Vol. 5 No. 2 (2026)

Pakistan Journal of Medical & Cardiological Review

https://pakjmcr.com/index.php/1/about

Online ISSN 3007-2387

Print ISSN 3007-2379

Khan et al., 2026

EVALUATE THE PREVALENCE AND ASSOCIATED RISK FACTORS OF GASTRITIS AT DERA ISMAIL KHAN

NaveedUllah Khan*
Lecturer at Kohat University of Science and Technology, KUST, Kohat. Corresponding Auhtor Email: naveed.bhai.9.com@gmail.com
Muddasir Khan
Boston College of Nursing and Allied Health Sciences. mk0722067@gmail.com
AsadUllah
Advance International Hospital, Islamabad. assadullahpmc2021@gmail.com
Amna Rauf
Lecturer at Kohat University of Science and Technology, KUST, Kohat. Boston College of Nursing and Allied Health Sciences. amnaktk227@gmail.com
Arbab Haroon
arbabemc0335@gmail.com
Muhammad Usman
Kohat University of Science and Technology, KUST, Kohat. muhammadusmanafridi946@gmail.com
Azeem Ullah
Kohat University of Science and Technology, KUST, Kohat. azeemktk7567@gmail.com
Saqib Nawaz
Kohat University of science and Technology, KUST, Kohat. saqibnawaz7576@gmail.com
Zain Ul Abideen*
Lecturer Cardiology, Abasyn University, Peshawar.
Email: zain.abideen@abasyn.edu.pk

Author Details

Received on 04 Jan, 2026

Accepted on 29 Jan, 2026

Published on 30 Jan, 2026

Corresponding E-mails & Authors*:
Zain Ul Abideen*
zain.abideen@abasyn.edu.pk

Abstract

Background: In 1728, German physician Georg Ernst Stahl first coined the term "gastritis". Italian anatomical pathologist Giovanni Battista Morgagni further described the qualities of gastric irritation. In 1859, British physician, William Brinton first describe regarding acute, subacute, and chronic gastritis. Gastritis is a health situation that means to irritation within the stomach. It creates when the gastric lining gets into narrow or damaged and it comes in get in touch with with hydrochloric acid secreted by the

stomach. **Objective:** To determine the prevalence of gastritis and its associated risk factors in population of Dera Ismail Khan At District head quarter (DHQ) D I Khan. **Method:** An observational Cross-Sectional Study. The study comprised 148 victims of gastritis presenting to the hospital like Hayat medical and surgical complex. Demographic information, the mechanism of injury, the mode of transportation, pre-hospital treatment, the clinical state upon arrival, emergency management, and patient outcomes were all gathered. The collected data was analyzed by using the logistic regression, Pearson correlation, and descriptive statistics. **Results:** Over the course of the six-month research, 148 patients in total were examined. There were 45 patients aged between 18 to 28years accounting 30.4% of the total. In 29 to 39years age group, there were 30 patients, which accounting for 20.2%. The 40 to 50yeras age group were 38 patients, accounting for 25.6%. Those aged 51 to 60years are 20 patients, or 13.5%. Finally, 15 patients are over 60 years old, making up 10% of the total. The survey asked patient they smoked. The total 148 patients, 46 (31%) said "Yes," while 102 (69%) said "No. Most patients did not smoke, and only about one-third was smokers. **Conclusion:** The most dominant patients were observed at the age group 8-28 years (30.4%) indicating a younger demographic is affected by gastritis. According to gender distribution the cases were found more in female 87 [58.70%] as compared to male 61 [41.20%]. According to marital status the cases were found more in [91] 61.4% of patients were married. According to education basis the cases were found more in 90 (60.8%) were educated.

Keywords: Risk factor, gastritis, lymphoma, H-pylori, amoxicillin, Smoking, PPI.

