



Original Article

## Prevalence of Helicobacter pylori in Patients with Dyspepsia at tertiary Care Hospital in North Karnataka

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### ABSTRACT

Prevalence of dyspepsia is in the range of 14.5%-45% worldwide. Dyspepsia defined as pain/discomfort in upper abdomen, is a common symptom with an extensive differential diagnosis and heterogeneous pathophysiology. Dyspeptic individuals were found to be infected with H-pylori than asymptomatic individuals. Though most individuals are asymptomatic, H. pylori plays a key role in the etiology of many upper gastrointestinal disorder. The aim of the study was to determine the prevalence of Helicobacter pylori infection in dyspeptic patients. **Methods:** Present study comprises of 80 patients presenting with Dyspepsia at HIMS, Haveri (both out-patients and referred patients) during the period of June 2024 to June 2025. The patients were subjected to clinical examination, and Upper GI endoscopy. Endoscopic findings were noted. In case of any abnormal findings on endoscopy, endoscopic biopsy was obtained. Histopathological assessment of gastric mucosa was done after staining. The histopathological diagnosis of Helicobacter pylori infection in biopsy specimen will be mainly done using the Modified Giemsa stain. The data were collected and analysed using SPSS software by descriptive statistics. **Results:** Age of the patient ranged from 17yrs to 80yrs, Out of 80 patients, 52 were males and 28 were females, maximum number of cases were in the age group of 36-45 year (21.25%). Pain abdomen was the predominating presentation. In our study by endoscopy, majority of the patients were found to have gastritis followed by GERD. In our study, out of 80 cases 28(35%) cases {Male 20(25%), Female 8(10%)} are positive for H pylori infection and 52(65%) cases are negative for H pylori infection. In our study, Benign pathology cases 27(33.75%) were positive for H pylori, 42 cases were negative, 1(1.25%) Malignant pathology case was positive for H pylori, 6 cases were negative and none of the normal study cases were positive for H pylori. **Conclusions:** The burden of Helicobacter pylori infection in patients with dyspepsia was high. Early diagnosis and eradication of Helicobacter pylori not only improves symptoms but also help to prevent complications associated with Helicobacter pylori infections.

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**Keywords:** Dyspepsia, H pylori, Endoscopy, Biopsy, Gimsa staining.

### INTRODUCTION

Dyspepsia is a relatively common clinical condition characterized by chronic / recurrent upper abdominal pain or discomfort and is often associated with one or more of following symptoms at any given time - upper abdominal pain, burning sensation in the chest or upper abdomen, regurgitation, anorexia and early satiety.<sup>1</sup>Dyspeptic individuals were found to be infected with H-pylori than asymptomatic individuals<sup>2</sup>. Helicobacter pylori infection is known to be among the most common human infections worldwide; approximately 50% of the world's population is infected with H. pylori<sup>3</sup> while most of the infected individuals are asymptomatic; it acts as a cofactor to produce gastrointestinal (GI) disorders (dyspepsia) in a small but significant minority<sup>4</sup>. Helicobacter pylori is a gram-negative, microaerophilic bacterium usually found in the

stomach. The bacterium is transmitted by feco-oral route and is associated with peptic ulcer, duodenal ulcer and gastric carcinoma. *H. pylori* infection is widely prevalent in the world especially in the developing countries<sup>5</sup>. In India, the prevalence of this infection is 22%, 56%, and 87% in the 0-4 years, 5-9 years, and 10-19 years age group, respectively<sup>6</sup>. *H. pylori* has a significant correlation with chronic gastritis with gastric mucosal atrophy and erosion, peptic ulcer, mucosa-associated lymphoid tissue (MALT) lymphoma, and gastric cancer (GC). About 20% of *H. pylori*-infected patients develop precancerous lesions but only 2% develop gastric cancer, which is closely related to the host genetic, environment, and virulent strains of *H. pylori*<sup>7</sup>. A wide range of laboratory investigations are available for diagnosis of *H. pylori*. The tests belong to noninvasive group and invasive group. Non invasive tests include urea breath test, serological immunoglobulin G and immunoglobulin M detection, saliva and urinary antibody test, and stool antigen test<sup>8</sup>. The invasive tests are endoscopy-based tests, which include histopathological examination, rapid urease test (RUT), and polymerase chain reaction<sup>8</sup>. The scope of this study is to determine the prevalence of active *H. pylori* infection in the local population.

