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Original Research Article

A cross-sectional Study on lifestyle factors influencing gastritis and dyspepsia among international students' faculty of medical university

Lemeshevskaya Zoya Petrovna, L. R. Sathisha Deshan Liyanage*, Grishma Rajendrakumar Patel, Mohamed Rilwan Maryam

Department of Internal Medicine, Grodno State Medical University, Grodno, Belarus

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***Correspondence:**
L. R. Sathisha Deshan Liyanage,
E-mail: sathishadeshan666@gmail.com

ABSTRACT

Background: Gastritis is the syndrome associated with the inflammation of the stomach epithelium. Age, dietary pattern, health issues, level of stress, the existence of any other gastrointestinal symptoms, smoking, use of alcohol, and use of over-the-counter medication were considered extraneous variables. The purpose of this study was to determine the lifestyle characteristics that predispose to gastritis among the international students of Grodno State Medical University, Belarus and the results were closely and meticulously analyzed.
Methods: A descriptive survey strategy was used to evaluate the variables associated with gastritis. A simple random approach was chosen for this research. Data was collected with the help of a questionnaire in the format of an online Google form and recorded. Responses from 211 respondents mostly aged 18 to 29 years old were collected. The survey focused on gastritis and its connection to lifestyle factors like smoking, stress, and eating patterns.
Results: The frequency value for the consumption of processed food was the highest above all with regards to dietary habits in this study followed by consumption of fibrous food, having carbonated drinks, frequency of having coffee/tea per day, and general stress level with their daily workload as well as evidently due to consumption of spicy food.
Conclusions: This study demonstrates that the incidence of gastritis among the respondents was multifactorial.

Keywords: Gastritis, Food Habits, Stress, Sleeping, Smoking

INTRODUCTION

Dyspepsia, or indigestion is a syndrome that is diagnosed efficiently in primary healthcare facilities but treatment and management are indistinct. The annual occurrence of dyspepsia in the United Kingdom is about 25% and it is considered to be 3-4% of annual appointments seen in the primary healthcare setting.[1] The conditions that fall under the general classification of gastritis are categorized as chronic upper gastrointestinal tract illnesses. Gastritis is a tag commonly applied to a plethora of clinical symptoms associated with the upper abdomen and epigastrium. The more accurate medical definition of this cluster of symptoms is dyspepsia. If there is no presence of organic disorders the combinations of various symptoms of the upper gastrointestinal tract for example, postprandial fullness, early satiation, pain, and burning sensation in the epigastrium should be described as functional dyspepsia.[2] For the diagnosis of gastritis to be accurate we must have a wide variety of disorders and damage to the mucosa of the stomach which is backed by extensive injury seen on gross and/or microscopic level. These injuries and disorders are usually found in correlation with acute, chronic, or mixed inflammation.[3] In basic terms, gastritis is a disease that results from an inflammation of the gastric mucosa.[4]

Adolescents are the most common who suffer from gastritis, but people of any age can be affected as well. Indicators of gastritis range from relatively minor to severe. 50.8% of the world's population in developing countries suffer from gastritis.[5,6] While 34.7% of the world's population in developed countries had gastritis-associated health problems.[6] Gastritis can result from thinning or damage to the stomach lining.[7] Abdominal and epigastric discomfort or pain, which eventually results in gastritis, originates when hydrochloric acid comes into contact with the inflamed mucosal lining of the stomach. Depending on the duration of the symptoms, gastritis can be classified as acute or chronic.[8-10] Acute gastritis is due to sudden and severe inflammation, while chronic gastritis involves long-term inflammation which is recurring if not promptly treated.[11] Several factors are associated with the increased risk of gastritis and associated diseases. One of the main risks is infection by a gram-negative rod bacteria, namely *Helicobacter pylori* (*H. pylori*), which can survive highly acidic environments like the stomach and also reduces the local pH of the stomach by producing enzyme urease which neutralizes the acid.[12] Other risk factors like smoking, consumption of spicy and citric foods, taking non-steroidal anti-inflammatory drugs (NSAIDs), and stress can lead to an increase in gastric acid secretion and lead to extensive injury and rupture of the gastric mucosal lining. Infection by *H. pylori* is more likely to occur if there is significant damage to the gastric lining. Therefore, changes in lifestyle patterns can be significant in the development of gastritis. Additionally, aging can raise the risk of gastritis as the stomach lining tends to get thin with age. Drinking alcohol and smoking harm the mucosa in the stomach, which may outcome in gastritis.[13]

