www.drmgrdujhs.org

Indian Journal of Integrative Allied Health Sciences (IJIAHS)

Original Article

A Study to Assess the Knowledge, Attitude and Practice about Helicobacter Pylori Infection among Paramedical Students

R. Priya Dharshini[1]* Jenifa. S[2], Sanika.R. Sabu[2], Keerthi Sai K.V[2]

[1]Assistant Professor, [2]Intern, Department of Physician Assistant, Faculty of Allied Health Sciences, Dr. M.G.R. Educational and Research Institute Chennai, Tamil Nadu, India.
E-mail: priya.pa@drmgrdu.ac.in

***Corresponding author:**

Mrs.Priya Dharshini.R
Assistant Professor,
Department of Physician Assistant, Faculty of Allied Health Science, Dr. M.G.R Educational and Research Institute, Chennai, Tamil Nadu, India.

Received: 02/01/2026
Accepted: 26/02/2026
Published: 02/03/2026

ABSTRACT

Background: Helicobacter pylori is a common bacterial infection of the stomach lining, associated with conditions such as gastritis, peptic ulcers, and gastric cancer.

Objective: To assess the Knowledge, Attitude, and Practice (KAP) regarding H. pylori among paramedical students.

Methods: A standardized questionnaire was used among paramedical students to observe their understanding, attitudes, and practices about H. pylori infection. The total knowledge score was obtained by assigning one point for each true statement selected by the participants. Incorrect responses were not scored.

Result: 86.90% of participants recognized H. pylori as a stomach germ, 69.01% were aware of oral transmission among family members, and 73.43% knew its association with gastric cancer. Additionally, 84.89% identified its role in causing gastric or duodenal ulcers, and 74.73% were aware that it can be diagnosed through endoscopy. Preventive practices such as hand hygiene and safe water consumption were widely recognized.

Conclusion: the study concluded that overall knowledge levels pertaining to H. pylori disease among paramedical students range from adequate to good.

Keywords: Helicobacter pylori, understanding, attitude, practice, paramedical students, gastrointestinal infection.

INTRODUCTION

Helicobacter pylori are gram-negative and spiral-shaped bacteria that cause chronic or atrophic gastritis, peptic ulcers, gastric lymphoma, and gastric cancer; even though side effects are not as much common in children and adolescents than in adults [1]. Transmission can be fecal-oral, gastric-oral, oral-oral, or sexually. H. pylori contributes to the development of clinical conditions such as gastritis and peptic ulcers through a series of pathogenic mechanisms. Initially, its urease activity neutralizes the acidic environment of the stomach, allowing the bacteria to survive. Next, H. pylori uses its flagella for motility, enabling it to reach and interact with the gastric epithelial cells. By binding to host cell receptors, the bacteria establish colonization and maintain a persistent infection. Finally, H. pylori releases several virulence factors, including cytotoxin-associated gene A (CagA) and vacuolating cytotoxin A (VacA), which damage host tissues and contribute to disease progression. Many people with H. pylori infection are asymptomatic. When symptoms occur, they are usually related to gastritis or peptic ulcer disease, such as abdominal pain, nausea, vomiting, or dyspepsia. Extra intestinal features of H. pylori infection include iron deficiency anemia and persistent immune thrombocytopenia [2,3]**.** H. pylori infection can be diagnosed using both invasive and non-invasive methods. Non-invasive techniques include detecting H. pylori antigens in stool samples, identifying specific antibodies in serum, urine, or oral specimens, and performing the urea breath test. Invasive diagnostic methods involve analysis of gastrointestinal tissue and include culture, rapid urease test (RUT), histology, polymerase chain reaction (PCR), and fluorescent in situ hybridization (FISH)**.** For treatment, if the strain is susceptible to clarithromycin and metronidazole**,** the recommended regimen **is** a 14-day course consisting of a proton pump inhibitor (PPI) at 1–2 mg/kg/day**,** amoxicillin (50 mg/kg/day)**,** and clarithromycin (20 mg/kg/day) [4,5]. If this therapy is unsuccessful, clarithromycin can be substituted with metronidazole (20 mg/kg/day)**.** An alternative is sequential therapy, which lasts 10 days**:** PPI and amoxicillin are administered for the first five days, followed by PPI, metronidazole, and clarithromycin for the remaining five days. However, this approach should be avoided if the strain shows resistance to metronidazole or clarithromycin.

