help		
Yes	**130**	**82.8**
No	**27**	**17.2**
Get rid of the symptoms of vomiting and nausea		
Yes	**111**	**70.7**
No	**46**	**29.3**
Hospitalized before		
Yes	**152**	**96.8**
No	**5**	**3.2**
Suffer from blood in the stool		
Yes	**50**	**31.8**
No	**107**	**68.2**
Suffer from heartburn		
Yes	**111**	**70.7**
No	**46**	**29.3**

Table (2): Demonstrates that, 63.7 % of them suffer from an intestinal disease, While, 76.4 % of them suffer from stomach pain frequently, and 70.7 % of them get rid of the symptoms of vomiting and nausea.

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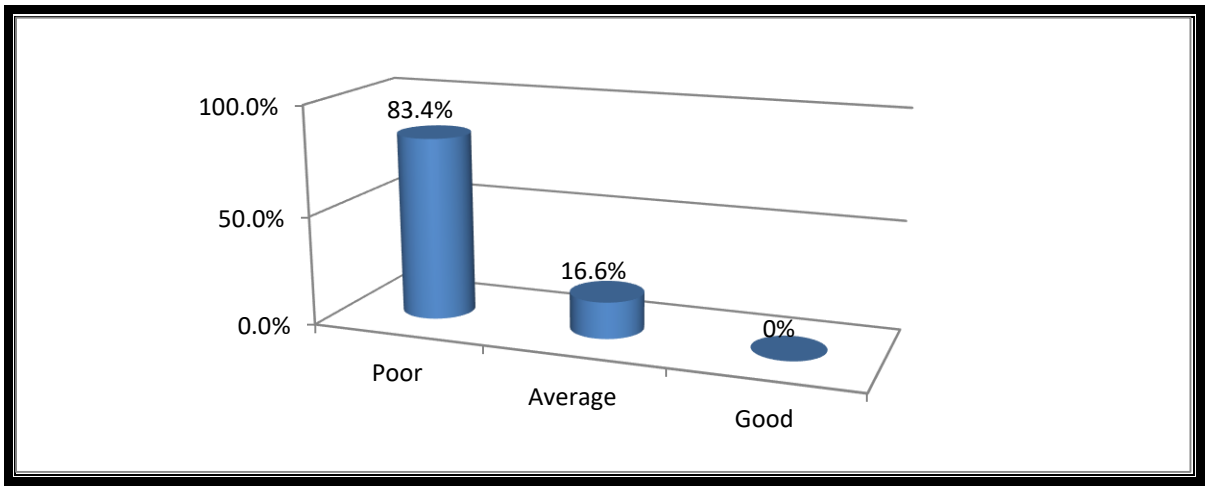
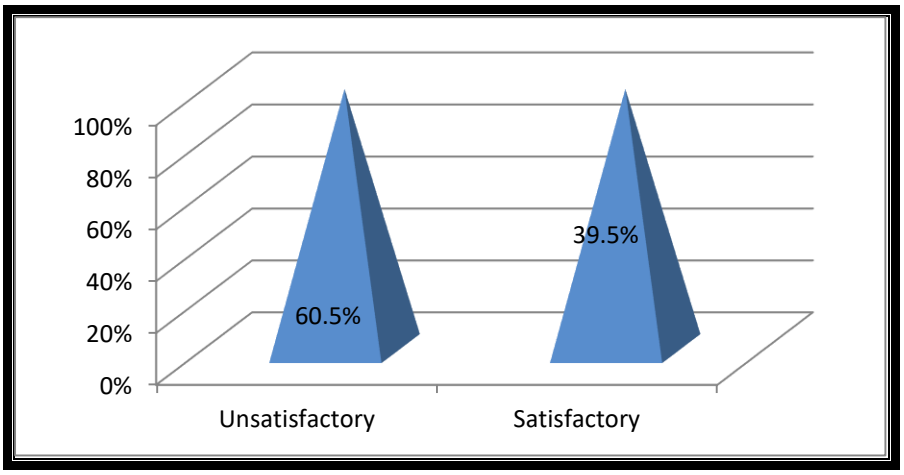


***χ2=29.54** ***P value=0.000**

Figure (1): Percentage Distribution of Total Knowledge among Nursing Institute Students about Helicobacter Pylori Disease (n=157).

Figure (1): Shows that, Also, 83.4 % of nursing institute student had poor total knowledge, and 16.6 % of nursing institute student had average total knowledge where P value 0.000 and paired t test =29.54.



***χ2=29.43** ***P value=0.000**

Figure (2): Percentage Distribution of Total Reported Practices among Nursing Institute Students of El-Minya Nursing Institute about Helicobacter Pylori Disease (n=157).

