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ORIGINAL RESEARCH

Prevalence and Pattern of functional dyspepsia among patients in a tertiary care hospital of central India

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ABSTRACT

Background: The term "functional dyspepsia" used to describe dyspeptic symptoms lacking a known organic etiology, due to the multitude of potential unidentified causes and the implication of the term functional denoting an absence of an organic explanation for the symptoms.**Objective:** To assess the prevalence and pattern of functional dyspepsia among patients in a tertiary care hospital of central India.**Methods:** The present cross-sectional study was planned and carried out in Department of Medicine, MGM college & MY Hospital, Indore for a duration of 1 year. The study tool used was Rome IV criteria and LEEDS dyspepsia questionnaire. The results were presented in frequency and chi-square test was used.**Results:** The current study comprised of a total of 300 patients. 57.3% of participants were males while 42.7% were females.Adults aged 60 years and more and in 46 to 60 years age group were more likely to have severe functional dyspepsia as compared to younger age groups while younger age groups had more mild and moderate severity of functional dyspepsia. (**p = 0.03**).**Conclusion:** Functional dyspepsia (FD) is a common gastrointestinal illness affecting a large part of the world's population, with prevalence rates ranging from 10% to 30% among people in the Indian subcontinent.

Key words: Functional dyspepsia, ROME IV criteria, epigastric pain

INTRODUCTION

Dyspepsia, derived from the Greek "dys" (bad) and "pepsis" (digestion), denotes a spectrum of symptoms localized to the flanks and the epigastric region, situated between the navel and the xiphoid process[1].Symptoms encompass burning and pain in the epigastrium (60-70%), postprandial bloating (80%), early satiety (60-70%), distension in the epigastric region (80%), nausea (60%), and vomiting (40%). The precise etiology of dyspepsia remains unidentified; nevertheless, several pathophysiological ideas, predominantly concerning the gastroduodenal tract, have been proposed to explain the ailment[2].Various mechanisms are now being investigated as potential origins of the symptoms of functional dyspepsia[3].

Researchers deliberately use the term "functional dyspepsia" to describe dyspeptic symptoms lacking a known organic etiology, due to the multitude of potential unidentified causes and the implication of the term functional denoting an absence of an organic explanation for the symptoms[4].

The ROME IV criteria classify the condition into three subtypes: a combination of epigastric pain syndrome (EPS) and postprandial distress syndrome (PDS)[5].Approximately 38% of patients with functional dyspepsia are classified as having postprandial distress syndrome, 27% as having epigastric pain syndrome, and 35% as fulfilling the criteria for both diseases[6].The diagnosis of functional dyspepsia remains challenging, even with the ROME IV criteria[7].

The estimated prevalence of dyspepsia in the population ranges from 20% to 40%, and it constitutes 3% to 5% of primary care consultations. Approximately 70% of patients undergoing evaluation for dyspepsia exhibit negative endoscopic findings, with 50% to 60% of these individuals categorized as having functional dyspepsia[8].The range of symptoms experienced by patients with functional dyspepsia

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varies significantly in severity, and these symptoms are not effective in differentiating functional dyspepsia from pathological dyspepsia. Consequently, the aim of the evaluation is to exclude organic etiologies of the patient's symptoms[9-10].The patient's age, presence of alarm features, intensity of symptoms, cancer risk, and results of the physical examination are considered during the evaluation[11-13].
Clinicians must focus on obtaining a comprehensive patient history and customizing therapy according to the symptomatology and any contributing or underlying pathophysiological processes as research into causative causes and effective treatment options progresses. The objective of this study is to ascertain the prevalence of functional dyspepsia and its associated factors within the Indian population.

MATERIAL AND METHOD

The present cross-sectional study was planned and carried out in Department of Medicine, MGM college & MY Hospital, Indore for a duration of 1 year. This study included 300 consecutive patients who fulfilled the inclusion criteria and attending General OPD and IPD. Sample size calculation was done using G*Power software 3.1.9.2 version and 95% confidence interval and 90% Power, a final sample size of 300 based on convenient sampling was obtained. Patients who were admitted or came to OPD to the hospital with any digestive problem and have given consent were included in the study.Patients who refuse to participate, have a history suggestive of any diagnosed gastrointestinal diseases and pregnant patients were excluded.
A pre-tested, pre-validated proforma was used to collect data from patients and medical records. After written informed consent all data was collected. Demographic data in the form of age, sex, place of residence (urban/rural), religion, occupation and income of the patient. Patient detailed medical history was also collected and routine laboratory investigation of patients was carried out.
The study tool used was Rome IV criteria& LEEDS Dyspepsia questionnaire. Thecriteria involves presence of at least one of the following i.e. Postprandial fullness(3 days per week), early satiety(3 days per week), epigastric pain(1 day per week), epigastric burning(1 day per week) and no evidence of structural disease.