METHODOLOGY

This cross-sectional survey was conducted over six months at A.C.S. Medical College and Hospital in Chennai, involving paramedical students. The study was approved by the Institutional Ethics Committee, and informed consent was obtained from all participants. A structured questionnaire was developed by reviewing relevant literature and previously published studies. The questionnaire included questions covering various aspects of *H. pylori* infection, such as modes of transmission, symptoms, causes, and prevention strategies. It was designed to assess participants' knowledge, attitudes, and practices regarding the infection.

The questionnaire was administered to the selected sample through face-to-face interviews to ensure clarity and completeness of responses. A total knowledge score was calculated by assigning one point for each correct statement selected by the participants. Incorrect or false statements were not awarded any points. Collected data were analyzed using descriptive statistics, including frequencies, means, and percentages, to summarize participants' responses.

RESULTS

Baseline Demographic Characteristics

A total of 384 paramedical students participated in the study (n = 384). The gender distribution of participants is presented in Figure 1. The sample comprised both male and female students, with a predominance of one gender, reflecting typical enrollment trends in paramedical education. The relatively uniform age group and academic background of participants indicate a homogeneous study population, allowing for focused assessment of knowledge, attitudes, and practices (KAP) related to Helicobacter pylori infection.

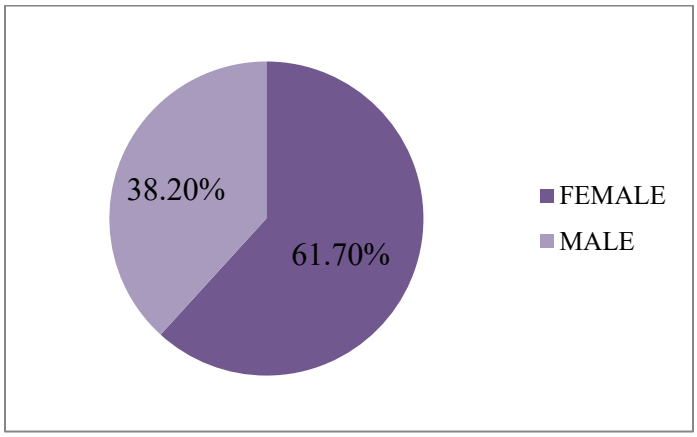

Figure 1 Distribution of the Gender among study participants

Knowledge Regarding Helicobacter pylori Infection

The overall knowledge assessment demonstrated a moderate-to-high level of awareness among participants (Table 1; Figure 2). A large majority (86.9%) reported familiarity with H. pylori, indicating widespread recognition of the pathogen. Knowledge of transmission pathways was reasonably adequate, with 69.01% identifying oral transmission among family members. However, nearly one-third of respondents (30.98%) lacked awareness, suggesting incomplete understanding of infection spread.

A notable finding was that 52.86% of participants believed that H. pylori infection resolves spontaneously. This represents a significant misconception, as the infection typically persists without appropriate treatment. The near-equal split in responses highlights uncertainty regarding disease progression. Awareness of complications was comparatively strong, with 73.43% recognizing the association between H. pylori and gastric cancer. Similarly, most participants correctly identified clinical manifestations such as nausea and upper abdominal discomfort (86.45%) and its role in gastric and duodenal ulcers (84.89%). Regarding diagnostic methods, 74.73% acknowledged endoscopy as a key diagnostic tool. In contrast, only 57.03% recognized genetic predisposition as a contributing factor, indicating limited understanding of host susceptibility and multifactorial etiology. Overall, while general awareness is satisfactory, specific conceptual gaps and misconceptions persist among a considerable proportion of participants.

QUESTIONS	**AGREE**		**DISAGREE**	
	n	**%**	**n**	**%**
Do you know stomach germ (H. pylori)	334	86.9	50	13.02
Infection can be orally transmitted among family member	265	69.01	119	30.98
HP infection often disappears spontaneously	203	52.86	181	47.13
HP is known to cause gastric cancer	282	73.43	102	26.56
HP cause nausea, pain, and discomfort in the upper abdomen	332	86.45	52	13.54
HP can cause gastric or duodenal ulcer	326	84.89	58	15.10
HP can be diagnosed through the endoscopy	287	74.73	97	25.26
Genetic predisposition may be a major cause of injury	219	57.03	165	42.96

Table 1 General knowledge of the study participants regarding H. Pylori

Attitude Towards Helicobacter pylori Infection

Participants exhibited a generally positive attitude toward H. pylori infection (Table 2). A majority (86.45%) agreed that the infection affects both men and women, demonstrating appropriate epidemiological awareness. Approximately 78.12% associated H. pylori infection with nutritional and dietary factors, indicating recognition of environmental influences. Furthermore, 69.79% acknowledged the increased risk of gastric cancer among infected individuals compared to non-infected counterparts, although this proportion suggests room for improvement in risk perception.

