

A study to assess the prevalence of dyspepsia among undergraduate medical students of a rural medical college- A cross sectional study.

Talakad Shesha Iyengar Chaluvraj¹, Lokesh KC², Pradeep Tarikere Satyanarayana^{3*}

Affiliation: : 1 Associate professor & 2 Assistant professor, Department of Community Medicine, MVJ medical College and Research Hospital, Bangalore. 3 Assistant professor, Department of Community Medicine, Sri Devaraj Urs Medical college, Sri Devaraj urs Academy of Higher Education and Research ,Tamaka ,Kolar 2 Assistant professor, Department of Community Medicine, MVJ medical College and Research Hospital, Bangalore.

Date of Submission : 27-03-2019

Date of online Publication : 27-05-2019

Date of Acceptance : 26-04-2019

Date of Print Publication : 30-06-2019

***Author for correspondence:** Dr. Pradeep Tarikere Satyanarayana ,Assistant professor, Department of Community Medicine, Sri Devaraj Urs Medical college, Sri Devaraj urs Academy of Higher Education and Research ,Tamaka ,Kolar. Karnataka 563101. E-mail; dr.pradeep.ts@gmail.com

ABSTRACT

Background: Dyspepsia is a common gastrointestinal disease worldwide with a prevalence ranging from 7 to 40%. Dyspepsia has been studied among the general public, but little is known of factors associated with dyspepsia among medical students. Objective: the study was started with objectives to find the prevalence of dyspepsia and to evaluate the association between various factors associated with dyspepsia among medical students. **Methodology:** A cross-sectional study conducted among 214 medical students at a rural medical college, Bangalore for six months and data collected regarding demographic profile, dietary factors and lifestyle factors through pretested semi structured questionnaire and Dyspepsia was assessed by Short form Leeds Dyspepsia questionnaire through interview. Data entered using Microsoft Excel and analyzed using SPSS software. Descriptive and inferential statistics were applied. **Results:** The mean age of the study participants is 19.8 years. A total of 43 (20.1%) respondents reported with dyspepsia. There was a significant association between mixed diet and Females with dyspepsia ($p < 0.05$). **Conclusion:** The importance of improving lifestyle and dietary factors associated with dyspepsia and risk factors should be emphasized. Further studies are needed on dyspepsia in a larger cohort of students in order to fully understand the complexity of this problem and be able to generalize the findings to other cohorts.

Key Words: Dyspepsia, Medical students, heart burn, regurgitation

INTRODUCTION

Dyspepsia is a common problem more commonly known as heartburn or indigestion which is defined as one or more of the following symptoms like postprandial fullness, early satiation or epigastric pain or burning for at least 3 months in the past year. The prevalence of dyspepsia could be more due to the interaction of various health and lifestyle factors characterized by abdominal pain, centred more in the epigastrium usually combined with other gastrointestinal disorders. ¹ Previously considered one of the nervous disorders" along with hypochondria and hysteria, came to be defined as a "pain or discomfort centred in the upper abdomen. ^{2, 3}Rome III defines dyspepsia as postprandial fullness, early satiation, and epigastric pain or burning for at least three months in the previous year. ⁴ Organic dyspepsia shows evidence for a known pathophysiologic mechanism like ulcer disease or a tumour mass for its symptoms.⁵ Correlating the symptoms of dyspepsia with diet and aetiology in the patient with dyspepsia within our environment is unclear. The global prevalence of uninvestigated dyspepsia differs from 7% - 45%, the difference in the exact definition of

the study method partly accounting for the variation. The prevalence of self-reported functional dyspepsia is 11% - 29.2%. The risk factors for dyspepsia are psychological disturbances, environmental factors, lifestyle habits e.g. smoking, increased caffeine batch, and consumption of non-steroidal anti-inflammatory drugs like Aspirin which is more relevant to ulcer dyspepsia. ⁶