The most effective approach to diagnose gastrointestinal disorders depends on factors such as the nature and severity of the symptoms, the overall health of the person, the medical history of the patient, the necessity for a particular diagnosis to carry out treatment that is most likely to be successful and the availability of diagnostic devices.[14] The gold standard currently used to check on the condition within the gastric mucosa is esophagogastroduodenoscopy (EGD) with histopathological examination of biopsies. This examination is safe, accurate, and sometimes indispensable, e.g., in the older age group and especially in the presence of alarming symptoms, such as dramatic weight loss, anorexia, dysphagia, or gastrointestinal bleeding.[15,16] Although, EGD is expensive, inconvenient, and usually not recommended for children or patients with severe cardiopulmonary diseases. Serological analysis is another method for diagnosing gastritis. By releasing certain information into the bloodstream, the inflamed stomach mucosa enables serologic investigation to diagnose gastritis.[14] Depending on the underlying causes, particularly the acute gastritis caused by prolonged use of NSAIDs or alcohol. This type of gastritis can be treated by quitting the use of these medications, however, treatment of chronic gastritis could require different antibiotics additionally metronidazole.[17] Proton pump inhibitors like omeprazole are also highly suggested to quicken healing and reduce the production of gastric secretion.[18] Histamine blockers (H-2) like ranitidine and cimetidine are also recommended, in addition to antacids, although adverse effects of the use must be taken into consideration.[17] Due to the high antioxidant content of fresh vegetables and fruits they possess an advantageous effect on gastrointestinal mucosa. As a result of the flavonoid content in curcumin and black seed oil, they have a notable impact on some mucosal lesions or ulcers.[19] Hence, the present research study aimed to identify which lifestyle factors favor gastritis among medical students as a result, there may be a greater likelihood of stress related to balancing education, food timings, and food patterns during the academic study.

METHODS

Study type, location and duration

Current study evaluated the quality of the student's lifestyle causing gastritis using a cross-sectional methodology. The study was performed among the international students of the Grodno state medical university, Belarus. A simple random method was used for data collection, and the data was collected from October 12 to December 24, 2023, as an online Questionnaire that was distributed through various social media platforms. A descriptive study approach was chosen to evaluate the variables associated with gastritis among the international students of the Grodno State Medical University, Belarus. 211 students of the age group between 18-29 years participated in the survey.

The inclusion criteria of this study were mainly students of international students' faculty of Grodno State Medical University from first year to sixth year. Students who are native to the country were excluded from the study. The statistical tool that was used in the study was an Excel to analyze the data collected. In statistical analysis, both qualitative and quantitative data were considered.

RESULTS

In this cross-sectional study, 211 responses were collected and out of them 127 (60.1%) were female and 84 (39.9%) were male. The mean age of the participants in the survey was 23 years. Students from different years of study have participated in the survey.

Survey data was obtained on gastritis and lifestyle factors including stress, eating patterns, and smoking, was gathered. The descriptive frequency analysis showed out of 211 students, 30 students (14.2%) have experienced abdominal discomfort at least 2-3 times a week while other students have experienced once a week or no abdominal pain. According to the Visual Analogue Scale (VAS), 60 students (28.4%) have experienced mild abdominal pain, 64 students (30.3%) have experienced

moderate abdominal pain, 8 students (3.8%) have experienced severe abdominal pain and the remaining 79 students (37.4%) had no abdominal pain.