Introduction: In 1728, German physician Georg Ernst Stahl first coined the term "gastritis". Italian anatomical pathologist Giovanni Battista Morgagni further described the qualities of gastric irritation. In 1859, British physician, William Brinton first describe regarding acute, subacute, and chronic gastritis (1).Gastritis is a health situation that means to irritation within the stomach (2). It creates when the gastric lining gets into narrow or damaged and it comes in get in touch with with hydrochloric acid secreted by the stomach (3). Exposure of the gastric mucosa to noxious factors are frequently take place and its opposition to auto digestion by gastric secretion is significant and mostly given to the presence of mucus gel layer lining the inner surface and acting as tissue protective(4). Many compounds like prostaglandins (PG) and SH derivatives can make acute hemorrhagic erosions which can be prevented by the gastro defending mechanism as exerted in the lining mucous. The previous is referred to as difficult aqueous mixture of mucin, Electrolytes, Enzymes, bacterial products and scared cells (5).

Morphological Patterns

1.2.1 Acute Type

Acute gastritis is frequently induced by several agents like certain drugs, bile, Ischemia, viral, fungal, radiation acute stress (shock) and direct trauma. Alcohol consumption does not reason chronic gastritis, but it erodes though the mucosal lining of the stomach. While small doses of alcohol, not the higher one which stimulate hydrochloric acid secretion. Long intake of NSAID can induce an acute erosive gastritis, generally due to injury and reduced prostaglandin synthesis. Duodenum gastric bile reflux, long NSAID intake are causal factors for immediate or chemical gastritis (porosity). Symptoms of the final are many like cellular irritation of gastric shell associated with vasodilatation, congestion of gastric lamina propria, inflammatory cells and edema (7).

Chronic type: Chronic gastritis is the determined and commonly progressive inflammation of the mucosa of the stomach that able to be induced by either infectious (such as *H. pylori,* herpes virus, or cytomegalovirus) or noninfectious (such as NSAIDs, autoimmune gastritis, chemotherapy, or uremic gastropathy) condition (10). Prevalence of chronic gastritis has markedly declined in the developed world in recent decades but still remains an important cause of morbidity because long-term gastric inflammation can result in the development of peptic ulcer disease (PUD). Chronic gastritis can also lead to atrophic gastritis and gastric intestinal metaplasia (GIM), which are associated with mucosal dysfunctions and deficient absorption of essential vitamins, (vitamin B12) and micronutrients, such as iron, calcium, magnesium, and zinc. Both atrophic gastritis and GIM are considered precancerous conditions due to their strong association with gastric can(11).

Symptoms: Symptoms include abdominal pain, bloating, nausea, vomiting, and a feeling of fullness or Volume discomfort in the upper abdomen. Other symptoms may include loss of appetite, indigestion, and black or tarry stools (2).

Etiology o Gastritis: Common causes of gastritis are many like continued intake of alcoholic beverages or long intake of non-steroidal anti-inflammatory drugs (NSAIDS), Aspirin for Rheumatoid and Osteoarthritis patients(6). while Stress, chronic bile reflux, autoimmune disorders and HP infection are causal for chronic gastritis(6) . Gastritis can also be caused by the presence of a specific bacteria called Helicobacter pylori, which is responsible for more than half of all cases of gastritis(2).

Helicobacter pylori: Helicobacter pylori (H. pylori) is a spiral-shaped microaerophilic gram-negative bacterium(12). It is helix-shaped, which is thought to have evolved to penetrate the mucous lining of the stomach(13). Helicobacter pylori (HP) infection is the most common chronic infection in humans: it is detected worldwide in all age subgroups(14). presenting a prevalence of approximately 50% of the global