There are various risk factors exacerbating dyspepsia which are identified in various studies which include stress, diet, health and lifestyle. Stress can also be an independent risk factor as it varies as the year progress.⁷ In India, no extensive research has been done in the past about the prevalence of dyspepsia and the factors associated with it. This prevalence study and factors influencing the occurrence of dyspepsia helps in improving the health of affected students and in increasing quality of life by appropriate preventive measures. In addition, it can open doors for further research in the area of dyspepsia. Hence, this study was conducted to assess the prevalence of dyspepsia among

medical students of a rural medical college and to determine the association between dyspepsia and socio-demographic characters, lifestyle and dietary factors influencing dyspepsia.

MATERIAL & METHODS

It was a cross-sectional study carried in a medical college of rural Bangalore among medical students for a period of 6 months from Jan 2018 to July 2018. The overall pooled prevalence of uninvestigated dyspepsia was 21%, with an error of 6% sample size was calculated which was around 185 rounded off to 200.⁵A pretested semi-structured questionnaire was used to assess the socio-demographic profile of study participants and to assess the dyspepsia status Short-Form Leeds Dyspepsia Questionnaire was used. The Short-Form Leeds Dyspepsia Questionnaire is a reliable, valid and responsive self-completed outcome measure for quantifying the frequency and severity of dyspepsia symptoms, which is shorter and more convenient than the Leeds Dyspepsia Questionnaire.⁸ The data collected was entered in Microsoft Excel and analysed using SPSS v 22(IBM Corp). Results were expressed in percentage and association between various factors was assessed by Chi-square test with p-value defined significant less than 0.05. Medical students aged 18 to 25 years were included and those participants on long term Proton Pump Inhibitors or diagnosed with medical ailments like functional dyspepsia and gastric ulcer were excluded.

RESULTS

Table 1:-Distribution of the socio-demographic profile of study participants

| | Characteristics | Frequency (n=214) | Percentage |
|--------------------------|-----------------|----------------------|------------|
| Age (In Years) | 17-19 | 105 | 49.1 |
| | 20-22 | 86 | 40.2 |
| | 23-25 | 23 | 10.8 |
| Sex | Male | 66 | 30.8 |
| | Female | 148 | 69.2 |
| Type Of Family | Nuclear | 192 | 89.7 |
| | Joint | 22 | 10.3 |
| No. Of Family Members | Less than 4 | 147 | 68.7 |
| | More than 4 | 67 | 31.3 |
| Type Of Diet | Veg | 57 | 26.6 |
| | Mixed | 157 | 73.4 |
| Alcohol Consumption | Yes | 21 | 9.8 |
| | No | 193 | 90.2 |
| Smoking | Yes | 7 | 3.3 |
| | No | 207 | 96.7 |
| Regular Intake Of NSAIDS | Yes | 13 | 6.1 |
| | No | 201 | 93.9 |

Table 1 describes the distribution of participants according to socio-demographic characteristics. The mean age of the respondents was 20 years. Out of 214 study participants majority were females. Among participants, most of them 192(89.7%) belonged to nuclear family rest 22(10.3%) belonged to the joint family. Among 214 study participants majority had a mixed type of dietary pattern 157(73.4%), 21(9.8%) were consuming alcohol occasionally, 7(3.3%) were smokers and 13(6.1%) were regular in takers of NSAIDS.

Table 2 shows Responses of Participants to the Short-Form Leeds Dyspepsia Questionnaire in the Frequency and Severity of Each symptom. Table 3 shows the prevalence of Dyspepsia among study participants. It was observed that 43 (20.1%) reported dyspepsia out of a total of 214 participants. Table 4 shows the association between socio-demographic characteristics and dyspepsia.

