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CHRONIC GASTRITIS AMONG STUDENTS: CAUSES AND COMPLICATIONS

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Annotation. The article examines students' awareness of the causes and complications of chronic gastritis, as well as the prevalence of risk factors, using a questionnaire survey. The study included 200 students from years 1 to 6. Gastritis had been diagnosed in 20% of respondents, but in only 60% of them was the diagnosis confirmed by an examination. At least one gastrointestinal symptom was reported by 76% of students, and 54% had not consulted a physician. Risk factors were widespread: stress (70%), skipping breakfast more than three times a week (48%), fast-food consumption (45%), and use of pain-relieving medications (65%). Of the students, 55% identified Helicobacter pylori infection as a cause of gastritis, while 35% named cancer risk and 22% named atrophic gastritis as complications. The results were compared with data from Uzbekistan and other countries, and the need to strengthen preventive efforts among students was substantiated.
Keywords: chronic gastritis, students, Helicobacter pylori, stress, dietary habits, NSAIDs, complications, prevention.

Abstract. This article investigates students' awareness of the causes and complications of chronic gastritis, as well as the prevalence of associated risk factors, using a questionnaire-based survey. The study involved 200 students from the 1st to the 6th year of study. Gastritis had been diagnosed in 20% of respondents; however, the diagnosis had been confirmed by medical examination in only 60% of these cases. At least one gastrointestinal symptom was reported by 76% of students, while 54% had not consulted a physician. Common risk factors included stress (70%), skipping breakfast more than three times a week (48%), fast-food consumption (45%), and the use of pain-relieving medications (65%). A total of 55% of students identified Helicobacter pylori infection as a cause of gastritis, while 35% identified cancer risk and 22% identified atrophic gastritis as potential complications. The findings were compared with data from Uzbekistan and other countries, highlighting the need to strengthen preventive measures and health education among university students.
Keywords: chronic gastritis, university students, Helicobacter pylori, stress, dietary habits, NSAIDs, complications, prevention.

Introduction

Gastritis is an inflammation of the gastric mucosa. If the inflammation persists, the disease becomes chronic, the mucosa gradually thins (atrophy), and changes resembling intestinal epithelium may develop. The main cause of chronic gastritis is Helicobacter pylori infection. In 1994, experts of the World Health Organization classified this microorganism as a Group 1 carcinogen for gastric cancer [1].

According to the most recent meta-analyses, in 2015–2022, 43.9% of adults and 35.1% of children and adolescents worldwide were infected with H. pylori; before 1990, this figure among

adults was 52.6% [2]. Another meta-analysis likewise recorded a decline from 58.2% in 1980–1990 to 43.1% in 2011–2022 [3]. In Uzbekistan, however, the situation is different: in the Fergana region, antibodies against H. pylori were found in 86% of healthy volunteers, and the region has been included among areas with a high level of infection [1].

Students are a group particularly susceptible to risk factors for gastritis. This is due to academic workload, nervous strain during examination periods, irregular eating, fast food, and self-medication with pain-relieving drugs. In a study of medical students in Indonesia, irregular eating, coffee consumption, and academic stress were significantly associated with gastritis [4], while among students in medical fields, stress was identified as the strongest risk factor [5].

An accurate diagnosis of chronic gastritis requires endoscopy and histological examination, and the disease often proceeds without symptoms. A student survey therefore does not make it possible to assess the true prevalence of the disease; rather, it allows assessment of risk factors, complaints, health-care-seeking behavior, and awareness of the disease.

Study aim: to examine risk factors and complaints related to chronic gastritis among students, their level of knowledge about its causes and complications, and to compare the results with studies from Uzbekistan and abroad.

Materials and Methods

An anonymous cross-sectional questionnaire survey was conducted. It involved 200 students from years 1 to 6. The questionnaire consisted of 13 closed-ended questions covering age and year of study; gastritis diagnosis and type of examination; eating pattern; skipping breakfast; consumption of spicy, fatty, and fast foods; stress over the past 3 months; use of NSAIDs (ibuprofen, aspirin, diclofenac); gastrointestinal symptoms and their recurrence; consultation with a physician; and knowledge of the causes and complications of gastritis. For symptoms, causes, and complications, multiple answers could be selected; therefore, percentages may sum to more than 100. The survey was conducted in the 2026–2027 academic year, with a total of 200 respondents. The study was carried out at Bukhara Innovative University of Education and Medicine.

Results and Discussion

Sample characteristics and diagnostic status

Half of the respondents were aged 18–20 years and 38% were aged 21–23; those aged 17 or younger accounted for 5%, and those aged 24 or older for 7%. The distribution by year of study was relatively even: 126 students (63%) were in years 1–3 and 74 students (37%) in years 4–6 (Table 1).