population(15). It is also one of the main causative agents for gastritis and peptic ulcer disease and has been classified as a definite Class 1 carcinogen by the International Agency for Research on Cancer (IARC), due to its oncogenic role in gastric adenocarcinoma and MALT lymphoma (16). Known risk factors include poor socioeco nomic status and living conditions, especially at a young age (17). At least half the world's population is infected by this bacterium, making it the most widespread infection in the world, especially in the developing world, where rates are estimated to be around 80% (18). H. pylori infection is an important global infection with a worldwide prevalence of about 50 % (19). This infection is mostly through the fecal-oral and oral-oral routes (20). Early infection with this bacterium is usually silent, but symptoms and pathologic changes occur later in life. The clinical conditions and pathologic changes associated with H. pylori infection include gastritis, gastric and duodenal ulcers, gastric cancers, iron deficiency anemia, and idiopathic thrombocytopenic purpura (ITP) (20).H. pylori infection shows a variety of geographic distribution on both local communities and large global scales. These variations are mostly due to socioeconomically driven factors such as sex, age, genetic tendency, ethnicity, level of education, and sanitation, which decide the rate and prevalence of this worldwide infection (21).Helicobacter pylorus is known to be a major cause of gastric cancer development and may contribute to extra- gastric organ disease. Previous large-scale prospective cohort studies have shown that H. pylori is a definite risk factor for gastric cancer, and it is widely recognized that atrophic gastritis (AG) associated with progression of H. pylori -related gastritis significantly increases the risk of cancer (21). In recent years, it has also been shown that decreased gastric acid secretion evaluated by pepsinogen (PG) is associated with colorectal carcinogenesis (22). The prevalence of H. pylori has been reported to vary by race and country (23).

Routs of Transmission: The spread of H. pylori can occur directly from one person to another person or indirectly from an infected person to the environment. Moreover, H. pylori DNA have been detected in human feces, saliva, and supragingival plaque, suggesting a fecal oral and oral-oral route of transmission. High-pressure profession, water supplies, smoking, and dietary habits have been associated with a higher risk of H. pylori acquisition. It has also been suggested that gut micro biota may contribute to interfamilial transmission of H. pylori(26).

Prevalence: Gastritis still remains a social and public health problem both in developed and developing countries(27). Although nearly 50% of the population is infected with *H. pylori* worldwide, the prevalence, incidence, age distribution and sequels of infection are significantly different in developed and developing countries(28).

Diagnosis

Several methods are available to test for H. pylori infection. Breath test, Blood tests, Stool test and Biopsy (9)Serological testing(31).and Culture (32) Upper-GI endoscopy Endoscopy(13)

Breath test: Up to 2 weeks before doing the test intake of antibiotics, bismuth medicines such as Pepto-Bismol and proton pump inhibitors (PPIs) must be stopped(9). During the test, a special substance like radioactive urea (harmless) is given(33). If H. pylori are present, the bacteria convert the urea into carbon dioxide, which is detected and recorded in exhaled breath after 10 minutes. This test can identify almost all people who have H. pylori and to trace the treatment of the infection(6).

Blood tests: Blood tests are used her to measure antibodies to H. pylori and not the current infection where the test can be positive for years even if the infection is cured (34).

Stool test: A stool test can detect traces of H. pylori in the feces in turn it is a diagnostic tool for the infection and confirm the treatment success (35).

Biopsy: Biopsy taken through endoscopy from the stomach lining is the most accurate way to confirm H. pylori infection and recommended also to diagnose dyspepsia. Testing for H. pylori without endoscopy is done only when the indigestion is new, the person is younger than 55, and there are no other symptoms(36). However Congenital PCR and multiple Genetic analysis system (MGAS) could be a potential alternative method for clinical detection and to monitor the effectiveness of HP therapy (6).

Serological testing: Serological testing of IgG and IgA antibodies against *H. pylori* in blood, urine or saliva is not for clinical purposes(31).

Endoscopy: Endoscopy is an accurate test for diagnosing the infection as well as the inflammation and ulcers. Endoscopy also allows the determination of the severity of gastritis with biopsies as well as the presence of ulcers, MALT lymphoma and cancer. Biopsies may also be cultured in the bacteriology laboratory for the presence of Helicobacter pylori.(13).