Among the participants with dyspepsia, majority 36(83.7%) were female participants and this association between gender and dyspepsia observed was statistically significant with a p-value of 0.02. 41(21.3%) of participants belonging to Nuclear Family were found to have dyspepsia however the association was not statistically significant. Vegetarians have to found to have dyspepsia prevalence of 19(33.3%) more than participants with mixed type of diet pattern. The association between diet pattern and dyspepsia was found to be statistically significant with a p-value of 0.0004. Even though there was higher percentage alcohol consuming found to be having dyspepsia when compared to non-alcoholics 37(19.2%) there was no statistically significant association between alcohol consumption and dyspepsia in the present study. In respect to smoking, 3 (42.8%) were smokers and 40(19.3%) were non-smokers and the association between smoking and dyspepsia observed was not statistically significant. About 5(42.8%) of participants were regular takers of NSAIDS and there was no significant association between Regular intake of NSAIDS and dyspepsia.

DISCUSSION

The present study was a cross-sectional study conducted amongst 214 students at a rural medical college of Bangalore, Karnataka for a period of 6 months from Jan 2018 to July 2018 to assess the prevalence of self-reported dyspepsia among medical students. The association between Dyspepsia and socio-demographic, dietary and lifestyle factors were analysed. In our study, the mean age of the respondents was 19.8 years.

In a study conducted by Novis et al among students showed three students who developed dyspepsia followed with duodenal ulcers attributed to high acid secretion levels with more female preponderance observed.¹⁰ A study of functional dyspepsia among the ethnic Malays in a primary care setting conducted by Yeong Yee Lee found results in which females were more

Table 2- Responses of Participants to The Short-Form Leeds Dyspepsia Questionnaire in Frequency and Severity of Each Symptom

| Short Form Leeds Dyspepsia Criteria | | Not At All | Less Than A Month | Once | Between Once A Month & Once A Week | Between Once A Week & Once A Day | Once A Day or more |
|-------------------------------------|-----------|-------------|-------------------|-----------|------------------------------------|----------------------------------|--------------------|
| Indigestion | Frequency | 58 (27.1%) | 104 (48.6%) | 41(19.2%) | 9 (4.2%) | 2(0.9%) | |
| | Severity | 130 (60.7%) | 59 (27.6%) | 18 (8.4%) | 6 (2.8%) | 1(0.5%) | |
| Heartburn | Frequency | 115 (53.7%) | 81 (37.9%) | 17 (7.9%) | 1 (0.5%) | 0 | |
| | Severity | 172 (80.4%) | 36 (16.8%) | 5 (2.3%) | 1 (0.5%) | 0 | |
| Regurgitation | Frequency | 83 (38.8%) | 105 (49.1%) | 19 (8.9%) | 5 (2.3%) | 2(0.9%) | |
| | Severity | 164 (76.6%) | 37 (17.3%) | 11 (5.1%) | 1 (0.5%) | 1(0.5%) | |
| Nausea | Frequency | 86 (40.2%) | 88 (41.1%) | 29(13.6%) | 10(4.7%) | 1(0.5%) | |
| | Severity | 149 (69.6%) | 41 (19.2%) | 16 (7.5%) | 7 (3.3%) | 1(0.5%) | |

Table 3: Prevalence of Dyspepsia based on Leeds Self-Reported Dyspepsia questionnaire

| | Frequency | Percent |
|-------|-----------|---------|
| Yes | 43 | 20.1 |
| No | 171 | 79.9 |
| Total | 214 | 100 |

Table 4- Association between Dyspepsia and socio-demographic factors, dietary and lifestyle factors.

