CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1239888

Available online at: http://www.iajps.com Research Article

FINDING THE RISK FACTORS RESPONSIBLE FOR PEPTIC ULCER DISEASE AMONG PATIENTS VISITING JINNAH HOSPITAL LAHORE

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Abstract:
Prevalence of peptic ulcers disease is higher in third world countries like Pakistan where it is estimated at about 70 per cent of the population, whereas developed countries show a maximum of 40 per cent ratio. The disease is transmitted by food, contaminated groundwater, and through human saliva. Due to its lethality and high prevalence it is necessary to understand the prevention, treatment and change in life style that may help its risks.
Background: *The incidence and prevalence of peptic ulcer disease has decreased in recent years, most of the risk factors (NSAIDS, H. Pylori, smoking, stress and dietary habits) are modifiable. The Recent trends from the previous researches shows that excessive use of aspirin pain killers and infection from H. Pylori accounts for more than 50% of the peptic ulcer cases presented.*
Objective: *The aim of the research was investigation of the various risk factors (modifiable and non-modifiable) prevalent in patients of peptic ulcer disease presented at Jinnah Hospital Lahore*
Material and Methods: Study Design: *Cross Sectional*
Study Setting and duration: *Setting: Jinnah Hospital Lahore.*
Duration of Study: 3 months.
Inclusion criteria: *Patients diagnosed as suffering from PUD following Endoscopy or suffering from 3 of the 4 major symptoms/features (epigastric pain, family history, nausea and vomiting, heart burn).*
Data Collection and analysis: *A sample of 100-150 patients is recruited from Jinnah hospital, Lahore. The procedure and purpose were explained and consent was taken from study participants. Confidentiality was ensured. Participants were free to leave the study any time. It took approximately 20 minutes to complete the questionnaire. The data thus collected was analyzed with the help of SPSS (version 17).*
Results: *The Major Risk factors (Family History, NSAIDs, H. Pylori infection, High stress levels, low socio-economic status, smoking) contribute to around 60-80% of all cases of PUD. Out of total 110 patients interviewed, 60% of cases had h/o NSAIDs use. 90% were either hypertensive or had high stress levels. 80% of the cases lived in overcrowded residencies. Endoscopy reveals H. pylori in majority of the patients. Most of the male patients were smokers.*
The Minor Risk factors (caffeine, nicotine, alcoholism, history of radiotherapy/chemotherapy, co morbid conditions, O Blood group, sedentary life style, unhealthy dietary habits and use of tranquilizers) contribute to around 20-40% of all cases of PUD.
Conclusions: *The Study establishes that peptic ulcer is directly related to NSAIDs use, stressful life style, and poor socio economic status while healthy eating habits and physical exercise can help prevent PUD and its complications.*
Key words: *Peptic ulcer, H.Pylori, NSAID's.*

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Please cite this article in press Sh. Muhammad Usman et al., ***Finding the Risk Factors Responsible For Peptic Ulcer Disease among Patients Visiting Jinnah Hospital Lahore,*** *Indo Am. J. P. Sci, 2018; 05(05).*

INTRODUCTION:

A peptic ulcer is a distinct breach in the mucosal lining of the stomach (gastric ulcer) or the first part of the small intestine (duodenal ulcers) a result of caustic effects of acid and pepsin in the lumen[1] Histologically, peptic ulcer is identified as necrosis of the mucosa which produces lesions equal to or greater than 0.5cm (1/2")[2]. It is the most common ulcer of the gastrointestinal tract that is usually acidic and thus extremely painful.

The clinical presentation of peptic ulcer patients is variable. Some patients with Peptic Ulcer Disease are asymptomatic until life threatening complications develop, while others have fairly prominent disease manifestations. Symptoms of Peptic Ulcer can be Abdominal Pain (classically epigastric), bloating & abdominal fullness, nausea, copius vomiting, loss of appetite, weight loss, hematemesis and melena[3]

The annual incidence rates of PUD were 0.10–0.19% for physician-diagnosed PUD and 0.03–0.17% when based on hospitalization data. The 1-year prevalence based on physician diagnosis was 0.12–1.50% and that based on hospitalization data was 0.10–0.19%. The majority of studies reported a decrease in the incidence or prevalence of PUD over time. The disease is more prevalent in Eastern Countries specially Asia as people are exposed to H.Pylori infection more frequently and at a younger age, also the bacteria is of multi drug resistant variety. Prevalence of peptic ulcers is higher in third world countries like Pakistan where it is estimated at about 70 per cent of the population, whereas developed countries show a maximum of 40 per cent ratio. The disease is transmitted by food, contaminated groundwater, and through human saliva. Due to its lethality and high prevalence it is necessary to understand the prevention, treatment and change in life style that may help its risks.