Treatment of Gastritis: Generally it is recommended to use a combination of antibiotics with metronidazole for 10-14 days (37). Proton pump inhibitors like omeprazole are also recommended to decrease gastric acid production and facilitate quick healing(38). Randomized clinical trial for HP gastritis patients using lansoprazole in combination with clarithromycin, amoxicillin, jinghuaweikang gelatin pearl for 10 days followed by additional 14 days using the gelatin pearl alone showed symptomatic improvement dealing with epigastric pain, bloating and belching (39). Histamine blockers (H-2) are

also recommended like ranitidine and cimetidine additionally antacid although side effects of the latter must be taken in consideration(6).

Problems statement: Gastritis is a common stomach condition that affects many people around the world. However, there is not much research on how often it occurs and what causes it in specific areas of Pakistan, like Dera Ismail Khan. This lack of local information makes it hard to understand how serious the problem is and to create effective prevention and treatment plans for the community. Without this data, healthcare providers and policymakers struggle to tackle this health issue. This study aims to find out how common gastritis is and what risk factors are linked to it in Dera Ismail Khan, helping to fill this important knowledge gap and support future health initiatives.

Significant; Gastritis is a common yet often underreported health issue, especially among the rural and citizen populations of Pakistan. In Dera Ismail Khan, there is a lack of specific data regarding the prevalence and risk factors of gastritis among non-urban residents. This study is significant because it focuses on the local citizen population, who may have limited access to healthcare and are more exposed to risk factors such as poor diet, self-medication, contaminated water, and lack of awareness. By identifying the prevalence and major contributing factors of gastritis in this population, the study will help healthcare providers and public health officials develop focused interventions, educational programs, and preventive strategies tailored to rural community needs. The results will also help bridge the gap in regional health data and support efforts to improve healthcare delivery in underserved areas.

Aims And Objective

To determine the prevalence of gastritis and its associated risk factors in population of Dera Ismail Khan.

METHOD AND MATERIALS

Study Design

Our study an observational Cross-Sectional Study design

Study Setting

Our study conducted at Hayat Medical and Surgical Complex Dera Ismail Khan. Hayat Medical and Surgical Complex have several beds to accommodate patients, including facilities for emergency care. The complex offers a range of specialties; including general medicine, surgery, pediatrics; obstetrics and this hospital have 24 hours' service.

Study Duration

The duration of study 6 months. 1 month has making synopsis after approval of synopsis 2 months have date collection, 1month have date analysis and 2 months have thesis writing.

Sample Size

Our study population the people living in District Dera Ismail Khan.
Using Raosoft calculator
Margin of error; 5%
Confidence level; 95%
Population size; 240
Simple Size; 148

Sampling Technique

Convenient sampling technique used.

Selection Criteria:

Inclusion Criteria

- Adults (⩾18 years)
- Willingness to participate
- Only citizen Dera Ismail khan people are involed
- Participants who can understand and communicate in the language of the studied

Exclusion Criteria;

- Previous gastric surgery
- Below 18 years
- Without confirmed gastritis diagnosis.
- Pregnant or breastfeeding women
- Severe mental or physical illness

RESULT

Over the course of the six-month research, 148 patients in total were examined.

Patients demographic details

Age Basis

The data indicates the age distribution of total 148 patients. There were 45 patients aged between 18 to 28years accounting 30.4% of the total. In 29 to 39years age group, there were 30 patients, which accounting for 20.2%. The 40 to 50yeras age group were 38 patients, accounting for 25.6%. Those aged 51 to 60years are 20 patients, or 13.5%. Finally, 15 patients are over 60 years old, making up 10% of the total. It can show in table and figure 4.1.1 in the following.