Figure (2): Illustrate that, 60.5 % of nursing institute student had unsatisfactory with total reported practices and 39.5% of them had unsatisfactory with total reported practices where P value 0.000 and paired t test =29.43.

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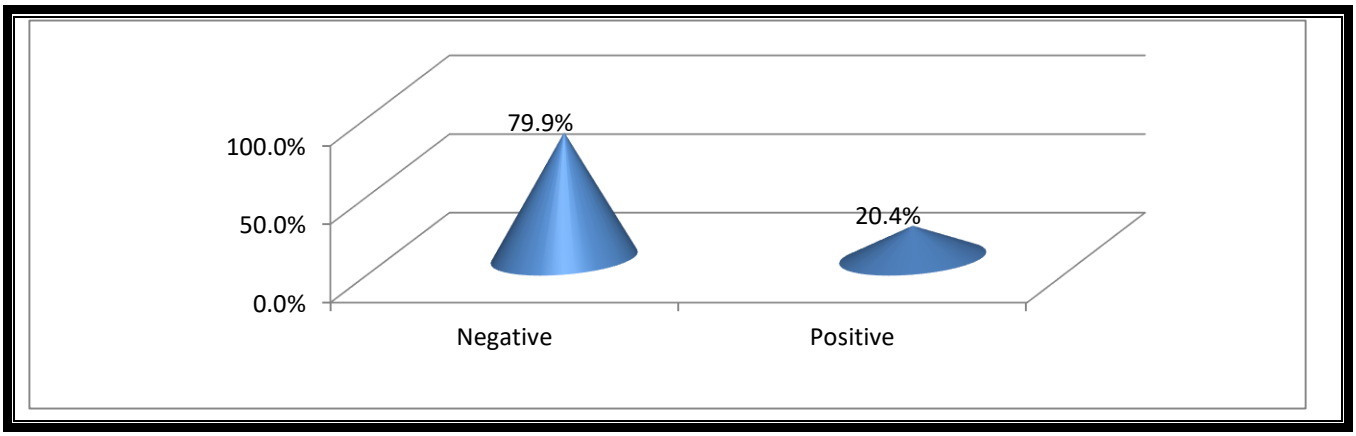

***χ2=21.19 **P value=0.000*

Figure (3): Percentage Distribution of Total Attitude among Nursing Institute Students of El- Minya Nursing Institute about Helicobacter Pylori Disease (n=157).

Figure (3): Illustrate that, 79.9 % of nursing institute student had negative total attitude. While, 20.4 % of nursing institute student had negative total attitude where P value 0.000 and paired t test =21.19.

Table (2): Relation between Total Knowledge and Nursing Institute Students' Demographic Characteristics (N=157).

Demographic characteristics	Total practices level among the nursing institute student				χ2	P
	Poor (131)		Average (26)			
	No.	%	No.	%		
Sex:						
Male	**93**	**84.5**	**17**	**15.5**	**0.325**	**0.568**
Female	**38**	**80.9**	**9**	**19.1**		
Age:						
16-17	**56**	**76.7**	**17**	**23.3**	**4.46**	**0.03**
18-19	**75**	**89.3**	**9**	**10.7**		
Marital status:						
Single	**5**	**25**	**15**	**75**	**56.6**	**0.000**
Married	**126**	**92**	**11**	**8**		
Residence						
Rural	**95**	**81.2**	**22**	**18.8**	**1.67**	**0.196**
Urban	**36**	**80**	**4**	**10**		
The number of family members						
4	**5**	**55.6**	**4**	**44.4**	**6.186**	**0.04**
5	**91**	**83.5**	**18**	**16.5**		
6	**35**	**89.7**	**4**	**10.3**		
The number of rooms in the house						
Sufficient for the number of individuals	**95**	**81.2**	**22**	**18.8**	**1.67**	**0.196**
Not sufficient for the number of individuals	**36**	**80**	**4**	**10**		
Family monthly income						
Not enough	**96**	**80**	**24**	**20**	**4.35**	**0.03**
Sufficient for basic needs only	**35**	**94.6**	**2**	**5.4**		

>0.05 Non significant <0.05 significant <0.001*

Table (2): Shows that, there was statistically significant relation between nursing institute student's total knowledge about H. pylori with marital status, age, and family monthly income, where p value = 0.005 respectively.

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Table (3): Relation between Total Reported Practices Scores and Nursing Institute Students Demographic Characteristics (N=157).