Table 1: Demographic data of the study.

Characteristic	N
Respondents	211
Mean age (years)	23
Sex	
Female	127
Male	84
Year of study	
1	29
2	19
3	36
4	38
5	67
6	22

Among the symptoms of gastritis, we have contemplated nausea and vomiting in our questionnaire, as a result, 56 students (26.5%) have experienced nausea and vomiting within the past month. Further, as a symptom, we have considered heartburn, with the outcome of 14 students (6.6%) having experienced symptoms of heartburn more often at a minimum of 2-3 times a week.

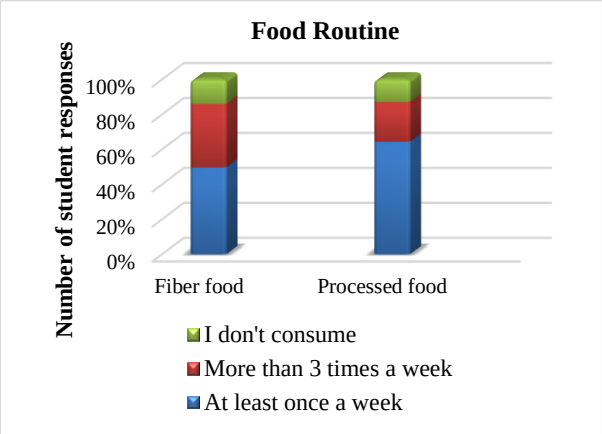

Figure 1: Eating habits influencing gastritis among students.

According to VAS, 41 students (19.4%) had mild heartburn, 43 students (20.3%) had moderate heartburn, 8 students (3.8%) had severe heartburn, and the rest students did not have any of such symptoms.

As for eating habits with regards to this study as shown in (Figure 1), a comparison with processed food and fiber food of the students, 48 students (22.7%) consume processed food more than 3 times a week, whereas 136 students (64.4%) eat processed at least once a week. When we consider the consumption of fiber food by the students, 107 students (50.7%) consume fiber food only once a week, 74 students (35%) consume fiber food at least 3 times a week, and 30 students (14.2%) consume no fiber food.

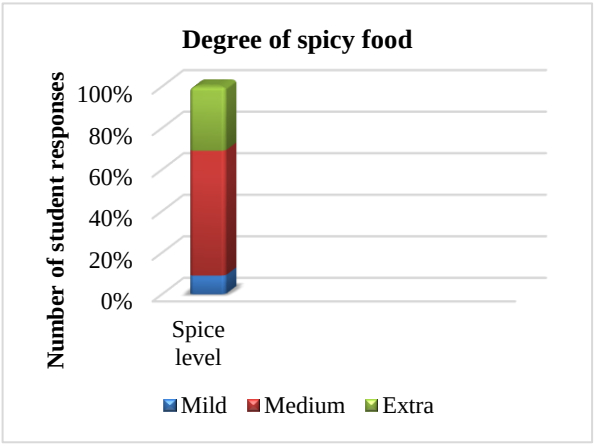

Figure 2: Level of spice in the food influencing gastritis among students.

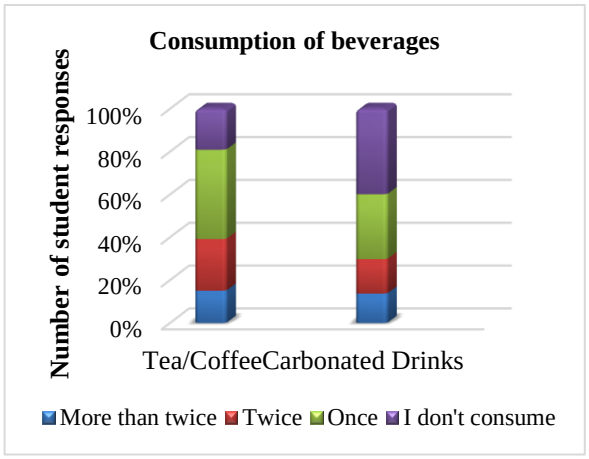

Figure 3: Consumption of beverages in the daily routine influencing gastritis among students.