Table 4.1.1: *This table shows the patients determine various age groups*

S.No	Variable	Frequency	Percentage
1	18- 28 years	45	30.4 %
2	29- 39 years	30	20.2%

3	40 -50 years	38	25.6%
4	51-60 years	20	13.5%
5	>60 years	15	10%
Total		148	100

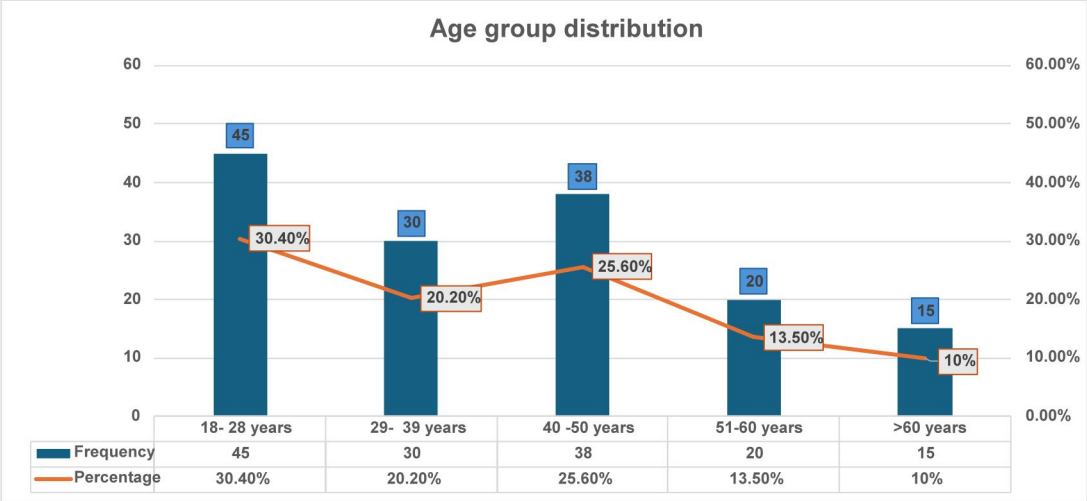

Figure 4.1.1 Determine various age groups

4.1.2 Gender Basis

The gender distribution of the patients. The total 148 patients, in which 61patients were male, accounting for 41.20% and 87 patients were female, accounting 58.70%. It revealed in the following table and figure 4.1.2

Table 4.1.2: *Patients distribution on Gender basis*

S.No	Variable	Frequency	Percentage
1	Male	61	41.20%
2	Female	87	58.70%
Total		148	100

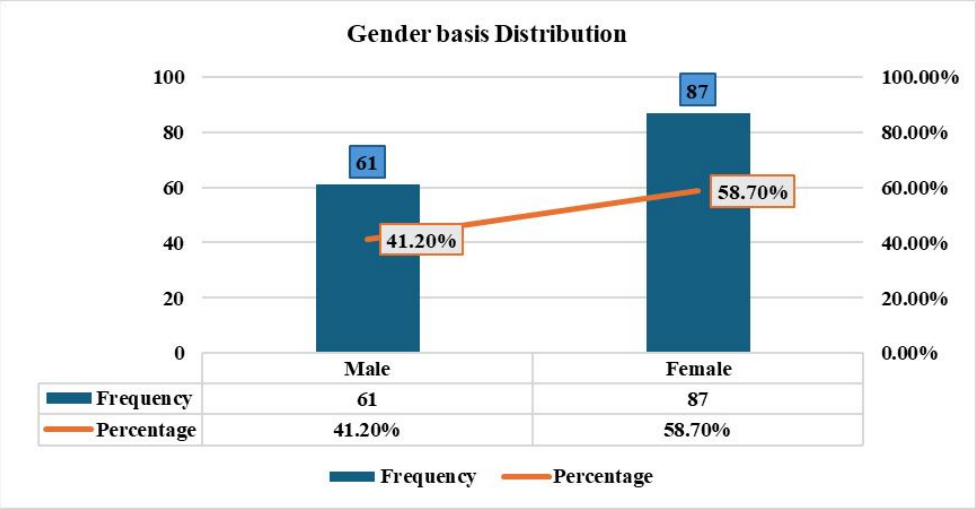

Figure 4.1.2: Patients distribution on Genders basis.

