

## Research Article

### Histopathological Frequency of Helicobacter Pylori among Patients of Dyspepsia

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#### Abstract

**Background:** The condition known as dyspepsia, commonly referred to as indigestion, is characterized by the pain or discomfort in upper abdomen, most frequently occurring after ingestion of food or drinking. Following receiving treatment for H. pylori, many patients diagnosed have dyspepsia do show signs of improvement.

**Objective:** To determine the histopathological frequency of Helicobacter Pylori (H pylori) in patients presenting with dyspepsia in a tertiary care hospital.

**Methods:** This cross-sectional study was conducted in a teaching hospital, Lahore. The study duration was six months from October 2018 to April 2019. A total of 85 cases aged 18–70 years, presenting with dyspepsia and of either gender, were included. After taking written informed consent, patients underwent upper gastrointestinal endoscopy. Biopsy samples were obtained, which were sent to the pathology laboratory of the hospital to assess the presence of H. pylori. All of the information was put into a study proforma and analyzed by SPSS version 21.

**Results:** The mean age of patients was 44.67±14.67 years. Males were 59 (69.4%) and females were 26 (30.6%). The BMI of patients was approximately 24.77±4.94kg/m<sup>2</sup>. The mean duration of dyspepsia was 9.99±5.08months. There were 62 (72.9%) patients who had H. pylori, while 23 (27.1%) patients did not have H. pylori.

**Conclusion:** As per the study conclusion, H. pylori was observed to be highly frequent among patients presenting with dyspepsia.

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#### Introduction:

The term "dyspepsia" is used to describe a range of symptoms that are believed to develop in the upper gastrointestinal tract.<sup>1</sup> It is thought to be a very prevalent and occasionally disabling issue, and presents a difficult challenge to clinical investigators and clinicians alike. Between 15% and 40% of people experience recurrent or chronic symptoms of dyspepsia, yet they remain

undiagnosed.<sup>2</sup> Of those, about one-third may experience secondary or organic dyspepsia. According to the studies, around 25% of primary care referrals to gastroenterologists are due to dyspepsia, which affects between 20 and 45 percent of the global population.<sup>2,3</sup> A number of mechanisms, including the food factor, psychological distress, a disruption in gastrointestinal physiology, inflammation of the duodenum, and infection etiology

by *Helicobacter pylori*, are involved in the aetiology of dyspepsia.<sup>4,5</sup> When compared to healthy controls, it was estimated that individuals having dyspepsia had this infection around 2.3 times more frequently, and *H. pylori* was present in around 50% of these patients.<sup>5,6</sup> Several people experience dyspeptic symptoms, although the underlying cause is frequently unknown. Undiagnosed and untreated mechanisms cause intestine metaplasia, noncardiac gastric cancer, and atrophic gastritis.<sup>7</sup> Although individual countries' actual rates of infection differ, the underdeveloped world's infection rates are significantly higher than those of the developed countries. In Pakistan, the occurrence of *H. pylori* is at a worrying level. A study found that 74 (66.66%) of patients who presented with upper gastrointestinal problems tested positive for *H. pylori* infection.<sup>8</sup> Infection rates were higher (72.87%) in individuals who drank from water wells compared to those who drank via tube wells 27.11%.<sup>8</sup> Since disadvantaged, impoverished, and immigrant communities tend to have higher rates of *H. pylori* infection, it is crucial to choose the right antimicrobial drugs in addition to addressing the communication and trust gaps that arise in *H. pylori* therapy.<sup>9</sup> When addressing reasons why the initial therapy failed and figuring what should be done next, understanding and time are essential.<sup>9</sup> Several trials evaluating the effectiveness of *H. pylori* wipeout treatment for non-ulcer symptoms have not been properly demonstrated and have evaluated the controversial findings. However, there's a transparent indication that *H. pylori* wipeout treatment is effective in a minimum of a set of cases having no symptoms of the ulcer. Up to 23% of the people in Pakistan who go to gastroenterologists for the first time do so because they have chronic dyspepsia.<sup>10</sup> To find out if someone has *H. pylori*, many tools have been made that use aggressive or non-aggressive methods with different levels of specificity and sensitivity.<sup>11</sup> Even though there are a lot of diagnostic tools available, there is still debate about which ones should be used as the gold standard to diagnose *H. pylori* infection, especially in epidemiological studies.<sup>11</sup> Hence, this study has been conducted to assess the histopathological frequency of *Helicobacter Pylori* in patients presenting with dyspepsia in a tertiary care Hospital.

## Methods:

This was a cross-sectional study, which was conducted in Teaching Hospital, Lahore, during six months' duration from October 2018 to April 2019 after taking ethical approval. A total of 85 cases were calculated with a 95% confidence level and 10% margin of error, by taking a prevalence of *H. pylori* i.e. (31.2%)<sup>12</sup> in dyspepsia. A non-probability consecutive sampling technique was used. All the cases aged 18–70 years old, both males and females, presenting with dyspepsia for more than a month were included in the study. All the cases with a history of *H. pylori* eradication, proton pump inhibitor use, H<sub>2</sub>-receptor antagonists, antacids or antibiotics within four weeks prior to the endoscopic evaluation and patients with a history of gastric or esophageal surgery or hepatocellular carcinoma were excluded. Dyspepsia was defined as per symptoms of the upper gastrointestinal problems and the common signs include upper abdominal pain or discomfort, early satiety and the postprandial fullness, epigastrium pain, bloating, nausea, belching and heart burning. After taking informed consent, all the study participants underwent upper gastrointestinal endoscopy. Endoscopy was performed by a senior gastroenterologist having at least 5 years' residency experience. Biopsy samples were obtained and sent to the pathology laboratory of the hospital. All the information was collected on a specially designed Performa. SPSS version 21 was used for data analysis. Mean and standard deviation were used for quantitative variables and for qualitative variables frequency and percentage were calculated. Post stratification chi-square test was applied and a p-value <0.05 was taken significant.