Table 1. Distribution of respondents by age and year of study (n = 200)

Age group	n	%
17 and younger	10	5
18–20 years	100	50
21–23 years	76	38
24 and older	14	7

Year of study	n	%
Year 1	40	20
Year 2	44	22
Year 3	42	21

Year 4	34	17
Year 5	22	11
Year 6	18	9

Gastritis had been diagnosed in 40 students (20%; 95% CI 15.0–26.1). Of these, the diagnosis was confirmed by examination in 24 (12%), and the type of examination was unknown in 16 (8%). No diagnosis had been made in 70%, and 10% did not know their status. A total of 54% (95% CI 47.1–60.8) had never consulted a physician, 18% had consulted a physician but gastritis was not detected, and 8% were undergoing examination (Table 2). The 20% figure cannot be taken as the true prevalence of the disease because it is based on students' self-reports.

Table 2. Gastritis diagnosis and physician consultation (n = 200)

Indicator	n	%
Diagnosis confirmed by examination	24	12
Diagnosed, type of examination unknown	16	8
No diagnosis	140	70
Does not know own status	20	10
Has not consulted a physician	108	54
Consulted a physician, gastritis not detected	36	18
Undergoing examination	16	8

Risk factors

Eating three meals a day was the most common pattern (43%). Of the students, 22% eat 1–2 meals per day and 15% eat 4 or more; 20% described their eating pattern as irregular. Skipping breakfast was widespread: only 20% of students almost never skip it, whereas 48% skip it 3 or more times a week. Spicy, fatty, fried, or fast foods are consumed daily by 12% of students, 3–5 times a week by 33%, and 1–2 times a week by 41%.

Stress was one of the most common factors. Over the past 3 months, 38% of students had experienced stress often and 32% almost every day, 70% in total; only 6% had hardly noticed any stress. Stress may alter gastric acid secretion and mucosal blood supply, increasing susceptibility to inflammation.

Drugs such as ibuprofen, aspirin, and diclofenac are not taken at all by 35% of students, are taken rarely by 40%, and a few times a month by 15%. Those taking them once a week or more often accounted for 5%, and another 5% took them regularly on a physician's recommendation. Overall, 65% of students had taken these drugs at least occasionally (Table 3). These drugs reduce the production of prostaglandins, which protect the mucosa; uncontrolled use therefore increases the risk of gastropathy and ulcers.

Table 3. Prevalence of the main risk factors (n = 200)

Risk factor	n	%	95% CI
Skips breakfast at least once a week	160	80	73.9–85.0
Skips breakfast 3 or more times a week	96	48	41.2–54.9
Eats spicy, fatty, or fast food 3 or more times a week	90	45	38.3–51.9
Experiences stress often or almost every day	140	70	63.3–75.9
Takes NSAIDs at least occasionally	130	65	58.2–71.3
Takes NSAIDs once a week or more often	10	5	2.7–9.0

Gastrointestinal symptoms

Of the students, 24% reported none of the gastrointestinal symptoms; thus 76% (95% CI 69.6–81.4) reported at least one symptom. The most common were bloating (46%), upper abdominal pain (42%), and heartburn (38%). Nausea was reported by 27%, loss of appetite by 18%, and vomiting by 8% (Figure 1).

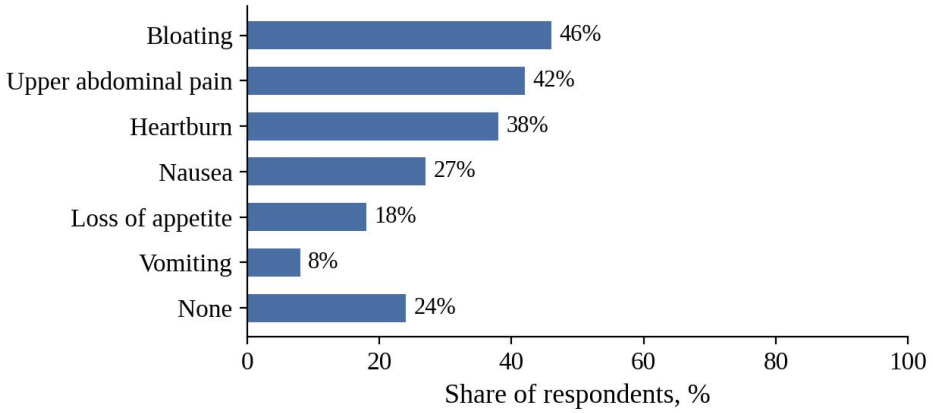


Figure 1. Prevalence of gastrointestinal symptoms

By frequency, symptoms occurred 1–3 times a month in 28% of students, 1–2 times a week in 27%, 3 or more times a week in 14%, and almost daily in 7%. Thus, 48% of students (96 respondents) experience symptoms at least once a week. Although these symptoms are characteristic of gastritis, they are not specific and also occur in functional dyspepsia. Complaints that are prolonged, or accompanied by loss of appetite and vomiting, therefore require endoscopic examination and H. pylori testing.