Demographic characteristics	Total practices level among the nursing institute student				χ^2	P
	Satisfactory (62)		Unsatisfactory (95)			
	No.	%	No.	%		
Sex:						
Male	**40**	**36.4**	**70**	**63.6**	**1.50**	**0.22**
Female	**22**	**46.8**	**25**	**53.2**		
Age:						
16-17	**19**	**26**	**54**	**74**	**10.34**	**0.001**
18-19	**43**	**51.2**	**41**	**48.8**		
Marital status:						
Single	**19**	**95**	**1**	**5**	**29.55**	**0.000**
Married	**43**	**31.4**	**94**	**68.6**		
Residence						
Rural	**47**	**40.2**	**70**	**59.8**	**0.08**	**0.76**
Urban	**15**	**37.5**	**25**	**62.5**		
The number of family members						
4	**9**	**100**	**0**	**0**	**14.62**	**0.04**
5	**39**	**35.8**	**70**	**64.2**		
6	**14**	**35.9**	**25**	**64.1**		
The number of rooms in the house						
Sufficient for the number of individuals	**47**	**40.2**	**70**	**59.8**	**0.08**	**0.76**
Not sufficient for the number of individuals	**15**	**37.5**	**25**	**62.5**		
Family monthly income						
Not enough	**50**	**41.7**	**70**	**58.3**	**1.00**	**0.315**
Sufficient for basic needs only	**12**	**32.4**	**25**	**67.6**		

>0.05 Non significant <0.05* significant <0.001

Table (3): Shows that, there was statistically significant relation between nursing institute student's total reported practices about H. pylori with age, marital status, and number of family members where p value = 0.005 respectively.

Table (4): Relation between Total Attitude Scores and Nursing Institute Students Demographic Characteristics (N=157).

Demographic characteristics	Total practices level among the nursing institute student				χ^2	P
	Negative (125)		Positive (32)			
	No.	%	No.	%		
Sex:						
Male	**88**	**80**	**22**	**20**	**0.033**	**0.865**
Female	**37**	**78.7**	**10**	**21.3**		
Age:						
16-17	**51**	**69.9**	**22**	**30.1**	**8.001**	**0.005**
18-19	**74**	**88.1**	**10**	**11.9**		

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Marital status:						
Single	**0**	**0**	**20**	**100**	**89.5**	**0.000**
Married	**125**	**91.2**	**12**	**8.8**		
Residence						
Rural	**88**	**75.2**	**29**	**24.8**	**5.48**	**0.019**
Urban	**37**	**92.5**	**3**	**7.5**		
The number of family members						
4	**0**	**0**	**9**	**100**	**40.83**	**0.000**
5	**88**	**80.7**	**21**	**19.3**		
6	**37**	**94.9**	**2**	**5.1**		
The number of rooms in the house						
Sufficient for the number of individuals	**88**	**75.2**	**29**	**24.8**	**5.48**	**0.019**
Not sufficient for the number of individuals	**37**	**92.5**	**3**	**7.5**		
Family monthly income						
Not enough	**88**	**73.3**	**32**	**26.7**	**12.39**	**0.000**
Sufficient for basic needs only	**37**	**100**	**0**	**0**		

>0.05 Non significant <0.05* significant <0.001

Table (4): Shows that, there was statistically significant relation between nursing institute student's total attitude about H. pylori with all items of demographic characteristics except sex, where p value = 0.005 respectively.

Discussion

Helicobacter pylori (H. pylori) disease refers to the medical conditions and symptoms caused by the infection of the stomach lining with the bacterium Helicobacter pylori. This spiral-shaped bacterium is known for its ability to survive in the acidic environment of the stomach, where it can weaken the protective mucus layer, leading to inflammation and damage. The presence of H. pylori is a major contributor to the development of peptic ulcers, which are open sores in the stomach or duodenal lining, and chronic gastritis, an ongoing inflammation of the stomach lining. Over time, untreated H. pylori infection can increase the risk of stomach cancer ***(Mikhail et al., 2023).***

Community health nurses play a vital role in the management and prevention of Helicobacter pylori (H. pylori) disease. These healthcare professionals are on the front lines of educating the public about H. pylori, its transmission, and its potential health impacts, such as peptic ulcers and stomach cancer. Nurses conduct community outreach programs to raise awareness about the importance of hygiene practices, such as regular handwashing and safe food handling, to prevent infection. Community health nurses also play a critical role in early detection by encouraging students to seek medical attention for symptoms like persistent abdominal pain and nausea ***(Asemota et al., 2023).***

Demographic characteristic of the nursing institute students.