### Aims and objectives

1. To determine the prevalence of *H. pylori* infection in biopsy specimens obtained from upper gastrointestinal endoscopy performed in dyspeptic patients in a tertiary-care hospital.
2. To determine the Association between the histopathological diagnosis and *H. pylori* infection.

## MATERIALS AND METHODS

### Study design

The present study was an observational study conducted under the Department of Surgery at Haveri institute of medical sciences, Haveri, Karnataka

### Study period

The study was done over a period of 13 months from June 2024 to June 2025. A total of 80 patients were enrolled in the study.

### Inclusion criteria

All patients above 16 years of age who presented with gastrointestinal symptoms (out-patients, in patients and referred patients) were included in this study.

### Exclusion criteria

- Patients <16 years of age were excluded from this study.
- Upper gastrointestinal bleeding.
- Corrosive poisoning
- Unconscious and unstable patients.
- Cases not willing for the study

### Sampling technique

Random (all patients above 16 years coming to hospital with Dyspepsia)

**Sample size:** According to the data obtained from the reports of medical records section at HIMS, Haveri

Number of cases with Dyspepsia presented to the hospital in the past years is 70.

Keeping 10% as extra proportion to compensate the loss to the follow up, the sample size was estimated to be 70+ 10% of 70

$$= 70+7 = 77$$

Final sample was rounded up to 80.

Statistics: Analysis done by using Univariate & multivariate analysis, SPSS 20 software.

### Methodology

After obtaining consent from patients, A detailed history, General and systemic examination was done. All relevant investigations were done. Upper gastrointestinal endoscopy was done in patients presented to surgery department (out-patients, in patients and referred patients) with Dyspepsia. Patients were kept fasting over-night or 6 hours nil per oral. Pharyngeal spray with 10% xylocaine is sprayed topical before the procedure and asked to retain it for 10-15 minutes for local anaesthesia. Endoscopy was carried out by fibre optic flexible esophagogastroduodenoscopy by placing patient in left lateral position. During the whole procedure, examination of oesophagus, stomach and duodenum was done to look for abnormal findings and biopsy was taken by using endoscopy biopsy forceps from the antrum or pathological part. The biopsy fragment was sent to histopathology department in formalin container. Histopathological examination and Gimsa staining was done. The data were collected and analysed using SPSS software by descriptive statistics. The patients were discharged on the same day and reviewed with biopsy report. The gathered information was analysed and treated accordingly.

**RESULTS**

The present study was an observational study conducted under the Department of Surgery, Department of medicine and Department of paediatrics at Haveri institute of medical sciences, Haveri, Karnataka.

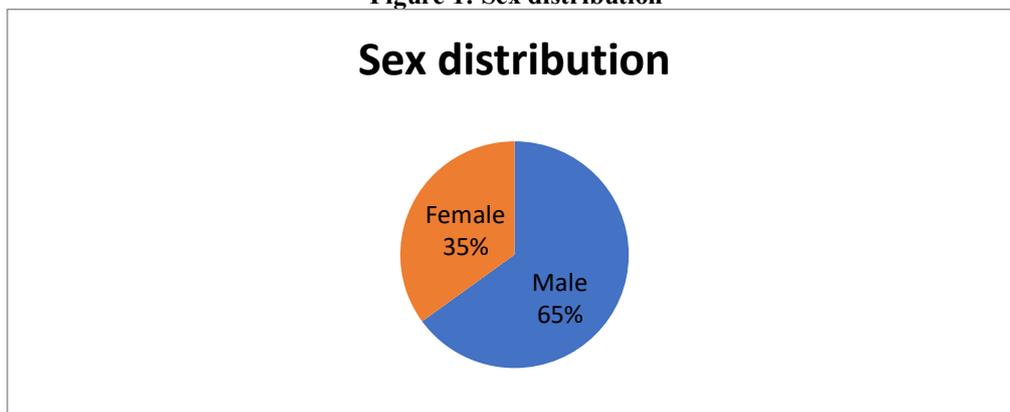
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**Table 1. Age distribution**

Age range	Number of cases		Percentage		
	Male	Female	Male	Female	Total
16-25	8	1	10%	1.25%	11.25%
26-35	10	5	12.5%	6.25%	18.75%
36-45	11	6	13.75%	7.5%	21.25%
46-55	10	4	12.5%	5%	17.5%
56-65	8	6	10%	7.5%	17.5%
66-75	5	4	6.25%	5%	11.25%
76-85	0	2	0	2.5%	2.5%
	52	28	65%	35%	100%