| Characteristics | Dyspepsia | | p Value | |
|--------------------------|-------------|------------|-------------|--------------|
| | Yes | No | | |
| Sex | Male | 7 (10.6%) | 59 (89.4%) | 0.02 |
| | Female | 36 (24.3%) | 112 (75.7%) | |
| Type of Family | Nuclear | 41 (21.3%) | 151 (78.7%) | 0.17 |
| | Joint | 2 (9.1%) | 20 (90.9%) | |
| Family Members | Less than 4 | 9 (24.3%) | 28 (75.7%) | 0.49 |
| | More than 4 | 34 (19.2%) | 143 (80.8%) | |
| Diet Pattern | Veg | 19 (33.3%) | 38 (66.7%) | 0.001 |
| | Mixed | 24 (15.3%) | 133 (84.7%) | |
| Alcohol Consumption | Yes | 6 (28.6%) | 15 (71.4%) | 0.3 |
| | No | 37 (19.2%) | 156 (80.8%) | |
| Smoking | Yes | 3 (42.8%) | 4 (57.2%) | 0.12 |
| | No | 40 (19.3%) | 167 (80.7%) | |
| Regular Intake Of NSAIDS | Yes | 5 (38.5%) | 8 (61.5%) | 0.08 |
| | No | 38 (18.9%) | 163 (81.1%) | |

chi-square test

likely to have Functional Dyspepsia attributed to few psychosocial factors compared with men.¹¹ The present study also showed female participants having higher prevalence of dyspepsia which was statistically significant. In our study, it was seen that 46.2% of participants had experienced a feeling of heartburn and 19.6% reported that this symptom interfered at least once or more their normal activities such as eating, sleeping, work and leisure over the last two months and 18 out of 43 dyspeptic patients (41.2%) had experienced heartburn. Heartburn related to dyspepsia, 41.8% who had this symptom also suffered from Dyspepsia and 83.0% who reported regarding the heartburn interference with their normal activities, had dyspepsia. A study done on functional heartburn and functional dyspepsia stated there is a high prevalence of dyspeptic complaints such as epigastric burning in patients diagnosed with functional heartburn.¹² A retrospective study done by Lin et al on belching in dyspepsia and GERD evaluated that 64 of 78 of dyspeptic patients, 82% had heartburn and concluded as belching is as common and as severe in patients with dyspepsia as it is in patients with GERD.¹³ A study conducted in Karachi, Pakistan which included 350 students between the ages 17-24 years from six private universities of Karachi, three medical and three non-medical institutions using the diet and lifestyle 85-point score scale among medical students concluded that the knowledge, attitudes and practices of medical students knowledge did not necessarily lead to better practice.¹⁴ According to Richter, despite common beliefs, most environmental factors such as smoking, alcohol, coffee or use of non-steroidal anti-inflammatory drugs are not important contributors to Dyspepsia patients' symptoms.¹⁶ The present study also showed no significant association of dyspepsia with alcohol consumption or NSAIDS consumption. Advantage of using short self-administered questionnaires in routine care will improve the reliability of separation of reflux induced symptoms from true dyspepsia.¹⁷ The present study did not use endoscopy intervention to diagnose Dyspepsia however study done by R.Johnsen et al showed a small number of

normal endoscopic findings in both those with and those without dyspepsia challenging the well accepted endoscopic and histological diagnostic criteria with relation to the upper gastrointestinal tract.¹⁸The present study has many limitations. The findings cannot be generalized to the whole medical student population as the study included only one medical school. Recall bias may be present because some parts of the questionnaire required the students to recall previous events in the past few months.

CONCLUSION: Majority of the participants were found to have dyspepsia. Although it's believed that alcohol, coffee or use of non-steroidal anti-inflammatory drugs can lead to dyspeptic symptoms however Specifically, the factors like female gender and vegetarian type of diet were highly associated with the increasing prevalence of dyspepsia amongst medical students.

