



Research Article

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Prevalence and Risk Factors of Gastritis in Shahdara and Associated Areas

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ABSTRACT: *Gastritis is a painful condition in which the inside surface of the stomach becomes inflamed. The study was conducted from December 2019 to March 2020 on 400 patients. The purpose was to investigate the prevalence of gastritis and its risk factors in local population. The subjects were selected randomly. The questionnaires were filled by them. The questions included the demographical information and contributing factors of gastritis. The result showed that the prevalence of gastritis was 73.5%. Among 294 patients, the prevalence of gastritis in females (65.98%) was higher than in males (34.01%). The mean age of the population was 38.8years \pm 0.65, the mean height was 160.9cm \pm 0.74 for females and 163.47 \pm 0.83 for males, the mean weight was 67.39Kg \pm 1.0 for females and 69.04 \pm 1.03 for males and the mean BMI was 25.98Kg/m² \pm 0.35 and 25.87Kg/m² \pm 0.37 for females and males respectively. It was found that there was a significant association between gastritis and contributing risk factors like psychological stress, history of frequent intake of anti-inflammatory drugs, smoking, eating spicy foods, oily foods, taking soft drinks and tea. The common symptoms were heart burning, the bad taste of the mouth, abdominal bloating, indigestion and swelling in the stomach. This study reported high prevalence of gastritis in Shahdara and its associated area. As its prevalence is increasing day by day in Pakistan. Therefore, it is important to investigate prevalence of gastritis as well as its associated risk factors at larger scale to overcome it.*

Keywords: *Gastritis, H. pylori, Risk factors, Symptoms. Prevalence*

INTRODUCTION

The term "gastritis" refers typically to inflammation, erosive state to the abdomen lining tissue with severe pain. It can be acute, lasting for a short duration (1-2 days), or chronic, which develops slowly (Mahmoud et al., 2016). Chronic gastritis is one of the most common lifelong, serious, and insidious illnesses in human beings. More than half of the world's population is affected by this disease (Sipponen and Maaroos, 2015).

Gastritis caused by *Helicobacter pylori* (*H. pylori*), Gram-negative bacteria that colonize the human gastric epithelium (Mujawar et al., 2015) and the risk factors includes alcohol consumption, long intake of drugs (NSAIDs), (Kasper et al., 2006; Varbanova et al., 2014) smoking, tobacco use, spicy food, oily food, stress, swallowed foreign bodies, and infections which leads to excessive inflammation, irritation of mucous membrane and excessive gastric secretion that rupture and inflame the stomach mucosal lining (Nagaraju et al., 2013).

According to traditional classification, *H. pylori* infection can be diagnosed by noninvasive tests such as *H. pylori* antigen in stool specimen, UBT (Urea Breath Test), serology, and invasive tests such as PCR (polymerase chain reaction), culture, and histology (Wang et al., 2013; McMahon et al., 2016). Within developed nations, prevalence rates of *H. pylori* infection among children have been

shown to range from as low as 1.8% to as high as 65% (Okuda et al., 2015). While in developing countries the prevalence is generally higher reaching up to 90% in some countries (Ozbey et al., 2015). The countries with the highest HP burden were Nigeria (83.1%-92.2%), Portugal (84.9%-87.9%), Estonia (75.1%-90.0) %, Kazakhstan (74.9%-84.2%), and Pakistan (75.6%-86.4%) (Hooi et al., 2017).

Gastritis is now becoming a high risk both in developed and developing countries, and the problem seems to rise at a remarkable rate both in children and adults. The present study was conducted to identify the prevalence of gastritis, its risk factors and associated symptoms of gastritis that are prevalent in the population of Shahdara.

MATERIALS AND METHODS

To evaluate the prevalence of gastritis and its contributing factor a random sample of 400 people of different age groups were collected. The study was approved from the ethical committee of Zoology Department of Lahore College for Woman University, Lahore. A cross-sectional study was conducted from December 2019 to March 2020. Data was collected by visiting the Shahdara Teaching Hospital and subjects were enrolled in the study after getting their written consent.

Semi-structured questionnaires were used to obtain the following information:

1. Demographic data including name, age, gender, height, weight, smoking and material status.
2. Information about the patient's medical history included stress and regular use of pain relievers (NSAIDs).
3. Information regarding the use of tea, spicy and oily foods, and soda bottles.
4. Contributing symptoms like bad taste, heartburn, vomiting, abdominal bloating and stomach ache, indigestion, constipation, loss of weight, feel swelling in the stomach.

