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Prevalence and Endoscopic Findings in Adult Patients with Dyspepsia: A Descriptive Prospective Cross-Sectional Study in Jalalabad, Nangarhar Province, Afghanistan

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ABSTRACT

The objective of this study was to identify the prevalence and range of endoscopic findings in adult patients with dyspepsia. This descriptive prospective cross-sectional study assessed 250 adult patients who underwent endoscopic evaluation between January and September 2025. Socio-demographic analysis showed that females constituted 56% of patients, and the most affected age group was 40–49 years (36%), followed by 31–39 years (28%). Most patients were married (72%) and illiterate (64%), with a nearly equal distribution between rural (52%) and urban (48%) residents. Quantitative endoscopic findings revealed that 95 patients (38%) had gastritis, 45 (18%) had gastric ulcers, 30 (12%) had duodenal ulcers, 35 (14%) had esophagitis, and 45 (18%) had normal endoscopic results. The endoscopic evaluation identified a wide spectrum of abnormalities across the esophagus, stomach, and duodenum. Esophageal abnormalities included reflux esophagitis, drug-induced esophagitis, esophageal candidiasis, CMV esophagitis, esophageal varices, diverticula, hiatus hernia, and esophageal new growths. Gastric endoscopic findings comprised erosive gastritis, gastric ulcers, gastric polyps, fundal and pyloric new growths, ectopic pancreas, gastric varices, and features consistent with linitis plastica. Intestinal involvement was characterized by erosive duodenitis, multiple duodenal ulcers, and duodenal candidiasis. The findings suggest that dyspepsia primarily affects middle-aged, married, and illiterate individuals, highlighting the crucial role of endoscopy in identifying a range of underlying causes. This study was conducted at a single center, which may limit the generalizability of the findings.

Keywords: Dyspepsia; Endoscopy; Esophageal conditions; Gastric abnormalities; Duodenal ulcers

INTRODUCTION

Dyspepsia is a condition marked by episodic or persistent upper abdominal pain or discomfort, often accompanied by symptoms such as fullness, bloating, or early satiety. These symptoms originate from the upper gastrointestinal tract. When a specific underlying disease is identified as the cause, the condition is classified as organic dyspepsia. In cases where no clear cause is found after clinical evaluation, it is termed functional dyspepsia. Dyspepsia, commonly known as indigestion, is a widespread digestive disorder associated with repeated upper abdominal discomfort (Broeders et al., 2023; Heading, 1991). It is a multifactorial condition that may result from impaired gastric motility, abnormal gastric acid secretion, *Helicobacter pylori* infection, psychological factors,

or dietary habits. Affecting a large portion of the global adult population, dyspepsia significantly impacts overall health and quality of life (Madisch et al., 2018).

Endoscopy is a key investigative procedure for dyspeptic patients, enabling direct examination of the esophagus, stomach, and duodenum to evaluate mucosal health and detect abnormalities. In addition, endoscopy facilitates targeted tissue sampling for histological analysis, which is critical for diagnosing conditions such as gastritis, peptic ulcer disease, and malignancies (Al-Abachi, 2022; Thompson et al., 2017).

The clinical approach to endoscopy in dyspepsia has shifted from a universal to a selective strategy. Initially, endoscopy was routinely recommended for all patients to rule out serious organic diseases, such as gastric cancer. However, evidence revealed a high rate of normal findings or incidental benign lesions that did not explain the presenting symptoms. In response, contemporary guidelines now reserve endoscopy for higher-risk patients, specifically those presenting with alarm features such as unexplained weight loss, gastrointestinal bleeding, or dysphagia, or for individuals over the age of 55 with new-onset dyspepsia (Black et al., 2018; Mao et al., 2021).

A clear understanding of endoscopic findings in adults with dyspepsia is crucial for accurate diagnosis, effective treatment planning, and optimizing patient outcomes. By synthesizing this evidence, we seek to provide a foundation that enhances diagnostic precision, guides tailored therapeutic strategies, and ultimately improves patient care (Mao et al., 2021). Despite existing studies on endoscopic findings in adults with dyspepsia, data from low-resource settings like Afghanistan are limited, particularly regarding the prevalence of lesions in relation to socio-demographic factors. This study therefore aimed to identify the prevalence and range of endoscopic findings in adult patients with dyspepsia, providing region-specific evidence to support accurate diagnosis and informed treatment strategies.