Awareness of causes and complications

Regarding the causes of gastritis, students most often named irregular eating (72%) and chronic stress (68%). H. pylori infection was named by 55% (95% CI 48.1–61.7), alcoholic beverages by 40%, NSAIDs by 32%, and autoimmune processes by 18%; 12% could not answer (Figure 2a). Awareness of H. pylori, the most important cause, is low relative to lifestyle factors. The proportion who recognized NSAIDs as a cause (32%) is considerably lower than the proportion who use them (65%).

Regarding complications, 65% of students named gastric ulcer, 42% gastrointestinal bleeding, 35% increased cancer risk, 30% iron or vitamin B12 deficiency, and 22% atrophic gastritis and mucosal changes. Of the students, 8% believed that gastritis causes no complications and 18% said they did not know. Thus, one in four students (26%; 95% CI 20.4–32.5) has no accurate

understanding of the complications (Figure 2b). The most serious long-term complications, namely atrophy and cancer risk, are the least recognized. In atrophic gastritis, reduced acid and intrinsic factor can lead to iron and vitamin B12 deficiency.

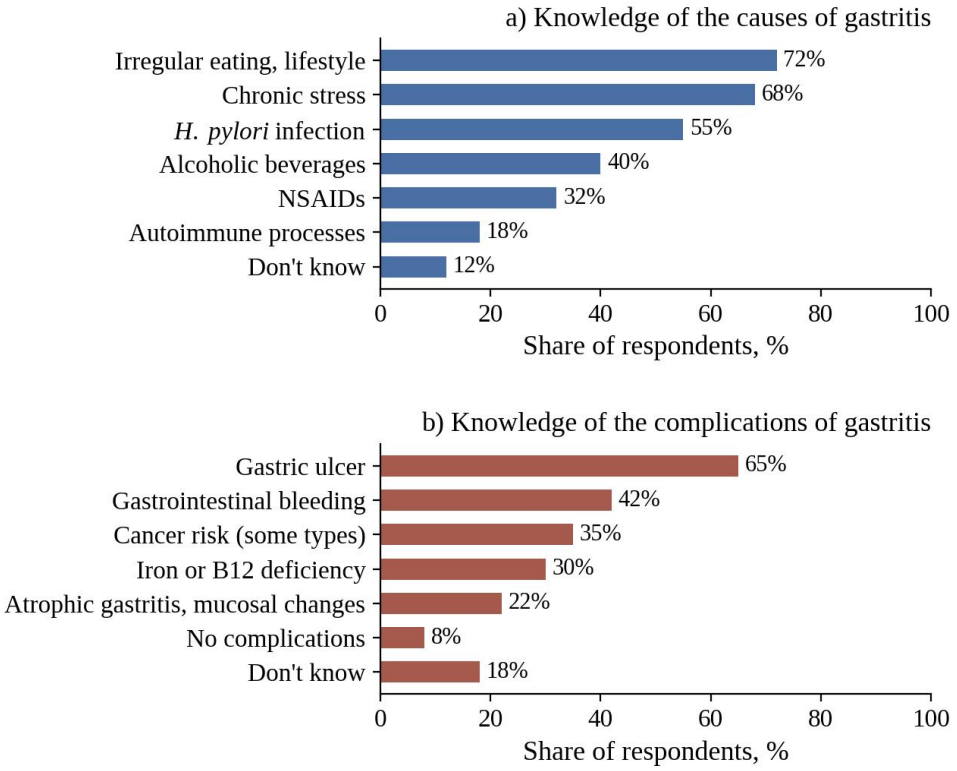


Figure 2. Knowledge of the causes (a) and complications (b) of gastritis

Comparison of the results with other studies

The comparison is presented in Table 4. Among medical students in Indonesia (n = 123), irregular eating was reported by 82.1% and academic stress by 79.7% [4]. Our results (skipping breakfast at least once a week, 80%; stress, 70%) are close to these. Because the questions were not identical, this comparison is approximate.

The difference in gastritis history is large: in the Indonesian study, 57.7% of students reported a history of gastritis [4], compared with 20% in ours (12% confirmed). Possible contributors include differences in the criteria used to assess responses, the composition of the sample (74.8% of which were women there), and diagnostic practice. Our questionnaire did not ask about sex, which should be taken into account in future studies.