Concerning to nursing institute student's sex, the present revealed that more than two third of nursing institute students were male and this finding was similar with **Alajmi et al., (2023)** who conducted published study at Riyadh, Saudi Arabia under title of " Knowledge and Attitude of Medical Students Towards Helicobacter Pylori Infection and Its Prevention and Management" Reported that 72.1 % of studied subjects were males. From investigator point view, this might be due to the perception of nursing as a female-only profession is evolving. More men are recognizing the diverse opportunities within nursing, including specialized fields, leadership roles, and advanced practice positions.

Regarding to nursing institute student's age, more than half of nursing institute students had 18 to 19 years, and this finding was in agreement with **Shehab et al., (2023)** who conducted published study at Egypt entitled as " Screening and prevention program for Helicobacter pylori infection among students at Damietta University, Egypt " Reported that 52.2 % of studied subjects were 18 to 19 years. From investigator point view, this might be due to in many countries, students graduate from high school around the age of 18. Pursuing higher education immediately after high school is a common progression, with many students entering nursing institutes at this time.

Concerning to nursing institute student's marital status and place of resident the present study revealed that, majority were married and more two third of nursing institute student's place of residence was rural. This result was in accordance with **Ali et al., (2023)** who conducted published study at Egypt entitled as " Health educational program for mothers regarding prevention of Helicobacter pylori infection for their adolescent under 20 years" reported that 85.3 % and 72.7 % of studied subjects were married and place of residence were rural, respectively. From investigator point view, this might

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be due to in many rural communities, traditional values and cultural norms play a significant role. Early marriage can be a common practice, with societal expectations encouraging young people to marry and start families soon after reaching adulthood.

Regarding to nursing institute student's family monthly income of the present study revealed that more than two third of nursing institute student had not enough monthly income and this finding was in agreement with **Rostam et al., (2024)** who conducted a published study at Iraq entitled as ″ Prevalence of Helicobacter Pylori Infection among Student in Pediatric Hospital at Sulaimani City, Kurdistan Region of Iraq ″ Stated that 74.1 % of studied subjects were not enough monthly income. From investigator's point of view, this might be due to in many areas, the cost of living including housing, healthcare, education, and transportation has risen faster than wages. This disparity makes it challenging for individuals and families to afford necessary expenses.

Concerning to nursing institute student's number of family members, present study finding revealed that more than two third of nursing institute students' number of family members were five members. This result was in accordance with **Agwa et al., (2024)** who conducted published study at Al-Baha Region, Saudi Arabia entitled as "Public Awareness and Attitude Towards Helicobacter Pylori Infection among Residents of Al-Baha Region, Saudi Arabia" reported that 70.5 % of studied subjects number of family members were five members. From investigator point view, this might be due to in rural areas, where access to formal social security systems and retirement plans may be limited, having more student can be a way for parents to ensure support in their old age. Student are often expected to take care of their parents as they grow older.

Previous and current medical history among nursing institute students

Regarding to nursing institute students suffer from an intestinal disease, the present study revealed that less than two third of nursing institute student wasn't suffer from an intestinal disease and this finding was in agreement with **Abdelrahman et al., (2024)** who conducted a published study at Egypt entitled as ″ Prevalence of Helicobacter pylori infection among healthcare workers in Aswan University Hospital ″ Stated that 64.1 % of studied subjects wasn't suffer from an intestinal disease .

Concerning to nursing institute student significantly underweight the present study revealed that, most of nursing institute student significantly underweight. This result was in accordance with **Liang & Wang, (2024)** who conducted published study at China entitled as " TLR9 gene polymorphism confers risk to Helicobacter pylori infection in Jiangsu, China and its inspiration for precision nursing car" reported that 91.0 % of studied subjects significantly underweight. From researcher point view, this might be due to H. pylori is a leading cause of peptic ulcers. The pain and discomfort associated with ulcers can deter students from eating, as food intake may exacerbate their symptoms, leading to weight loss.

Nursing institute student's knowledge about the Helicobacter Pylori disease. (**Answered Question 1). What is the nursing institute students' knowledge regarding helicobacter pylori disease?**

Concerning on total knowledge nursing institute students, the present study revealed that their majority of nursing institute students had poor total knowledge which this finding was in the same line with **Sewilam et al., (2024)** whose conducted published study at Iran under title of " Quality of Life among Patients with Helicobacter Pylori Iran " revealed that, their 83.4 % of studied patient had poor total knowledge. From investigator's point of view, this might be due to the knowledge of H. pylori can overlap with those of other gastrointestinal issues, leading to confusion and inaccuracies in responses. Students may lack access to comprehensive and reliable resources, limiting their ability to learn about H. pylori effectively.