Education Basis

The study included a total of 148 people. Among them, 90 patients were educated. It accounting for 60.8%. The remaining of the patients were uneducated. There were 58 uneducated patients in the study. It accounting for 39.1% Overall, more patients were educated than uneducated. It shown in the following tablet and figure4.14

Table 4.1.4: *This table shows the patients education status*

S.No	Variable	Frequency	Percentage
1	Educated	90	60.8%
2	Uneducated	58	39.1%
Total		148	100

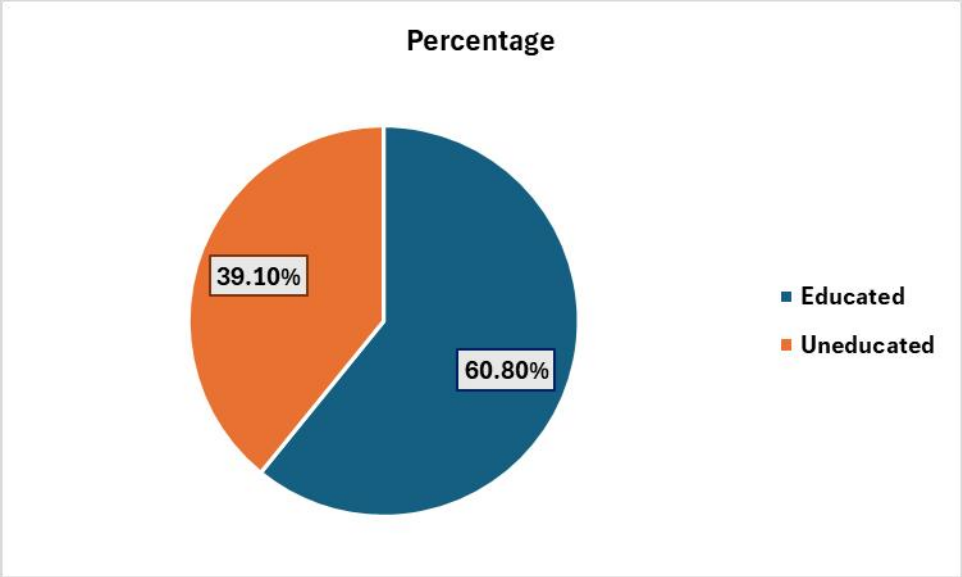

Figure 4.1.4: Patients distribution on education basis

Table 4.2: *QUESTIONAIRE*

S.#	Question	Response	Frequency	Percentage
4.21	Do you currently smoke?	Yes	46	31.00%
		No	102	69.00%
4.2.2	How often do you consume spicy food?	Yes	109	73.6%
		No	39	26.3%
4.2.3	Do you usually consume caffeine (coffee, tea)?	Yes	67	45.2%
		No	81	54.7%
4.2.4	Do you using chewing snuff?	Yes	41	27.7%
		No	107	72.2%
4.2.5	How you suffered from H. Pylori?	Yes	83	56.o%
		No	65	43.9%

1. The survey asked patient they smoked. The total 148 patients, 46 (31%) said "Yes," while 102 (69%) said "No. Most patients did not smoke, and only about one-third was smokers. The results showed that smoking was less common among the patients.

2. The survey asked how to patients consumed spicy food. The totals were 148 patients, 109 said "Yes," accounting for 73.6%. The remaining 39 patients answered "No," accounting for 26.3%. Most patients reported eating spicy food regularly.

3. The survey asked how to patients consumed caffeine, such as coffee o\r tea. The total patients 148 patients, 67 said "Yes," accounting for 45.2%. The 81 patients

answered "No," accounting for 54.7%. More patients reported not consuming caffeine regularly.