They were asked to assess the items for clarity and straightforwardness. The questionnaire was developed in Urdu as this language is more accessible to volunteers. Standing height was measured using the height measuring tape in the feet. Weight was measured by using the measuring device weight machine. Quantitative Analysis that is BMI of male

and female of different age groups was calculated using height in meter squared (m^2) and weight in kilograms (kg). The BMI is calculated by using the formula.

$$BMI (kg/m^2) = \text{weight (kg)} / \text{height (m}^2\text{)}$$

Data were transferred to a Microsoft Excel spreadsheet (Microsoft Corp., Redmond, WA, USA) for analysis. Using SPSS 23.0 statistical software, the mean and standard error of the mean was found out for age, height, weight and BMI. The frequency of all risk factors was calculated through SPSS 23.0 and Chi-square test was applied on categorical data to find statistical difference.

RESULTS AND DISCUSSION

The 400 patients were enrolled in this study. 294 patients of the population were affected with gastritis and 106 were not suffering from gastritis. Prevalence of gastritis was 73.5% among the population and the prevalence of gastritis in females (65.98%) was higher than in males (34.01%) as shown in Table 1.

Tale 1: Prevalence of Gastritis in Studied Population

Sr. No.	Prevalence	Total no N=400 (%)	Female n(%)	Male n(%)
1	Gastritis	294 (73.5%)	194 (65.98%)	100 (34.01%)
2	Not suffering from Gastritis	106 (26.5%)	35 (33.01%)	71 (66.98%)

There were 400 patients included in the analysis 229 (57.3%) were females and 171 (42.8%) were males. The mean age of the population studied was 37.6

years ± 0.86 for females and 40.42 years ± 0.97 for males, the height was 160.9 ± 0.74 for female and 163.47 ± 0.83 for males, the mean weight was 67.39Kg ± 1.0

for females and 69.04 ± 1.03 for males and the mean BMI was $25.98 \text{Kg/m}^2 \pm 0.35$ and $25.87 \text{Kg/m}^2 \pm 0.37$ for females and males respectively as shown in Table 2.

Table 2: Demographical Data of Studied Population

Sr. No.	Total Patients N=400	Female (n=229)	Male (n=171)
		Mean \pm S.E.M.	Mean \pm S.E.M.
1	Age (years)	37.6 ± 0.86	40.42 ± 0.97
2	Height(cm)	160.9 ± 0.74	163.47 ± 0.83
3	Weight (Kg)	67.39 ± 1.0	69.04 ± 1.03
4	BMI (Kg/m^2)	25.98 ± 0.35	25.87 ± 0.37

It was observed that 63% and 13.25% of the studied sample have psychological stress and a history of frequent NSAIDs intake. In analysis of overall population dietary habits 54.75% took oily food, 60.25 took spicy food, 58.75% took tea, and 32.50% took soft drinks regularly and 14.75% were a frequent smoker.

In overall population frequency distribution in associated symptoms were;

71% of the people felt acidity or heart burning, 62% felt bad taste of mouth, 24.50% have vomiting problem, 65.25% have abdominal bloating, 45.75% felt stomach ache, 48.75% complained the problem of constipation, 54.50% felt swelling in the stomach and 62.50% felt indigestion after the meal as shown in Table 3.

Table 3: Distribution of the Studied Sample According to the Risk Factors

Sr. No	Risk Factors	Frequency of total Population N=400			
		Yes	Yes %	No	No %
1.	Feel Stress or tension	252	63.00	148	37.00
2.	Take NSAIDs	53	13.25	347	86.75
3.	Eating oily food regularly	219	54.75%	181	45.25%
4.	Eating spicy food regularly	241	60.25%	159	39.75%
5.	Taking tea regularly	235	58.75%	165	41.25%
6.	Using soft drinks	130	32.50%	270	67.50%
7.	Smoking regularly	59	14.75%	341	85.25%
8.	Feel acidity or heart burning	284	71.00	116	29.00
9.	The bad taste of the mouth	248	62.00	152	38.00
10.	Vomiting	98	24.50	302	75.50
11.	Abdominal bloating	261	65.25	139	34.75
12.	Stomach ache	183	45.75	217	54.25
13.	Constipation	195	48.75	205	51.25
14.	Fell swelling in the stomach	218	54.50	182	45.50
15.	Indigestion	250	62.50	150	37.5

A significant association was found between gastritis and psychological stress as 74.83% of the populations who have psychological stress are suffering from gastritis and 17.35% are those who frequently use NSAIDs with significance $P < 0.05$ as shown in Table 4. The findings support other studies, in their conclusion that psychological stress increased the incidence of gastritis and peptic ulcers as it is facilitating other risky behavior (Levenstein et al., 2015; Cheng et al., 2000). Psychological stress causes disturbances in GI physiology, such as altered GI barrier function, changes in motility and secretion, development of visceral hypersensitivity, and dysfunction of inflammatory responses. Furthermore, the study revealed a significant association between NSADs. Several studies supported the study findings; one reported that NSADs

are risk factors for gastrointestinal complications especially with the use of anticoagulants, corticosteroids, low-dose aspirin, high-dose NSAIDs and chronic debilitating diseases such as cardiovascular disease. In the female frequent intake of oral-contraceptive pills such as ismila, famila, diane 35, mirena, etc. However, H. pylori infection increases the risk of NSAIDs gastric complications this study is supported by Lanza et al. (2009).