MATERIALS AND METHODS

Type of study and participants

This descriptive prospective cross-sectional study included 250 adult patients with dyspepsia who underwent upper gastrointestinal endoscopy at the Haidari Internal Medicine, Gastrointestinal Diseases, GI Endoscopy, and Colonoscopy Center in Jalalabad, Nangarhar Province, Afghanistan, between January and September 2025. Patients were eligible if they exhibited at least one of the following symptoms: postprandial fullness, early satiety, epigastric pain, or epigastric burning and red flag sings and persistent dyspepsia. These symptoms had to persist for more than three months, with onset occurring at least six months prior to the endoscopic procedure. All participants received a comprehensive clinical evaluation before endoscopy, which was performed according to standard diagnostic guidelines.

Inclusion criteria

Patients were eligible for inclusion if they had experienced epigastric pain or burning for a minimum of three months, with symptom onset at least six months before enrollment. Additionally, participants reporting postprandial fullness or early satiety persisting for at least three months, beginning no less than six months' prior, were included. These symptoms were required to occur at least once weekly. Eligible individuals were aged between 18 and 90 years.

Exclusion criteria

Patients were excluded if they had predominant symptoms of gastroesophageal reflux disease (GERD), symptoms located outside the epigastrium, or other primary dysmotility complaints such as nausea or vomiting. Additional exclusion

criteria included recent use of nonsteroidal anti-inflammatory drugs (NSAIDs) within one week prior to enrollment, including low-dose therapy; prolonged use of proton pump inhibitors or H2-receptor antagonists for more than two weeks before the study; presence of systemic decompensated conditions such as congestive heart failure, coronary artery disease, liver failure, diabetes mellitus, thyroid disorders, acute or chronic respiratory failure, or hematological disorders; major psychiatric illnesses; inability to undergo endoscopy; or difficulty understanding the study objectives or procedures.

Ethical Statement

The study was conducted in accordance with established ethical standards and received approval from the Haidari Internal Medicine, Gastrointestinal Diseases, GI Endoscopy, and Colonoscopy Center in Jalalabad, Nangarhar Province, Afghanistan. Written informed consent was obtained from all participants prior to enrollment. Patient confidentiality and anonymity were strictly maintained, with all personal identifiers removed from study records. Only aggregated data were used for analysis to prevent identification of individual patients. Participants were informed of their right to withdraw from the study at any time without affecting their medical care. All procedures and interventions adhered to established clinical guidelines and best practices to minimize potential risks and discomfort.

Statistical Analysis

Data were entered and analyzed using SPSS version 25.0. Descriptive statistics, including frequencies and percentages, were employed to summarize the socio-demographic characteristics and endoscopic findings of the adult patients with dyspepsia.

RESULTS

Socio-Demographic Characteristics of Patients with Dyspepsa

This study evaluated a total of 250 patients presenting with dyspepsia. Females accounted for a higher proportion of cases (56%; n=140) compared to males (44%; n=110). The age distribution indicated that the largest group of patients was aged 40–49 years (36%; n=90), followed by those aged 31–39 years (28%; n=70), under 30 years (20%; n=50), and 50 years or older (16%; n=40). Most participants were married (72%; n=180), while 28% (n=70) were single. Regarding educational attainment, the majority were illiterate (64%; n=160), with smaller proportions having completed secondary education (16%; n=40), university-level or higher education (12%; n=30), and primary education (8%; n = 20).

In terms of residence, slightly more than half of the patients (52%; n=130) lived in rural areas, while 48% (n=120) resided in urban settings **(Table 1).**

Table 1. Socio-Demographic Characteristics of Patients with dyspepsia

Variables	Category	Number	Prevalence (%)
Sex	Male	110	44
	Female	140	56
Age	<30 Y	50	20
	31 to 39 Y	70	28
	40 to 49 Y	90	36
	≥50 years	40	16
Marital status	Married	180	72
	Single	70	28
Educational status	Illiterate	160	64
	Primary	20	8
	Secondary	40	16
	University and above	30	12
Residence	Urban	120	48
	Rural	130	52

Results of Endoscopic Findings in Adult Patients with Dyspepsia

Out of the 250 adult patients with dyspepsia who underwent endoscopy, gastritis was the most common finding, observed in 95 patients (38%). Gastric ulcer was present in 45 patients (18%), while duodenal ulcer was found in 30 patients (12%). Esophagitis accounted for 35 cases (14%), and 45 patients (18%) had normal endoscopic findings **(Table 2).**

Table 2. Distribution of Endoscopic Findings among Adult Patients with Dyspepsia (n = 250)

Endoscopic Finding	Number	Percentage (%)
Gastritis	95	38%
Gastric Ulcer	45	18%
Duodenal Ulcer	30	12%
Esophagitis	35	14%
Normal	45	18%

Endoscopic findings in the esophagus of adult patients with dyspepsia

Figure 1 presents the endoscopic findings in the esophagus of adult patients with dyspepsia. The evaluation revealed a spectrum of conditions, ranging from normal findings to significant abnormalities. Observed pathologies included infectious lesions such as esophageal candidiasis and CMV esophagitis; structural disorders, including hiatus hernia and esophageal diverticula; and inflammatory conditions, such as reflux and drug-induced esophagitis. Additionally, motility disorders like achalasia and potentially life-threatening findings, including esophageal varices and suspicious neoplastic growths, were identified. These results underscore the diverse etiologies of dyspepsia and highlight the critical role of endoscopy in accurate diagnosis and management.