REFERENCE

1. Baron JH, Watson F, Sonnenberg A. Three centuries of stomach symptoms in Scotland. *Aliment Pharmacol Ther*, 24(5), 2006, 821-9.
2. Hare E. The history of 'nervous disorders' from 1600 to 1840, and a comparison with modern views. *Br J Psychiatry*, 159, 1991, 37-45.
3. Chey WD. Accurate diagnosis of helicobacter pylori. 14C-urea breath test. *Gastroenterol Clin N Am*, 29, 2000, 895-902.
4. Tack J, Talley NJ, Camilleri M, et al. Functional gastroduodenal disorders. *Gastroenterology*, 130, 2006, 1466.
5. Ford AC, Marwaha A, Sood R, Moayyedi P. Global prevalence of, and risk factors for, uninvestigated dyspepsia: a meta-analysis. *Gut*. 2015 Jul 1;64(7):1049-57.
6. Mahadeva S, Goh KI. Epidemiology of functional dyspepsia: a global perspective. *Br J Psychiatry*, 159, 1991, 37-45.
7. Abdulghani HM, Alkaanhil AA, Mahmoud ES. Stress and its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *J Health Popul Nutr*, 29(5), 2011, 516-522.
8. Nkurunziza A, Dusabejambo V, Everhart K, Bensen S, Walker T. Validation of the Kinyarwanda-version Short-Form Leeds Dyspepsia Questionnaire and Short-Form Nepean Dyspepsia Index to assess dyspepsia prevalence and quality-of-life impact in Rwanda. *BMJ open*. 2016 Jun 1;6(6):e011018.
9. Chowdhury J, Islam MS, Miah AR, Saha A, Pal P, Siddique AA, Alam MS, Raihan MA. Study of the Prevalence of Dyspepsia in the Adult Population in a Rural Community of Bangladesh. *Mymensingh medical journal: MMJ*. 2019 Jan;28(1):163-74.
10. Novis BH, Marks IN, Bank S, Sloan AW. The relation between gastric acid secretion and body habitus, blood groups, smoking, and the

- subsequent development of dyspepsia and duodenal ulcer. *Gut*, 14(2), 1973, 107-12.
11. Lee YY, Wahab N, Mustaffa N, Daud N, Noor NM, Shaaban J, Chua AS. A Rome III survey of functional dyspepsia among the ethnic Malays in a primary care setting. *BMC Gastroenterology*, 13, 2013, 84.
 12. Savarino E, Pohl D, Zentilin P. Functional heartburn has more in common with functional dyspepsia than with nonerosive reflux disease. *Gut*, 58 (9), 2009, 1185–1191.
 13. Lin M, Triadafilopoulos G. Belching: dyspepsia or gastroesophageal reflux disease? *American Journal of Gastroenterol*, 98(10), 2003, 2139-45.
 14. Sajwani RA, Shoukat S, Raza R, Shiekh MM, Rashid Q, Siddique MS, Panju S, Raza H, Chaudhry S, Kadir M. Knowledge and practice of healthy lifestyle and dietary habits in medical and non-medical students of Karachi, Pakistan. *J Pak Med Assoc*, 59(9), 2009, 650-5.
 15. Talley NJ, Vakil N. Guidelines for the management of dyspepsia. *The American journal of gastroenterology*. 2005 Oct;100(10):2324.
 16. Richter JE. Stress and psychologic and environmental factors in functional dyspepsia. *Scandinavian Journal of Gastroenterology*. 1991 Jan 1;26(sup182):40-6.
 17. Dent J. Definitions of reflux disease and its separation from dyspepsia. *Gut*. 2002 May 1;50(suppl 4):iv17-20.
 18. Johnsen R, Bernersen B, Straume B, Førde OH, Bostad L, Burhol PG. Prevalences of endoscopic and histological findings in subjects with and without dyspepsia. *Bmj*. 1991 Mar 30;302(6779):749-52.

Conflict of Interest : None

Source of funding support: Self

How to cite this article: Talakad Shesha Iyengar Chaluvaraj, Lokesh KC, Pradeep Tarikere Satyanarayana A study to assess the prevalence of dyspepsia among undergraduate medical students of a rural medical college- A cross sectional study. *Nat J Res Community Med* 2019;8(2): 148-151.

© Community Medicine Faculties Association-2019
 NJRCM: www.commedjournal.in