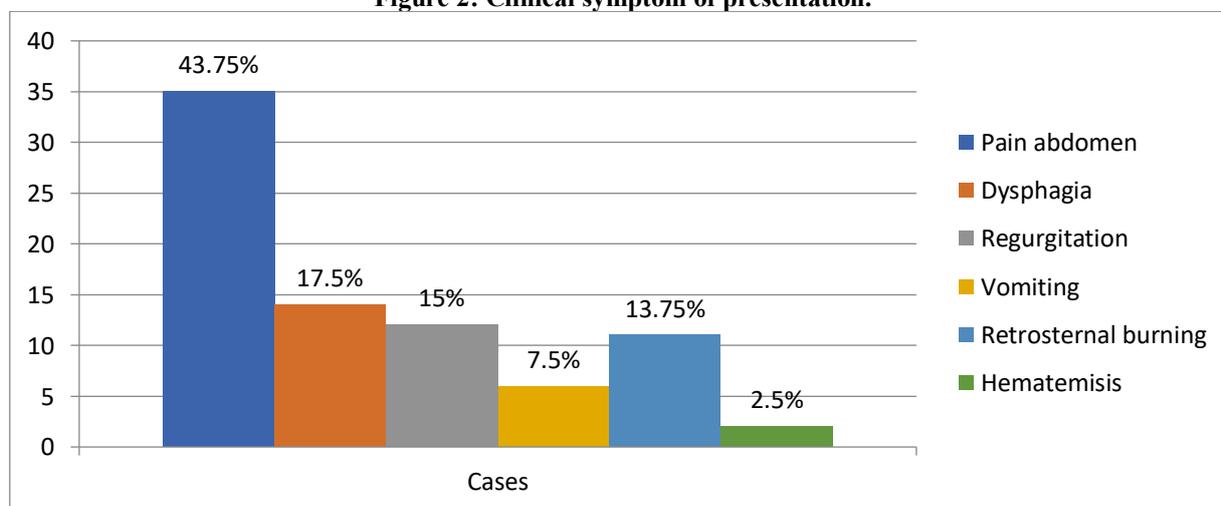
The age of the patients ranged from 17 year to 80 year. They were divided into 7 groups, each with a gap of 10 year. Among 80 cases, maximum number of cases was in the age group of 36-45 year (21.25%).The minimum number was in the age group 76-85year (2.5%) among females and 66-75 years (6.25%) among male patients.

**Figure 1: Sex distribution**



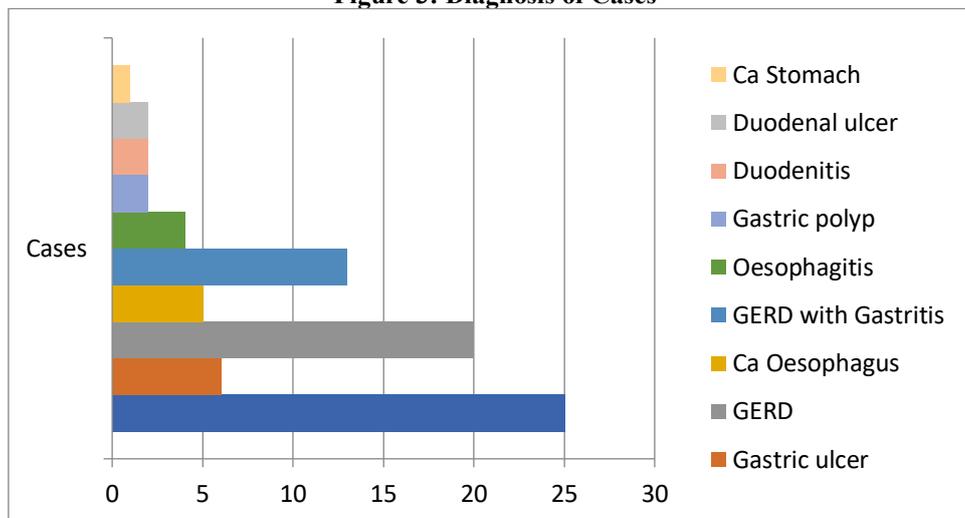
Among 80 Patients, 52 (65%) were male and 28(35%) were female; dyspepsia is more common in male patients may be due to life style and habits.