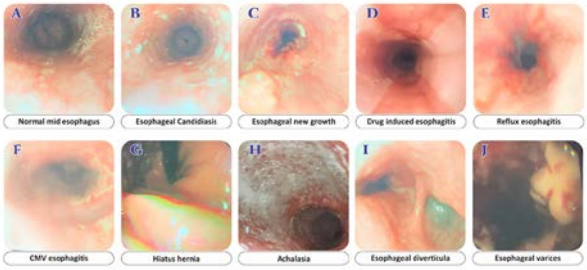

Figure 1. Endoscopic Findings in the Esophagus of Adult Patients with Dyspepsia. **A.** Normal mid-esophagus. **B.** Esophageal candidiasis. **C.** Esophageal new growth. **D.** Drug-induced esophagitis. **E.** Reflux esophagitis. **F.** Cytomegalovirus esophagitis (CMV esophagitis). **G.** Hiatus hernia. **H.** Hiatus hernia. **I.** Esophageal diverticula **J.** Esophageal varices. This figure illustrates the range of esophageal abnormalities commonly observed in dyspeptic patients during endoscopic examination.

Endoscopic findings in the stomach of adult patients with dyspepsia

The endoscopic evaluation of the stomach in adult patients with dyspepsia reveals a wide spectrum of pathological changes **(Figure 2).** A normal gastric fundus appears without abnormalities, whereas erosive gastritis is characterized by mucosal inflammation and erosions. Fundal new growths consist of abnormal tissue, raising concern for malignancy. Gastric polyps present as small mucosal protrusions, while gastric ulcers are identified by visible craters or breaks in the mucosa. Lesions in the gastric pylorus may indicate neoplasia, and ectopic pancreas, or pancreatic rests, appear as submucosal lesions. Gastric varices are observed as dilated veins associated with portal hypertension, and gastric linitis plastica manifests as thickened, rigid gastric walls, often linked to advanced malignancy. These findings highlight the diverse etiologies of dyspepsia and emphasize the critical role of endoscopy in its diagnosis and management.

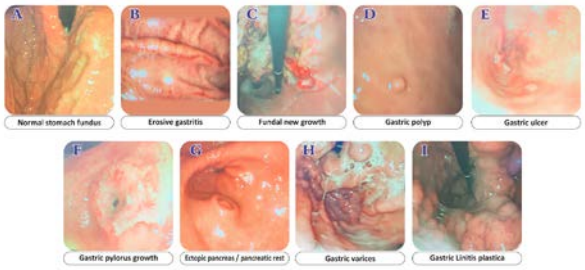

Figure 2. Endoscopic Findings in the Stomach of Adult Patients with Dyspepsia. **A.** Normal stomach fundus. **B.** Erosive gastritis. **C.** Fundal new growth. **D.** Gastric polyp. **E.** Gastric ulcer. **F.** Gastric pylorus growth. **G.** Ectopic pancreas/pancreatic rest. **H.** Gastric varices. **I.** Gastric linitis plastica. This figure illustrates the spectrum of gastric changes commonly observed during endoscopic examination in patients with dyspeptic symptoms.

Endoscopic findings in the intestines of adult patients with dyspepsia

Endoscopic examination of the intestines in adult patients with dyspepsia reveals a range of normal and pathological findings **(Figure 3)**. A normal duodenum and ampulla of Vater display a smooth mucosal surface without abnormalities. Erosive duodenitis is characterized by inflamed and eroded mucosa, indicative of active inflammation. Multiple duodenal ulcers present as distinct mucosal breaks with surrounding inflammation, often associated with *Helicobacter pylori* infection or excessive gastric acid secretion. Duodenal candidiasis appears as white plaques or patches on the mucosa, suggestive of fungal infection, and is commonly observed in immunocompromised individuals. These findings underscore the critical role of endoscopy in identifying the underlying causes of dyspepsia and guiding appropriate management strategies**.**

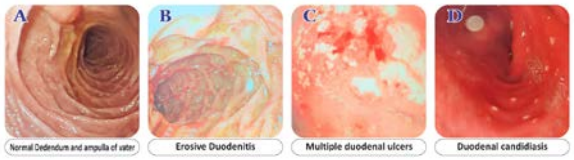

Figure 3. Endoscopic Findings in the Intestines of Adult Patients with Dyspepsia. **A.** Normal duodenum and ampulla of Vater. **B.** Erosive duodenitis. **C.** Multiple duodenal ulcers. **D.** Duodenal candidiasis.