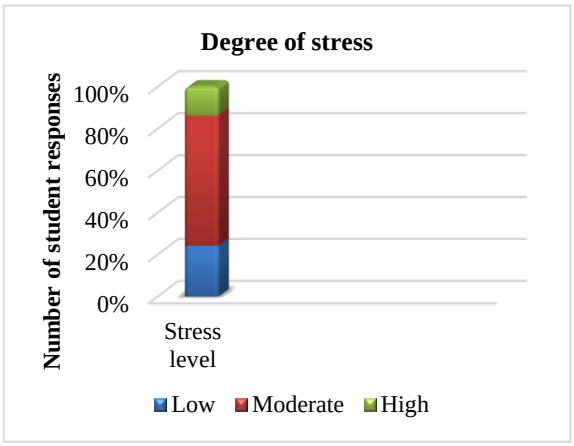

Figure 4: Level of stress influencing gastritis among students.

In Figure 2, it shows the use of spice level in their food, 19 students (9%) make use of a mild level of spice, and

with the majority using a medium level of spice of about 127 students (60.1%), along with 65 students (30.8%) has a high level of spice in their food. With regards to consumption of tea or coffee as shown in (Figure 3), 83 students (39.3%) consume twice or more than twice a day. Concerning consumption of carbonated drinks as shown in (Figure 3), 64 students (30.3%) consume soft drinks at least once a week while 63 students (29.8%) consume twice or more than twice a week.

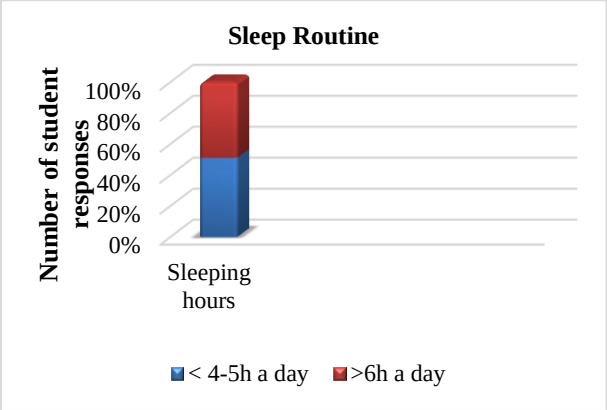

Figure 5: Sleeping hours influencing gastritis among students.

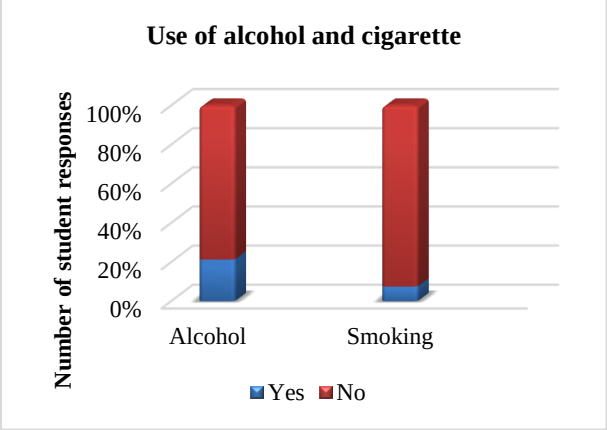

Figure 6: Use of alcohol and cigarettes influencing gastritis among students.

Regarding the administration or intake of medications, the survey's analysis revealed that out of 211 respondents, only 6 respondents (62.8%) have used medication such as NSAIDs. On a scale of 0-10, 51 students (24.2%) had a low stress level, 131 students (62%) had a moderate stress level, whereas 29 students (13.7%) had a high stress level. From (Figure 4), it was shown that over 160 respondents (75.8%) who participated in the survey were tense due to various reasons. Thus, there was a substantial correlation between stress and gastritis in the current study. Taking into consideration of sleeping habits, (Figure 5) shows that 108 students (51.1%) sleep less than 4 hours to 5 hours a day, and 103 students (48.8%) sleep more than 6 hours a day. In the survey as shown in (Figure 6), the concern regarding alcohol consumption and smoking was answered positively by 61 students (28.9%) out of 211 respondents.