4. The survey asked patients about they used chewing snuff. Total 148 patients, 41 said "Yes," accounting for 27.7%. . 107 patients answered "No," accounting for 72.2%. Most patients did not use chewing snuff.

Discussion

Gastritis is a disease which results from an inflammation of the gastric mucosa. Gastritis still remains a social and public health problem both in developed and developing countries .It is an underlying cause affecting individuals' socioeconomic status, health behaviors, and living standards such as lifestyles, living conditions, behaviors, and habits (27).

Demographic Detail

The study focused on the patients' sociodemographic characteristics. Mahmoud SS and colleagues conducted a study in 2016 with 400 gastritis patients in Jazan, KSA.'it tital was that Prevalence and Predictors of Gastritis among Patients Attending Health Care Facilities in Jazan, KSA. It was a cross-sectional study done in four hospitals. Researchers used a self-administered questionnaire to get information. Most of the patients were female, with 255 (63.8%), while 145 (36.2%) were male. In our current study titled Evaluate the Prevalence and Associated Risk Factors of Gastritis at Dera Ismail Khan; we examined 148 patients with gastritis. We found that 61 patients (41.20%) were male and 87 patients (58.70%) were female. The study was conducted at Hayat Medical and Surgical Complex using a cross-sectional design. We used a demographic questionnaire to gather relevant data.

Wang et al. conducted a study in 2019 in China titled Assessment of Prevalence and Risk Factors of Helicobacter pylori Infection in an Oilfield Community in Hebei. The study included 4,796 participants, with 4,140 (86.3%) being married and 656 (13.7%) unmarried. It was a cross-sectional study conducted in the Jidong community. Researchers used questionnaires to collect data on participants' sociodemographic profiles and socioeconomic factors. In our current study titled Evaluate the Prevalence and Associated Risk Factors of Gastritis at Dera Ismail Khan, we analyzed 148 patients with gastritis. Among them, 91 patients (61.4%) were married, while 57 patients (38.5%) were unmarried. The study was conducted at Hayat Medical and Surgical Complex using a cross-sectional design. We employed a demographic questionnaire to gather relevant information.

Conclusion

1. The most dominant patients were observed at the age group 8-28 years (30.4%) indicating a younger demographic is affected by gastritis.
2. According to gender distribution the cases were found more in female 87 [58.70%] as compared to male 61 [41.20%] .
3 According to marital status the cases were found more in [91] 61.4% of patients were married.
4. According to education basis the cases were found more in 90 (60.8%) were educated.
5. Approximately 46 [31%] of patients reported smoking
6. The patients consumed spicy food regularly, 109 [73.6%].
7. The patients reported caffeine consumption about 67 [45.2%].
8. The patients used chewing snuff 41 [27.7%].
9. More than half of the patients 83 (56.0%) were found to suffer from H. pylori

Recommendations

1. Improved the awareness about gastritis.
2. Regular examining for H. pylori, which is the most important estimate of gastritis.
3. Increasing the awareness regarding NSAIDS and their side effects.
4. Regularly checking g for those with positive family history of gastritis for early case finding.
5. Dietary habits change.

Limitation

Our study may have limitations due to a small sample size. The study was carried out in one location, which might not be represents of the larger population, making it difficult to be relevant the results. Our knowledge of gastritis may be limited by additional risk variables that were not covered in the study.

References

1. Szabo IL, Czimmer J, Mozsik G. Diagnosis of Gastritis–Review from Early Pathological Evaluation to Present Day Management. Current Topics in Gastritis. 2012;19.
2. Rimshy Sherin C, Bushaira V. A STUDY ON THE RISK FACTORS AND FOOD HABITS IN GASTRITIS PATIENTS. "Star Research Reach," a multi-disciplinary, peer reviewed international journal publishes the latest research and review articles The journal possesses an International Standard Serial Number, ISSN 0975-5101 Journal offers opportunity to the research scholars, faculty members and students to publish their research articles This issue deals with articles from Home Science and Zoology, This is.24.