STATISTICAL ANALYSIS

The data was entered and cleaned using MS-Excel and analysed statistically using SPSS-25. Quantitative variables were expressed as mean value ± standard deviation or median ± interquartile range. Qualitative data was expressed as percentages (%) or proportions. Chi-square test was used to infer association between two variables and a p value of < 0.05 was considered statistically significant.

RESULTS

The current study comprised of a total of 300 patients. About one-third of patients (34.7%) belonged to the age group of 18-30 years. (Fig 1) 57.3% of participants were males while 42.7% were females. The symptoms in the current study is described in Fig 2. Among those with functional dyspepsia, 41.6% of patients were found to have mild grade of functional dyspepsia while moderate grade of functional dyspepsia was found in 44.5% of patients. Severe grade of functional dyspepsia was observed to be present in only 13.9% of patients in our study.(Table 1). Table 2 shows the association between age and severity of functional dyspepsia according to Rome IV criteria. Adults aged 60 years and more and in 46 to 60 years age group were more likely to have severe functional dyspepsia as compared to younger age groups while younger age groups had more mild and moderate severity of functional dyspepsia. (**p = 0.03**). The association between grade of functional dyspepsia and intake of junk food was not statistically significant (p = 0.10).

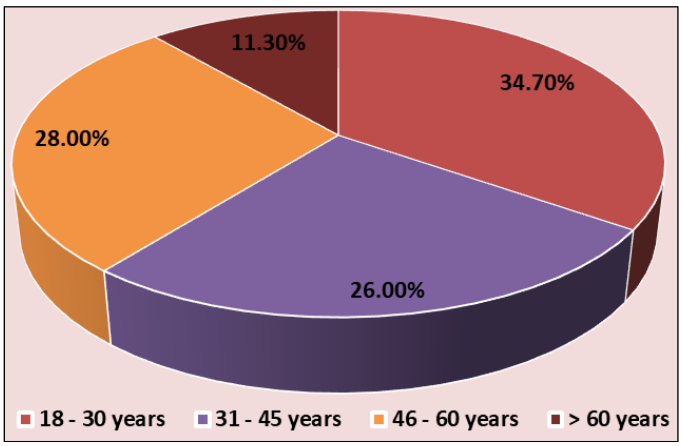

Figure 1:Distribution of patients according to Age

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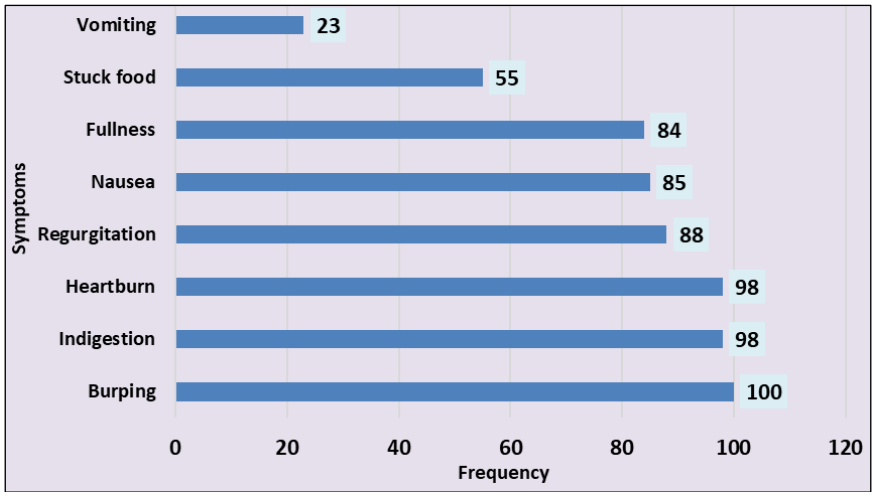

Figure 2:Distribution of symptoms among patients

Table 1: Distribution of Patients according to Rome IV Criteria & LEEDS Dyspepsia Questionnaire for Functional Dyspepsia

Grading of Functional Dyspepsia	Frequency (n)	Percentage (%)
Mild (1-7)	42	41.6
Moderate (8-15)	45	44.5
Severe (> 15)	14	13.9
Total	101	100