Nursing institute student's reported practices about the Helicobacter Pylori disease. (**Answered Question 2). What is the nursing institute students' reported practices regarding helicobacter pylori disease?**

Concerning on total reported practices nursing institute students, the present study revealed that less two third of nursing institute students had unsatisfactory with total reported practices which this finding was in the same line with **Liu & He (2024)** whose conducted published study at Brazil under title of " Education, Prevention, and Treatment of Helicobacter pylori Infection by General Practitioners " revealed that, their 63.2 % of studied sample had unsatisfactory with total reported practices. From investigator's point of view, this might be due to the symptoms and complications of H. pylori can overlap with those of other gastrointestinal issues, leading to confusion and inaccuracies in responses. Students may lack access to comprehensive and reliable resources, limiting their ability to learn about H. pylori effectively.

Nursing institute student's attitude about the Helicobacter Pylori disease. (**Answered Question 3). What is the nursing institute students' attitude regarding helicobacter pylori disease?**

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Concerning on total attitude nursing institute students, the present study revealed that less than quarter of nursing institute students had negative total attitude this finding was in the same line with **Alkhawajah et al., (2024)** whose conducted published study at Saudia Arabia, Japan under title of " Public knowledge, attitude, and practice towards Helicobacter pylori infection in Saudi Arabia " revealed that, their 61.1 % of studied sample had negative total attitude. From investigator's point of view, this might be due to students may lack access to comprehensive and reliable resources, limiting their ability to learn about H. pylori effectively.

Relation between the Studied Variables (Answered Question 4). Is there a relation between nursing institute students' knowledge, practices, attitude and their demographic characteristics?

Regarding no statistically significant relation between nursing institute student's total knowledge about H. pylori with sex and age, the present study show no statistically significant relation between nursing institute student's total knowledge about H. pylori with sex and age this finding wasn't supported with **Hafiz et al., (2023),** who published study at Madrid under title of " The Effectiveness of an Educational Intervention on Helicobacter pylori for University Students " reported that there no statistically significant relation between nursing institute student's total knowledge about H. pylori with sex and age. From investigator's point view, this might be prior to the educational program, students may have had equal (or equally limited) exposure to information about H. pylori through their previous educational experiences, media, or health campaigns, leading to similar knowledge levels.

Regarding no statistically significant relation between nursing institute student's total reported practices about H. pylori with sex and age, the present study show no statistically significant relation between nursing institute student's total reported practices about H. pylori with sex and age this finding wasn't supported with **Malek et al., (2021),** who published study at United Arab Emirates under title of " Knowledge, attitudes and practices of adults in the United Arab Emirates regarding Helicobacter pylori induced gastric ulcers and cancers " reported that there no statistically significant relation between nursing institute student's total reported practices about H. pylori with sex and age. From investigator's point view, this might be nursing students are relatively homogeneous in terms of their background, experience, or knowledge about H. pylori, then there might not be significant variations in practices based on sex or age. For instance, if all students have had similar levels of exposure to relevant training, their practices might not differ by age or sex.

Concerning no statistically significant relation between nursing institute student's total attitude about H. pylori with sex and age, the present study show no statistically significant relation between nursing institute student's total attitude about H. pylori with sex and age this finding wasn't supported with **Saito et al., (2024),** who published study at Japan under title of " Parental Knowledge and Attitudes Towards Helicobacter Pylori Screening in Adolescents: A School-Based Questionnaire Study Among Guardians of Junior High School Students in Yokosuka City, Japan " reported that there no statistically significant relation between nursing institute student's total attitude about H. pylori with sex and age. From investigator's point view, this might be educational institutions might have standardized curricula that emphasize the importance of H. pylori uniformly across all students. This can reduce variability in attitudes between different demographic groups.

Conclusion

Based on the results of the present study and research question the following conclusion includes:

Majority of the studied nursing institute students had poor total knowledge about H. pylori disease, also less two third of them had unsatisfactory total reported practices regarding H. pylori disease, and more two third of them had negative attitude regarding H. pylori disease. There was statistically significant relation between nursing institute student's total knowledge about H. pylori with marital status, age, and family monthly income, there was statistically significant relation between nursing institute student's total reported practices about H. pylori with age, marital status, and number of family members and there was statistically significant relation between nursing institute student's total attitude about H. pylori with all items of demographic characteristics except sex.

Recommendations

In the light of the result of this study, the following recommendations were suggested:

1. Design health education program for nursing institute students about H. pylori disease.

2. Design booklets for nursing institute students which include all information about H. pylori disease.

3. Create posters and banner then put in El Minya nursing institute that would help students to improves knowledge, practice and attitude about H. pylori disease.

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