**Figure 2: Clinical symptom of presentation.**



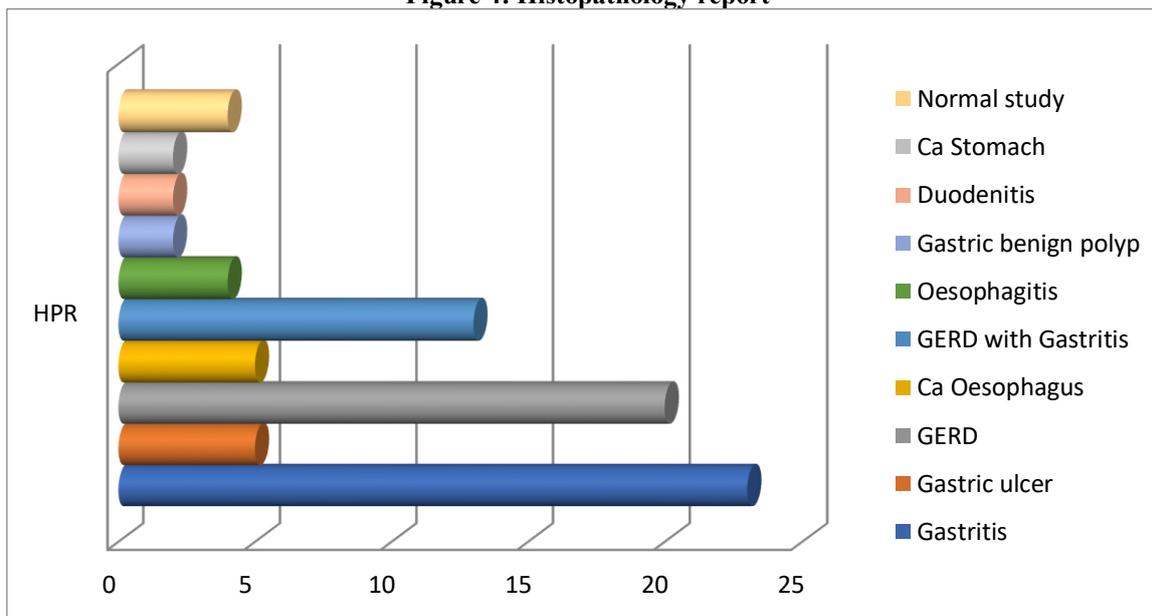
Among 80 patients, Presentation as follows 35(43.75%) cases with pain abdomen, 14(17.5%) cases with Dysphagia, 12(15%) cases with Regurgitation, 6(7.5%) cases with Vomiting, 11(13.75%) cases with retrosternal burning and 2(2.5%) cases with Hematemesis. Pain abdomen was the predominating presentation.

**Figure 3: Diagnosis of Cases**



In our study among 80 cases, Endoscopic diagnosis as follows Gastritis 25 cases, Gastric ulcer 6 cases, GERD 20, Ca oesophagus 5, GERD with Gastritis 13, oesophagitis 4, Gastric polyp 2, Duodenitis 2, Duodenal ulcer 2 and Ca Stomach 1 case. Gastritis is the most common diagnosis made followed by GERD.

**Figure 4: Histopathology report**



In our study among 80 cases, Histopathology report as follows Chronic Gastritis 23(28.75%) cases, Gastric benign ulcer 5(6.25%) cases, GERD 20(25%), Ca oesophagus 5(6.25%), GERD with Gastritis 13(16.25%), Esophagitis 4(5%), Gastric benign polyp 2(2.5%), Duodenitis 2(2.5%), Ca Stomach 2(2.5%) and normal study in 4 (5%) cases. Gastritis is the most common diagnosis made followed by GERD.

**Table 2: H pylori infection**

	H pylori positive	H pylori Negative	Total cases
Male	20	32	52
Female	8	20	28
Total cases	28	52	80
Percentage	35%	65%	100%

In our study, out of 80 cases 28(35%) cases {Male 20(25%), Female 8(10%)} are positive for H pylori infection and 52(65%) cases are negative for H pylori infection.

**Table 3: Association between the histopathological diagnosis and H. pylori infection.**

HPR	H pylori positive	H pylori Negative	Total cases
Normal study	0	4(100%)	4
Benign Pathology	27(33.75%)	42(60.8%)	69
Malignant pathology	1(1.25%)	6(85.7%)	7
Total cases	28(35%)	52(65%)	80

In our study, among 69 benign pathology cases 27 were positive for H pylori, 42 cases were negative among 7 malignant pathology cases, 1 cases was positive for H pylori, 6 cases were negative and among 4 Normal study cases none of them are positive for H pylori.