Regarding the association between stress and gastritis, among students in medical fields stress was the strongest risk factor (OR = 11.78; 95% CI 3.72–37.29), and eating pattern was also significant (OR = 2.49) [5]. Our finding of a high prevalence of stress (70%) indicates that this factor is relevant for students. As for symptoms, the 76% figure can be compared with data on functional gastrointestinal disorders: in a study across 33 countries, at least one such disorder was identified in 40.3% of respondents in an internet survey and in 20.7% in a household survey [6]. It should be remembered that our figure reflects complaints rather than a diagnosis.

The global H. pylori prevalence is 43.9% among adults and 35.1% among children and adolescents [2], and 86% among healthy volunteers in the Fergana region [1]. The age of students falls between these two groups, so the level of infection among them is not precisely known. That

only 55% of our respondents recognized this infection as a cause of gastritis is low relative to its real importance.

Table 4. Comparison of the results with other studies

Indicator	Our result (n = 200)	Other studies	Source
Stress	70% (often or almost every day)	79.7% academic stress (Indonesia, medical students)	[4]
Irregular eating	80% skip breakfast at least once a week	82.1% irregular eating	[4]
Gastritis history	20% (confirmed 12%)	57.7%	[4]
Importance of stress	Not calculated	OR = 11.78 (nursing students)	[5]
Gastrointestinal symptoms	76% at least one symptom	40.3% and 20.7% functional disorders (33 countries)	[6]
H. pylori	Not tested	Worldwide 43.9% (adults), 35.1% (children); Fergana 86%	[1, 2]

Study limitations: the data are based on students' self-reports, the diagnosis was not confirmed clinically or histologically, and H. pylori testing was not performed; the cross-sectional design does not allow causal relationships to be established; and the sample is non-random and limited to 200 respondents.

Conclusions and Recommendations

Conclusions

Of the students surveyed, 76% reported at least one gastrointestinal symptom, and 48% experienced these symptoms at least once a week. For a group aged 18–23 years, which is considered relatively healthy, this is a high figure and shows that student health requires systematic attention.

Gastritis had been diagnosed in 20% of students, but only 12% had the diagnosis confirmed by examination. Of those diagnosed, 40% had no confirmatory examination or the type of examination was unknown, and 10% of students did not know their status at all. This increases the risk of self-medication and misdiagnosis.

Of the students, 54% had never consulted a physician, while 76% reported symptoms. A large share of complaints remains without medical assessment, which can lead to late detection of the disease.

Risk factors were widespread: stress (70%), skipping breakfast 3 or more times a week (48%), eating fast food and spicy, fatty food 3 or more times a week (45%), and taking pain-relieving drugs at least occasionally (65%). These figures are close to data from students abroad.

There are serious gaps in awareness: 55% of students identified H. pylori as a cause, 32% NSAIDs, and 18% autoimmune processes; 35% named cancer risk and 22% atrophic gastritis as complications, and one in four students has no accurate understanding of the complications.

The high prevalence of H. pylori in Uzbekistan, particularly in the Fergana region [1], provides grounds to suppose that infection may also be widespread among students. This can only be proven with a specific test.

Recommendations

For students. Eating three regular meals a day and not skipping breakfast are recommended, along with limiting spicy, fried, and fatty foods, fast food, and carbonated drinks, and giving up alcohol

and smoking. To reduce stress, it is helpful to get enough sleep, be physically active, plan time ahead of examinations, and consult a psychologist if necessary.

Regarding medications. Drugs such as ibuprofen, aspirin, and diclofenac should be taken only when necessary, after meals, and after consulting a physician or pharmacist. They must not be taken on an empty stomach or for a long period without supervision.

When to see a physician. If symptoms last several weeks or recur frequently, or if loss of appetite and weight, vomiting, black stools, or bloody vomit appear, a physician should be consulted without delay. In such cases, the diagnosis should be confirmed by examination.

For higher education institutions. It is advisable to strengthen the work of student health clinics and psychological support centers, conduct an annual screening questionnaire on gastrointestinal symptoms, allow sufficient breaks in class schedules for meals, expand healthy menus in canteens, and organize stress-reduction activities during examination periods.

Educational activities. Senior medical students should deliver lectures and seminars to junior students on the causes, complications, and prevention of gastritis, paying particular attention to the least-known topics, such as H. pylori, NSAIDs, and the possibility that atrophic gastritis leads to cancer.

For health-care practice. According to available data, the urea breath test has a sensitivity of 90–95% and a specificity of 95–98%, and is a simple, non-invasive method [8]. The detection and treatment of H. pylori should be carried out in accordance with the Maastricht VI consensus, at the physician's discretion [7]. It is important to monitor patients with atrophic gastritis over time and to provide protective measures for patients who must take NSAIDs.

For future research. It is recommended to increase the sample size and use random sampling, analyze data separately by sex and year of study, cross-tabulate responses (for example, stress and symptoms) to calculate measures of association, confirm findings clinically with H. pylori testing and endoscopy, and evaluate the effectiveness of an educational program using a control group.

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