DISCUSSION

This endoscopic study of 250 adult patients with dyspepsia identified a broad range of pathologies in the upper gastrointestinal tract. The cohort was predominantly middle-aged, married, and illiterate, with nearly equal representation from rural and urban backgrounds. While common diagnoses like gastritis, peptic ulcer disease (gastric and duodenal), and esophagitis were prevalent, a significant number of patients had normal endoscopic examinations. The investigation also revealed less frequent but critical findings, including structural esophageal lesions, infectious processes, and gastric neoplasms. These results highlight the diverse etiology of dyspepsia and affirm the indispensable role of endoscopy in detecting both prevalent and clinically significant gastrointestinal diseases.

Endoscopic evaluation of the esophagus in our cohort identified a diverse range of pathologies, including structural, infectious, inflammatory, and neoplastic conditions. Among structural abnormalities, hiatal hernias and esophageal diverticula were observed and are recognized as contributors to dyspeptic symptom exacerbation (Gandhi & Agrawal, 2014). Inflammatory pathology was a common finding, with esophagitis documented in 35 patients (14%); this was primarily attributed to gastroesophageal reflux disease or drug-induced injury, consistent with established literature (Kim et al., 2014; Mermelstein et al., 2018). Infectious processes, notably esophageal candidiasis and CMV

esophagitis, were detected predominantly in immunocompromised individuals, aligning with their known epidemiology (Mohamed et al., 2019; Zuccaro, 2001). Furthermore, endoscopy was instrumental in identifying high-risk conditions. These included motility disorders such as achalasia, which necessitates a combined endoscopic and functional diagnostic approach (Patel et al., 2017; Pomenti et al., 2021), as well as life-threatening findings like esophageal varices and lesions suspicious for malignancy (Gralnek et al., 2022). Collectively, these findings affirm the critical utility of endoscopy in elucidating not only common etiologies but also severe and clinically significant esophageal pathologies in patients with dyspepsia

Endoscopic evaluation of the stomach revealed a wide spectrum of pathologies. In our cohort, gastritis was the most common finding, present in 95 patients (38%), followed by gastric ulcers in 45 patients (18%). This high prevalence confirms that inflammatory and ulcerative conditions are frequent causes of dyspeptic symptoms. A normal endoscopic examination was observed in 45 patients (18%), reinforcing that dyspepsia can occur in the absence of visible structural abnormalities. Among the abnormal findings, conditions such as erosive gastritis and gastric ulcers were prominent. These are often associated with known etiologies like *Helicobacter pylori* infection and the use of nonsteroidal anti-inflammatory drugs (NSAIDs) (Kate et al., 1998; Watari et al., 2014). The identification of neoplastic lesions, including gastric polyps and fundal growths, underscores the critical role of histopathological evaluation in differentiating benign from malignant tissue (Costa et al., 2024). The presence of gastric varices in some patients reflects the systemic manifestations of portal hypertension, illustrating the link between gastrointestinal and hepatic diseases (Zhu et al., 2010). Furthermore, rare but significant diagnoses, such as ectopic pancreas and gastric linitis plastica, highlight the essential role of comprehensive endoscopy in detecting conditions that might otherwise evade diagnosis (Elwir et al., 2017).

Endoscopic evaluation of the duodenum in dyspeptic patients revealed a spectrum from normal to markedly abnormal findings. While a subset of patients (12%) had duodenal ulcers, a similar proportion exhibited normal duodenal and ampullary anatomy, reinforcing the functional basis of dyspepsia in many cases. In contrast, findings like erosive duodenitis and multiple ulcers underscored inflammatory and ulcerative processes, commonly associated with *Helicobacter pylori* infection or gastric acid hypersecretion (Reghunath et al., 2020; Suzuki & Moayyedi, 2013). Rare but significant diagnoses, such as duodenal candidiasis presenting as white plaques, were identified predominantly in immunocompromised patients, aligning with established literature (Turk & Polat, 2015). Collectively, these results affirm that although a significant number of dyspepsia cases are functional, endoscopy is crucial for identifying the substantial subset with clinically significant pathology requiring targeted management.

CONCLUSION

Endoscopic evaluation of patients with dyspepsia reveals a broad spectrum of upper gastrointestinal pathology, from common inflammatory conditions to significant neoplastic lesions. These findings confirm the indispensable role of endoscopy in establishing a definitive diagnosis, guiding targeted therapeutic interventions, and ultimately optimizing clinical outcomes.

Funding

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Conflict of interest

The authors report that there are no conflicts of interest relevant to this work.

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