Although few types of research (Broutet, 2002; Rubin et al., 2011) were conducted to assess the association between gastritis and dietary variables, and their findings were in support of the present study, in which a significant association was found between gastritis and intake of tea, soft drinks as 67.35%, 35.71% and 59.18%, 71.43% of those who

regularly eat oily and spicy food, respectively, had gastritis ($P < 0.05$). Foods with high-fat act on retardation of gastric emptying and the broths with large quantities of purine raise the acid secretion. Therefore, spicy foods and high-fat foods are not recommended (Ddine et al., 2012; Choi et al., 2015). Spicy food increases gastric secretion and causes constant irritations in the mucosa. The red pepper and paprika raise the acid secretion. The black pepper irritates raising secretions and producing dyspepsia. The chili pepper and mustard cause erythema and gastric lesio (Reis et al., 2003). The food affects gastric motility and acid secretion. A very hot intake leads to congestion of mucosa and raises the secretion of acid and decreases the time of evacuation. The soft drinks decrease the pressure beneath the esophageal sphincter and can produce gastro-esophageal reflux. The nicotine also decreases this pressure and induces hyperchloremia (Mahmoud et al., 2016).

Table 4: Association of Risk Factors with Gastritis

Sr. No.	Risk factors	Gastritis n=294				Gastritis free n=106				χ^2	P
		Yes	(%)	No	(%)	Yes	(%)	No	(%)		
1.	Psychological Stress	220	74.83	74	25.17	32	30.19	74	69.81	66.61	0.001
2.	Take NSAIDs	51	17.35	243	82.65	2	1.89	104	98.11	16.2	0.00
3.	Take oily food	174	59.18	120	40.82	45	42.45	61	57.55	8.8	0.003
4.	Eat spicy food	210	71.43	84	28.57	31	29.25	75	70.75	57.89	0.001
5.	Take Tea	198	67.35	96	32.65	37	34.91	69	65.09	33.83	0.000
6.	Soft drink	105	35.71	189	64.28	25	23.58	81	76.42	5.23	0.02
7.	Smoking	54	18.37	240	81.63	5	4.72	101	95.28	11.5	0.001
8.	Feel acidity or heart burning	247	84.01	47	15.99	37	34.91	69	65.09	91.25	0.001
9.	The bad taste the of the mouth	235	79.93	59	20.07	13	12.26	93	87.74	151.4	0.001
10.	Vomiting	90	30.61	204	69.39	8	7.55	98	92.45	22.4	0.001
11.	Abdominal bloating	253	86.05	41	13.95	8	7.55	98	92.45	211.8	0.001
12.	Stomach ache	174	59.18	120	40.82	9	8.49	97	91.51	80.67	0.001
13.	Constipation	179	60.88	115	39.12	16	15.09	90	84.91	65.38	0.001
14.	Fell swelling in the stomach	218	74.15	76	25.85	0	0.00	106	100.0	172.7	0.001
15.	Indigestion	238	80.95	56	19.05	12	11.32	94	88.68	161.2	0.001

Table 4 shows the association between smoking and gastritis was significant. That could be explained as smoking reduces the synthesis of prostaglandin in the gastric mucosa and decreases the barrier function of the gastric mucosa. The resulting finding coincides with a study that reported that an increased risk of severe atrophic gastritis and intestinal metaplasia was statistically associated with smoking (Nakamura et al., 2002; Rosenstock et al., 2003). So this study is in support of this study as a significant association between smoking and gastritis was observed.

The associated symptoms such as heartburn, the bad taste of the mouth and abdominal bloating after eating were more prevalent this study is supported by Andersen et al. (1988). Many of them experienced constipation, felt vomiting, experienced swelling in the stomach and indigestion. All these factors are more prevalent among the gastritis population than in the population not suffering from gastritis. This shows that all these symptoms are associated with gastritis.

CONCLUSION

It was concluded from the study that the prevalence of gastritis was common in Shahdara and its associated areas. The most common symptom related to its prevalence in population were heart burning, the bad taste of the mouth, abdominal bloating, indigestion and swelling in the stomach.

Females were more affected than males. It was found that *H. pylori* infection, psychological stress, frequent intake of

NSAIDs and smoking were the leading cause of gastritis.

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