## Results:

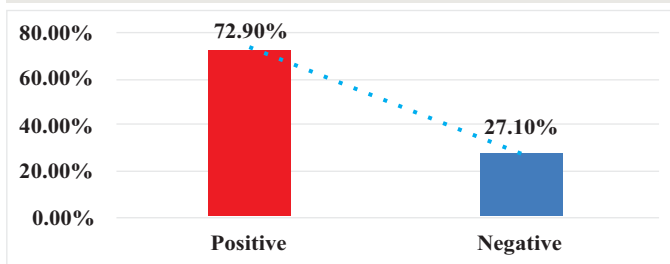
A total of 88 patients were studied. Their mean age was 44.67±14.67 years. There were 59 (69.4%) males and 26 (30.6%) females. The mean BMI of patients was 24.77±4.94 kg/m<sup>2</sup> and the average duration of dyspepsia was 9.99±5.08 months, results are shown in table. 1.

There were 62 (72.9%) patients who had *H. pylori*, while 23 (27.1%) patients did not have *H. pylori*. Fig. 1

The frequency of *H. pylori* was seen as statistically significant according to increases in age (p=0.039), while it was statistically insignificant according to gender and BMI (p->0.05). Table.2

**Table 1:** Descriptive Statistics of Demographic Variables (n=88)

Variables	Statistics
Age	Mean+SD 44.67±14.67years
Duration of disease	Mean+SD 9.99±5.08months
BMI	Mean+SD 24.77±4.94kg/m <sup>2</sup>
Gender	Male (frequency/%) 59 (69.4%)
	Female (frequency/%) 26 (30.6%)

**Fig. 1.** Frequency of *H. pylori* (n=88)**Table 2:** Frequency of *H. pylori* According to Age, Gender and BMI (n=88)

Variables	H. Pylori		p-value
	Positive	Negative	
Age groups	18-30	16	0.039
	31-50	22	
	>50	24	
Gender	Male	46	0.116
	Females	16	
BMI	Underweight	09	0.804
	Normal weight	25	
	Over weight	16	
	Obese	12	

Chi-square test applied as per significant level of (p= <0.05)

## Discussion:

One of the most common reasons for patients being sent to gastroenterology clinics is dyspepsia, a disorder marked by recurrent or persistent upper abdominal pain. About two thirds of people have the gram-negative bacterium *Helicobacter pylori*, and it plays a role in the aetiology of gastroduodenal disorders.<sup>7</sup> In this study, 62(72.9%) patients with dyspepsia had positive *H. pylori*. Consistently, Aziz ZW et al<sup>13</sup> conducted the study by employing standard Hematoxylin, Modified Giemsa dye, and immunohistochemistry stain to identify *H. pylori* in specimens of gastric biopsies, and they reported that 71% of patients with H&E/MGS and 75% of those

with IHC tested positive for *Helicobacter pylori* bacilli. In 2014, Niknam et al. also found the frequency of *H. pylori* was 31.2% among patients with dyspepsia.<sup>12</sup> Inconsistently, in 2015, Oling et al.<sup>14</sup> showed a little higher frequency of *H. pylori*, i.e., 36%. A study conducted in Abbottabad showed 73.9% of patients with dyspepsia had *H. pylori*. In this study, the mean age of patients was 44.67±14.67 years, and males were in the majority 59(69.4%). Similarly, Aminde JA et al<sup>15</sup> demonstrated that the average age of study subjects was 40.7 years, and the overall seroprevalence of *H. pylori* was 51.5%. Although KC SR et al<sup>16</sup> also reported that in all study subjects' females were 53.8% and males were 46.1%. In this study, the frequency of *H. pylori* was seen as statistically significant according to increases in age (p=0.039), while it was statistically insignificant according to gender and BMI (p > 0.05). No such findings have been found in other studies; however further large-scale studies are recommended on this subject. There are significant variations in the frequency of *H. pylori* infection in the population investigated, according to numerous epidemiological data. In developing nations, the infection incidence is generally higher and starts earlier than in developed ones, highlighting the crucial role that socioeconomic position plays in the disease's spread.<sup>17</sup> Dyspepsia is thought to have several key causes, one of which being *H. pylori* infection. By changing the production of gastrin and somatostatin, *H. pylori* causes alterations in stomach acid secretion. In studies with healthy volunteers, excessively high stomach acid output for any reason can result in dyspeptic symptoms.<sup>5,18</sup> On the basis of these considerations, numerous RCTs have been carried out to determine if *H. pylori* eradication therapy is effective in the management of dyspepsia.<sup>5</sup> The current study had several limitations, just like earlier investigations. Our primary drawback was the research environment, because it had fewer patients than other tertiary care facilities. Additionally, it did not adequately store information on each patient's home address and socioeconomic background. Thus, it is impossible to assess the prevalence of the entire region from this study. In the future, large-scale studies can identify the high-prevalence areas of the region by correlating *H. pylori* to socioeconomic level and patient locations.

**Conclusion:**

Study revealed that the frequency of *H. pylori* among patients having dyspepsia was observed to be highly frequent and significantly linked to age <30 years and >50 years. A reliable and effective method of diagnosis, still is the histological analysis of gastric biopsies. Despite being an intrusive technique, it is justified due to its benefits. Preventive and management strategies should be developed to control the occurrence of *H. pylori* among dyspepsia patients to prevent the hazardous consequences of *H. pylori* and improve the quality of life.

**Ethical Approval:** Given

**Conflict of Interest:** The authors declare no conflict of interest.

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