## DISCUSSION

After the discovery of Helicobacter Pylori by Marshall and Warren in 1983, many studies were conducted to confirm the association of Helicobacter Pylori with various acid-peptic diseases and carcinoma stomach. H. pylori infection is dependent upon many variables such as age, sex, socioeconomic status, dietary habits, genetic, and immunological factors. Present study aimed at establishing the proportion of H. pylori infection in patients presenting with dyspepsia in this hospital. The results of this study have also been compared with other studies done previously.

In this study, the age of the patients ranged from 17 year to 80 year. Among 80 cases, maximum number of cases was in the age group of 36-45 year (21.25%). The minimum number was in the age group 76-85 year (2.5%) among females and 66-75 years (6.25%) among male patients. This was compared with Kuntoji SB et al s study where The age of the patients ranged from 19 to 92 years, the mean being 52.18±16.14 years. The highest number of patients belonged to the age group of 41-50 and 51-60 (n=23, 21.9%)<sup>9</sup>

In our study Among 80 Patients, 52 (65%) were male and 28(35%) were female, Male preponderance was seen in the present study, with male to female ratio of patients presenting with dyspepsia being 1.8:1 which is comparable with the study conducted by Agarwal et al<sup>10</sup> and Oling et al<sup>11</sup> where F:M ratio was 1:1.4. It was also in line with the male preponderance.

In our study, Pain abdomen was the predominating presentation(43.75%) comparable with Kuntoji SB et al<sup>9</sup> s study and Adlekha et al<sup>12</sup> where the most common presenting complaint was epigastric pain or upper abdominal pain.

In our study among 80 cases, Endoscopic diagnosis as Gastritis is the most common diagnosis followed by GERD. Similar to this study, gastritis was found to be the commonest endoscopic finding in the studies conducted by Oling et al (74%), Adlekha et al (69%) and Jemilohun et al (60.5%).<sup>11,12,13</sup>

In our study among 80 cases, Histopathology report as follows Chronic Gastritis 23(28.75%) cases, Gastric benign ulcer 5(6.25%) cases, GERD 20(25%), Ca oesophagus 5(6.25%),GERD with Gastritis 13(16.25%),Esophagitis 4(5%),Gastric benign polyp 2(2.5%), Duodenitis 2(2.5%),Ca Stomach 2(2.5%) and normal study in 4 (5%) cases. Gastritis is the most common diagnosis made followed by GERD. Compared to Usha Sarma and Upasana Kalita s study were On the basis of endoscopic and histopathological findings, 85 cases (26 gastritis, 21 duodenitis, 11 premalignant and 27 malignant{ 23 cases are Carcinoma Stomach and 4 cases are Carcinoma Duodenum} have been considered for special stain (Giemsa stain) technique to observe the presence or absence of H. pylori in the biopsy tissue.<sup>14</sup>

In our study, out of 80 cases 28(35%) cases {Male 20(25%), Female 8(10%)} are positive for H pylori infection and 52(65%) cases are negative for H pylori infection. This is compared to Kuntoji SB et al s study where 41.9% patients showed presence of H. pylori infection on histopathological examination with H and E stain and Giemsa stain.<sup>9</sup> This was contradicting in study by Suman et al, where 68% were positive for H.Pylori. Total patients presenting with ulcer dyspepsia were 60 in which 51 patients (85%) were positive for H. pylori and out of 40 patients with non-ulcer dyspepsia 17 patients (42.5%) were positive for H. pylori.<sup>15</sup>

In our study, among 69 benign pathology cases 27 were positive for H pylori, 42 cases were negative, among 7 malignant pathology cases, 1 cases was positive for H pylori, 6 cases were negative and among 4 Normal study cases none of them are positive for H pylori. It is Compared to Kuntoji SB et al s study where among 10 malignant cases 4 were positive for H pylori.<sup>9</sup> and Usha Sarma and Upasana Kalita s study were among 27 malignant cases non of them were positive for H pylori.<sup>14</sup> This disparity may also be because of geographic variations, food habits or socioeconomic habits.

Limitations: Short duration of the study as well as the small sample size of the study. It can be done with large sample for more accurate results.

## CONCLUSION

The wide prevalence of *H. pylori* infection in the general population necessitates a quantitative estimation of the magnitude of the problem, which this study has determined. Application of Giemsa stain in gastroduodenal biopsy for detection of *H. pylori* may predict the biological behavior of the lesion. The combination of endoscopy and histopathological study of gastroduodenal biopsy provide a powerful diagnostic tool for better management of patients. Prevention of complications and relief from the distressing abdominal symptoms can be achieved through early detection by conventional and affordable diagnostic methods like endoscopy and biopsy and treatment with anti *H. pylori* therapy.

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