A substantial proportion (80.20%) agreed that gastrointestinal symptoms related to H. pylori negatively impact quality of life, reflecting an understanding of the clinical and functional burden of the infection. Despite these positive trends, variability in responses indicates that attitudes are not uniformly aligned with current clinical knowledge.

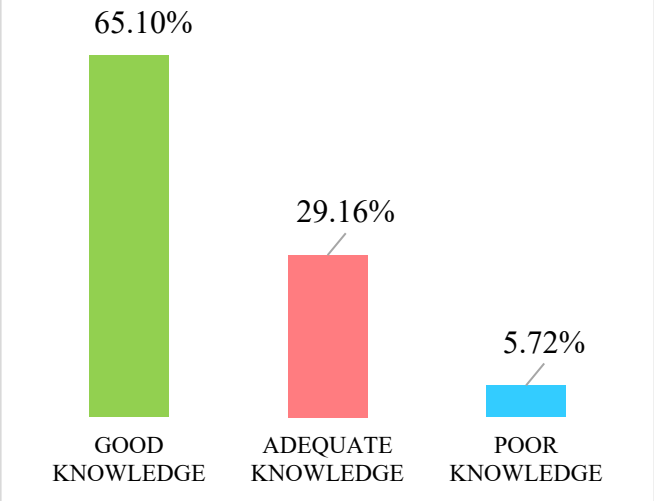

Figure 2 Assessment of the knowledge level of the study participants regarding H. pylori

QUESTIONS	AGREE		DISAGREE	
	n	%	n	%
Affecting both men and women	332	86.45	52	13.54
HP is associated with nutritional factors, food allergies, and food intolerance	300	78.12	84	21.87
HP gastric cancer risk understanding compared to non-infected people of the same age and gender.	268	69.79	116	30.20
HP Gastrointestinal symptoms affect the quality of life	308	80.20	76	19.79

Table 2 General Attitude of the study participants towards H. pylori

Practices Related to Helicobacter pylori Prevention

The assessment of preventive practices revealed high adherence to hygienic behaviors (Table 3). The majority of participants reported regular handwashing after toilet use (88.80%) and before meals (91.14%), indicating strong compliance with standard infection prevention practices. Environmental awareness was also evident, with 86.71% identifying contaminated water as a potential source of infection and 78.90% associating well water consumption with increased risk. However, 71.09% of participants believed that consumption of raw vegetables and fruits is directly linked to transmission. While this may reflect awareness of food hygiene risks, it may also indicate overgeneralization without consideration of proper washing and food safety practices.

QUESTIONS	AGREE		DISAGREE	
	n	%	n	%
Washing hands after using the toilet protects from getting infected with HP	341	88.80	43	11.19
Washing hands before eating protect from HP	350	91.14	34	8.85
Eating raw vegetables and fruits is linked to a Positive relationship with the transmission	273	71.09	111	28.90
Drinking contaminated water may be a source of infection	333	86.71	51	13.28
Source of drinking water (Well water) have a positive association with HP	303	78.90	81	21.09

Table 3 General practices and daily habits of the study participants

DISCUSSION

This study assessed the knowledge, attitudes, and practices (KAP) of paramedical students regarding *Helicobacter pylori* infection. The findings revealed a high level of awareness among participants, with 86.90% identifying *H. pylori* as a stomach germ and 73.43% recognizing its association with gastric cancer. A majority also understood key symptoms such as upper abdominal discomfort and nausea. These findings are comparable to those reported by Liu et al. (2025), who found good awareness levels among residents in Northeast China, although knowledge varied more in the general population due to differences in education levels and healthcare access [6]. When compared with the study by Alajmi et al. (2023), conducted among medical students in Riyadh, the paramedical students in our study demonstrated higher awareness of *H. pylori* transmission routes and preventive behaviors [7]. For instance, 69.01% in our study knew about oral transmission within families, and over 91% acknowledged hand hygiene before eating as an important preventive measure. These rates were notably higher than those in the Saudi cohort, suggesting that local health education efforts or curricular differences may have contributed to improved awareness among our participants.

In terms of management and detection, our participants showed strong understanding, with 74.73% aware that endoscopy can detect *H. pylori* and 86.71% recognizing contaminated water as a source of infection. These findings align with Aumpan et al. (2022), who emphasized the importance of early diagnosis and public knowledge to reduce long-term complications [8,9,10]. Overall, our results indicate that paramedical students possess an adequate to good level of knowledge, positive attitudes, and appropriate preventive practices, which are essential for future health professionals involved in patient education and infection control.