Table 2:Association between severity of Functional dyspepsia and Age

Grading of Functional Dyspepsia	Age (in years)				χ^2, p value*
	18-30 n (%)	31-45 n (%)	46-60 n (%)	> 60 n (%)	
Mild (1-7)	03 (37.5)	06 (27.3)	20 (45.5)	13 (48.1)	13.99, **0.03**
Moderate (8-15)	05 (62.5)	14 (63.6)	20 (45.5)	06 (22.3)	
Severe (> 15)	00 (00)	02 (9.1)	04 (9.0)	08 (29.6)	
Total	08 (100)	22 (100)	44 (100)	27 (100)	

***p value < 0.05 statistically significant; chi-square test applied.

DISCUSSION

Functional dyspepsia (FD) is a common gastrointestinal disorder characterized by chronic or recurrent pain or discomfort centered in the upper abdomen without any identifiable cause. The prevalence of functional dyspepsia varies globally, but it affects a significant portion of the population[14].In the Indian subcontinent, studies have shown that FD is quite common, with prevalence rates reported to be between 10% and 30% among adults. Several factors increase the risk of developing functional dyspepsia like Genetic Predisposition, Infections, Dietary Habits, Psychological Factors, Lifestyle Factors and Medications[15-17].

In the present study about one-third of patients (34.7%) belonged to the age group of 18-30 years. Around one-fourth (28% and 26%) were in the age group of 46 to 60 years and 31 to 45 years respectively. Around one-fifth (11.3%) of patients were in the age group of 60 years and more. Adults aged 60 years and more and in 46 to 60 years age group were more likely to have severe functional dyspepsia as compared to younger age groups while younger age groups had more mild and moderate severity of functional dyspepsia. (p = 0.03).

A total of 101 (33.7%) patients were found to have functional dyspepsia according to ROME IV criteria. Out of these, 41.6% of patients had mild grade of functional dyspepsia. 44.5% of patients had moderate grade of functional dyspepsia while only 13.9% of patients had severe grade of functional dyspepsia.

Patients over the age of eighteen who had a clinical diagnosis of dyspepsia were included in a cross-sectional, questionnaire-based, noninterventional, observational study conducted throughout all of India between February and October of 2021 by **Sud R *et al.*[18]** Participating in the study were 3,739 patients from 29 different Indian states. Males made up 70.8% of the patients, and 56.8% of them were from cities. Patients aged 31 to 40 made up the largest percentage of patients (33.8%), and the majority (60.2%) experienced dyspepsia for six to twelve months. Compared to patients with organic dyspepsia (OD) (21.5%), the proportion of patients with functional dyspepsia (FD) (78.5%) was significantly larger (p < 0.001). Heartburn, nausea, vomiting, and epigastric discomfort were the most common presenting

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symptoms.The most common comorbid disorders among the dyspepsia patients were diabetes mellitus, hypertension, and irritable bowel syndrome, accounting for a quarter (25.6%) of the cases. In the study, a total of 619 individuals were taking concurrent medications, with antidiabetic medications being the most popular (271/619, 43.8%). Among study participants, rabeprazole was the most commonly used PPI (2467/3739, 66.0%). Based on the patient satisfaction analysis, most patients (~80%) agreed to practically all of the items, indicating that overall, they were satisfied with PPIs. The examination of individual PPIs revealed that the rabeprazole group had the highest "agree" replies on nearly all of the 13 items.

In another similar study by **Das AK *et al.*[19],** which was carried out using Rome III criteria, multi-staged sampling was done and data was collected by house-to-house survey. The individuals suffering from dyspepsia were instructed to undergo esophagogastroduodenoscopy. The incidence of dyspepsia in the rural community was determined to be 29.6%. The univariate model identified several risk factors linked with dyspepsia, including older age group, largely vegetarian diet, regular tea drinking, chewing tobacco, smoking, and gudakhu use. Smoking tobacco was the only factor that showed a significant association in the multivariate analysis. Endoscopic assessment demonstrated that 56% of the individuals had functional dyspepsia. The reported abnormal findings were esophagitis (26%), antral gastritis (9%), antral ulcer (7%), and inflammatory esophageal polyp (2%)[20].

CONCLUSION

Functional dyspepsia (FD) is a common gastrointestinal illness affecting a large part of the world's population, with prevalence rates ranging from 10% to 30% among people in the Indian subcontinent. Numerous risk factors are linked to the illness, such as dietary practices, psychological stress, infections like Helicobacter pylori, genetic susceptibility, lifestyle factors including smoking and inactivity, and the use of specific drugs.

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