DISCUSSION

Our study reveals that there is a strong relationship between the lifestyle of students and the occurrence of gastritis. The findings of this study indicate that 9%, 60.1%, and 30.8% have mild, medium, and high levels of spice in their food respectively. Thereby, the majority (more than 90%) of them were consuming their food at a considerable spicy level. Consuming spicy and irritant food like hot pepper appears to adversely affect the digestive tract and cause colitis and gastritis.[20] When it comes to eating habits, the frequency of processed food consumption was the highest of all in the survey. The consumption of processed food was 87.1% conversely, the consumption of fiber food was low. The link between diet and disease has become a growing amount of scrutiny in recent years, as well as greater awareness. Yet additional explanation is N-nitroso compound is produced by nitrates in processed foods and excessive salt consumption. Patients with gastritis are encouraged to amend their dietary habits; in particular, they should limit their intake of sweets, salty meals, meats, spicy foods, and fried foods.[21] This study shows that over 160 respondents (75.8%) who took part in the survey were tense for a range of reasons. Gastritis incidence and occurrence are strongly associated with stress.[22] Thus, there was a substantial correlation between stress and gastritis in the current study. Also, previous studies have shown that the majority of the patients experience ongoing anxiety as a result of being around stressors in life. These findings could be explained by psychological stress leading to stress-induced gastritis, which is caused by increased acid secretion originating in erosion development and chronic gastritis.[23,24]

In the gastrointestinal system, healthy circadian rhythm and sleep functions include the growth of intestinal stem cells, control of motility, digestion, absorption of proteins and carbohydrates, sustaining an electrolyte balance, preservation of the gut microbiota, and maintenance of the intestinal barrier. Pro-inflammatory cytokines associated with sleep problems enhance the fragility and unprotected of the stomach mucosa, which can result in gastritis.[25] Subsequently, 51.1% of the students in our survey slept for fewer than four to five hours daily. This particular study also discovered that coffee and carbonated beverage consumption seems to raise the risk of gastritis.

In contrast to fruit juices and tea, it seems that carbonated beverages may cause some possible physical stress.[26] Within the study 60.1% consumed carbonated drinks in contrast to tea/coffee accounted for 39.3%. In the survey, the concern regarding alcohol consumption and smoking was answered positively by 28.9% of the respondents.

However, smoking is one of the important factors influencing gastritis.[27]

Limitations

Limitations were; only 211 respondents were included in the present study. Future research with a larger sample size should be carried out to better examine detailed activity. Since this study was limited to one place, it may be expanded to an international scale in the future.

CONCLUSION

In current study, through the questionnaire among 211 students, we have considered different parameters and factors among the international students to observe the most common origin of gastritis. The results of this study collectively demonstrated that changing one's lifestyle can be the cause of gastritis. The incidence of gastritis among students was noticeable for the reasons of stress, changes in sleeping patterns, and consumption of processed food more than fiber food. It is due to balancing their lifestyle in a new environment and coping with academics. Non-availability of certain vegetables, fruits, and other products that they have been including in their diet since childhood. This can be another reason to switch to more processed food. Eventually, gastritis among them was also evidently due to the consumption of spicy food. In the study, out of 211 respondents, 160 respondents were stressed due to various reasons. There were very least of them who smoked and consumed alcohol. And also, only a few have used medications such as NSAIDs. So based on this, the study cannot include factors such as smoking, alcohol consumption, and administration of medications like NSAIDs for conclusion. However, our study relied on cross-sectional data, future research should examine longitudinal data to evaluate the various reasons why lifestyle modifications lead to gastritis.

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