CONCLUSION

This cross-sectional study of 384 paramedical students showed generally good knowledge of *H. pylori*, with 87% identifying it as a stomach pathogen and over 70% aware of its association to ulcers and gastric cancer. Most recognized oral transmission (69%) and endoscopy as a diagnostic tool (75%). Positive attitudes were evident, with 88–91% supporting hand hygiene and recognizing contaminated sources. However, 57% mistakenly prioritized genetic over environmental factors in disease causation, highlighting a key gap in understanding *H. pylori* etiology. To improve awareness, educational programs should emphasize the role of environmental and behavioral factors in *H. pylori* transmission and prevention. Incorporating more detailed training on non-invasive diagnostic methods and reinforcing hygiene practices can further enhance students' preparedness to educate future patients effectively.

Acknowledgments:

Researchers thankfully acknowledge Dr. Kalpana Devi, Principal, and Dr. Kalavathy Victor, Director of Allied Health Science of Dr. M.G.R. Educational and Research Institute for active guidance.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest

How to cite this article: Dharshini RP, Jenifa S, Sabu SR, Sai KVK. A study to assess the knowledge, attitude and practice about Helicobacter pylori infection among paramedical students. Indian Journal of Integrative Allied Health Sciences. 2026;1(1):13–20.

REFERENCE

1. Liu M, Wang Y, Kong Q, Wang Z, Zhou W, Tao L, Xia Y, Liu Y, Yang Z, Wang B, Liu M, Du B. Knowledge, attitude, and practice toward Helicobacter pylori among residents in Northeast China. Sci Rep. 2025 May 1;15(1):15288. doi: 10.1038/s41598-025-00323-9.
2. Alajmi SM, Alsulami TM, Ben Mudayhish MA, Alhawas MA, Alangari MS, Alfarhan A, Omair A. Knowledge and Attitude of Medical Students Towards Helicobacter pylori Infection and Its Prevention and Management: A Study From Riyadh, Saudi Arabia. Cureus. 2023 Dec 27;15(12):e51174. doi: 10.7759/cureus.51174.
3. Aumpan N, Mahachai V, Vilaichone RK. Management of Helicobacter pylori infection. JGH Open. 2022 Nov 21;7(1):3-15. doi: 10.1002/jgh3.12843.
4. Driscoll LJ, Brown HE, Harris RB, Oren E. Population Knowledge, Attitude, and Practice Regarding Helicobacter pylori Transmission and Outcomes: A Literature Review. Front Public Health. 2017 Jun 23;5:144. doi: 10.3389/fpubh.2017.00144.
5. Malek AI, Abdelbagi M, Odeh L, Alotaibi AT, Alfardan MH, Barqawi HJ. Knowledge, Attitudes and Practices of Adults in the United Arab Emirates Regarding Helicobacter pylori induced Gastric Ulcers and Cancers. Asian Pac J Cancer Prev. 2021 May 1;22(5):1645-1652. doi: 10.31557/APJCP.2021.22.5.1645.
6. Alzahrani MA, AlQahtani SJ, Alqahtani MS, Asiri HM, Abudasir AM, Alshahrani KT, Al Zomia AS. Knowledge, attitudes, and practices of adults in the Kingdom of Saudi Arabia regarding Helicobacter pylori-induced gastric ulcers, cancers, and treatment. J Med Life. 2024 May;17(5):523-529. doi: 10.25122/jml-2023-0536.
7. Hafiz TA, D'Sa JL, Zamzam S, Dionaldo MLV, Mubaraki MA, Tumala RB. Helicobacter pylori Infection: Comparison of Knowledge between Health Science and Non-Health Science University Students. Int J Environ Res Public Health. 2021 Aug 2;18(15):8173. doi: 10.3390/ijerph18158173.
8. Gao S, Tang ZC, Miao H, et al. Awareness and attitudes regarding Helicobacter pylori infection among university students: a national cross sectional survey. Life Res. 2022;5(2):12. doi: 10.53388/2022-0116-101.
9. Al Omari SM, Khalifeh AH, Moman R, Sawan HM. Knowledge, Attitudes, and Practices Related to Helicobacter pylori and Gastric Disease in Jordan: Implications for Early Detection and Eradication. Infect Drug Resist. 2025 Mar 19;18:1503-1514. doi: 10.2147/IDR.S508330.
10. Sun M, Liu E, Yang L, Cao H, Han M. A scoping review of worldwide guidelines for diagnosis and treatment of Helicobacter pylori infection. Syst Rev. 2025 May 9;14(1):107. doi: 10.1186/s13643-025-02816-0.