3. Firdous J, Hidayah N, Latif N, Muhamad N, Nurhidayah N, Syaz D. A descriptive study on lifestyle factors influencing gastritis among university students of UniKL RCMP in Malaysia. Indian Journal of Natural Sciences[Internet]. 2016.
4. Szabo S, Trier JS, Frankel PW. Sulfhydryl compounds may mediate gastric cytoprotection. Science. 1981;214(4517):200-2.
5. Hotta K. 不思議な物質“胃粘液”への興味と関わり. Trends in Glycoscience and Glycotechnology. 2000;12(63):59-68.
6. Elseweidy M. Brief review on the causes, diagnosis and therapeutic treatment of gastritis disease. Altern Integr Med. 2017;6(1):1-6.
7. Voutilainen M, Juhola M, Färkkilä M, Sipponen P. Foveolar hyperplasia at the gastric cardia: prevalence and associations. Journal of clinical pathology. 2002;55(5):352-4.
8. Tonino P. Gastritis and Gastric Cancer: New Insights in Gastroprotection, Diagnosis and Treatments: BoD–Books on Demand; 2011.
9. Elseweidy M. Brief Review on the Causes, Diagnosis and Therapeutic Treatment of Gastritis Disease. Alternative and Integrative Medicine. 2017; 6: 1.
10. Falkeis-Veits C, Vieth M. Non-malignant Helicobacter pylori-associated diseases. Helicobacter pylori in Human Diseases: Advances in Microbiology, Infectious Diseases and Public Health Volume 11. 2019:121-34.
11. Buzas GM. Benign and malignant gastroduodenal diseases associated with Helicobacter pylori: a narrative review and personal remarks in 2018. Minerva Gastroenterologica e Dietologica. 2018;64(3):280-96.
12. Wang Y, Lin T, Shang S, Chen H, Kao C, Wu C, et al. Helicobacter pylori infection increases the risk of adult-onset asthma: a nationwide cohort study. European Journal of Clinical Microbiology & Infectious Diseases. 2017;36(9):1587-94.
13. Diaconu S, Predescu A, Moldoveanu A, Pop C, Fierbințeanu-Braticevici C. Helicobacter pylori infection: old and new. Journal of medicine and life. 2017;10(2):112.
14. Zamani M, Ebrahimtabar F, Zamani V, Miller W, Alizadeh-Navaei R, Shokri-Shirvani J, et al. Systematic review with meta-analysis: the worldwide prevalence of Helicobacter pylori infection. Alimentary pharmacology & therapeutics. 2018;47(7):868-76.
15. Hooi JK, Lai WY, Ng WK, Suen MM, Underwood FE, Tanyingoh D, et al. Global prevalence of Helicobacter pylori infection: systematic review and meta-analysis. Gastroenterology. 2017;153(2):420-9.

16. Bouvard V, Baan R, Straif K, Grosse Y, Secretan B, El Ghissassi F, et al. A review of human carcinogens—Part B: biological agents. The lancet oncology. 2009;10(4):321-2.
17. Zajacova A, Dowd JB, Aiello AE. Socioeconomic and race/ethnic patterns in persistent infection burden among US adults. Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences. 2009;64(2):272-9.
18. Porras C, Nodora J, Sexton R, Ferreccio C, Jimenez S, Dominguez RL, et al. Epidemiology of Helicobacter pylori infection in six Latin American countries (SWOG Trial S0701). Cancer Causes & Control. 2013;24:209-15.
19. Gravina AG, Zagari RM, De Musis C, Romano L, Loguercio C, Romano M. Helicobacter pylori and extragastric diseases: A review. World journal of gastroenterology. 2018;24(29):3204.
20. Malaty HM, El-Kasabany A, Graham DY, Miller CC, Reddy SG, Srinivasan SR, et al. Age at acquisition of Helicobacter pylori infection: a follow-up study from infancy to adulthood. The Lancet. 2002;359(9310):931-5.