The most established risk factors for peptic ulcer bleeding include H.Pylori infection and medications such as non steroidal anti-inflammatory drugs (NSAIDs)[4] The key pathophysiological event in *H. Pylori* infection of gastric mucosa is the induction of a gastric mucosal inflammatory response. *H. Pylori* infection prevalence and clinical outcome of the colonized patients varies according to several considerations including bacterial factors, host and environmental characteristics such as age, ethnic groups, genera, geography and socio-economic conditions. The risk of gastric bleed seems to be higher for NSAIDs than for H.Pylori related ulcers, most likely because anti platelet action of NSAID's impair the clotting process.

Age is an independent predisposing factor for gastrointestinal bleeding, with the risk increasing significantly in individuals aged greater than 65 years and increasing further in those aged greater than 75 years. Indeed, bleeding incidents and mortality are distinctly higher in elderly patients, especially in those with co morbidities like hypertension, atherosclerosis and diabetes mellitus[5]

Several Researches on the disease etiology ascertained the fact that tobacco smoking and the use of minor tranquillizers can be an important risk factor for the spread of peptic ulcer disease in a population. Excessive alcohol consumption has been shown to increase the risk in many patients[6]

Other established risk factors for PUD are family history, previous episodes of Gastritis (ulcer or hemorrhage), systemic disease (Rheumatoid Arthritis, Cardiovascular disease & Osteoarthritis) and excessive usage of oral anti coagulants and steroids[7]

OBJECTIVES:

The objectives of my research was to

- Access the risk factors responsible for PUD in patients visiting JHL
- Access the frequency and strength of association of each underlying risk factor

OPERATIONAL DEFINITION:

- Patients presenting with dyspepsia and Gastrointestinal bleeding.

MATERIAL AND METHODS:

STUDY DESIGN:

- Cross sectional study

STUDY SETTING:

- Jinnah Hospital Lahore

DURATION OF STUDY:

- Three months

SAMPLE SIZE: A total no. of 100-150 patients of outdoor, medicine and surgery ward of Jinnah Hospital are recruited for the main study.

SAMPLING TECHNIQUE:

- Non probability / purposive sampling.

SAMPLE SELECTION:

Inclusion criteria:

- Patients diagnosed as suffering from PUD following Endoscopy or suffering from 3 of the 4 major Symptoms/features (epigastric pain, family history, nausea and vomiting, heart burn)

Exclusion criteria:

- Patients suffering from any severe illnesses; those currently on any medication for a psychiatric or severe medical illness are not included in this study.

DATA COLLECTION PROCEDURE:

- A sample of 100-150 patients is recruited from Jinnah hospital, Lahore. The procedure is explained to the study participants. Written informed consent is taken from the study participants and nature and purpose of the study is also explained to the participants. The participants are assured that the information obtained from them will be confidential and not be used for any other purpose. Participants are informed that they are free to leave the study any time if they wished so without any prejudice or penalty.
- A questionnaire is filled from the response provided by each patient separately. They are inquired about their disease history, drug and family history, socio-economic status, life style, habits and co morbid conditions.
- It takes approximately 20 minutes to complete the questionnaires.

DATA ANALYSIS PROCEDURE:

The data thus collected was analyzed with the help of SPSS (version 17).

- Demographic characteristics are summarized by calculating means and standard deviation for continuous variables, such as age.
- Sex distribution of respondents was analyzed graphically and frequency distribution of the dependent and independent risk factors were calculated
- Attributable risk for each factor was calculated and tabulated.

RESULTS AND MAIN FINDINGS:

Table no. 1:Age Statistics of respondents:

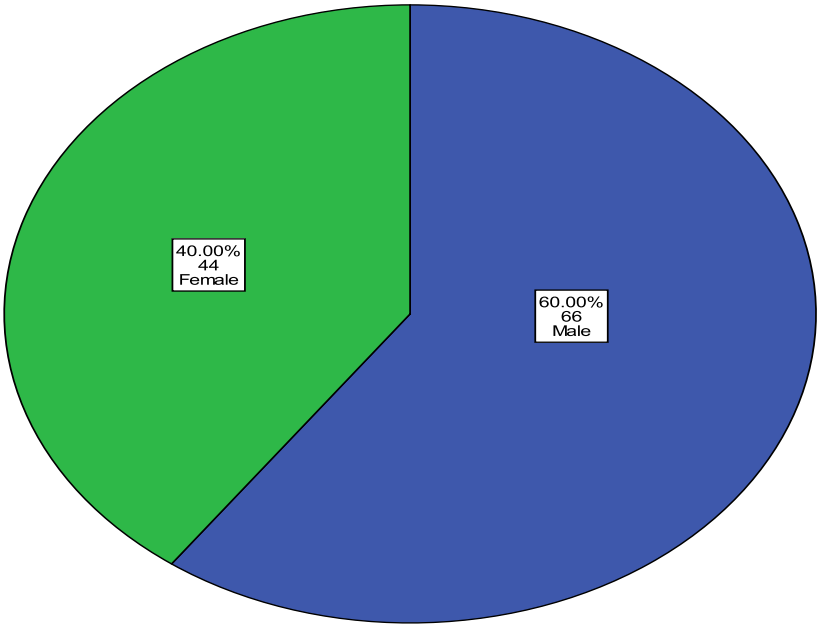
N	Valid	110
	Missing	0
Mean		40.1727
Median		41.0000
Mode		34.00a
Std. Deviation		9.61732
Minimum		17.00
Maximum		58.00

a. Multiple modes exist. The smallest value is shown

Table no. 2: Case Summaries of respondents:

Sex	N	Mean	Std. Deviation	Minimum	Maximum
Male	66	40.0606	10.39064	17.00	58.00
Female	44	40.3409	8.43840	21.00	56.00
Total	110	40.1727	9.61732	17.00	58.00

Graph No. 1: Gender Distribution Chart:



Graph No 2 : Frequency Distribution Chart Of the major risk Factors of the Peptic Ulcer Disease

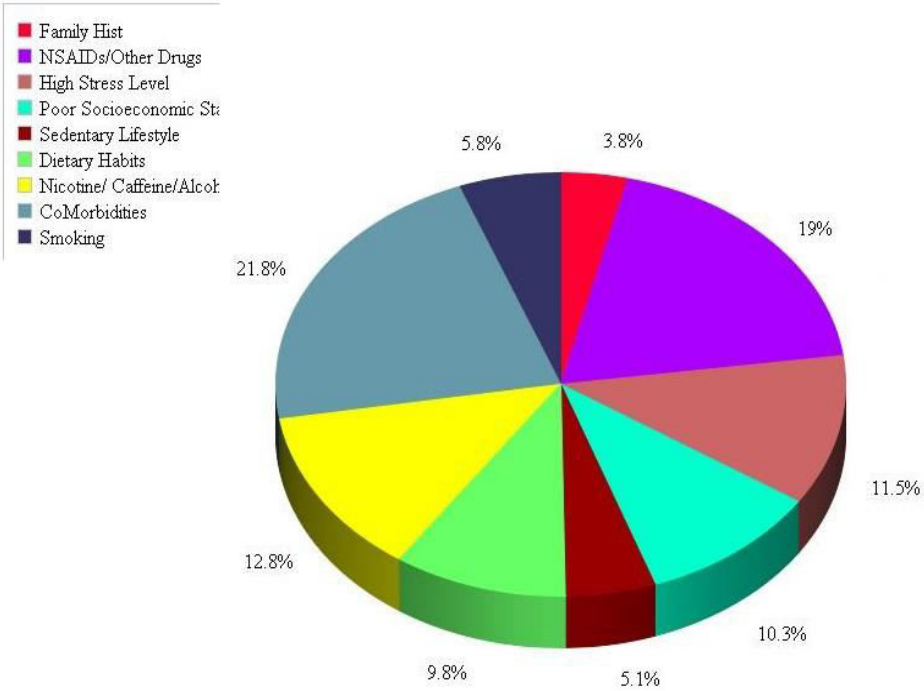


Table no. 3 Risk Factor frequencies of peptic Ulcers

Risk Factors	Responses		
	N	Percent	Percent of Cases
Family History	33	3.8%	30.0%
NSAIDs Use	66	7.7%	60.0%
High Stress Levels	99	11.5%	90.0%
Residential Status overcrowded	88	10.3%	80.0%
Caffeine Intake	55	6.4%	50.0%
Nicotine Intake	33	3.8%	30.0%
Alcohol Intake	22	2.6%	20.0%
History of Abdominal Pain	44	5.1%	40.0%
Blood Group (O)	44	5.1%	40.0%
Food Habits	55	6.4%	50.0%
Oily Food Consumption	77	9.0%	70.0%
H/O Radiotherapy	33	3.8%	30.0%
Lifestyle sedentary	44	5.1%	40.0%
H/O Sleep Inducers	11	1.3%	10.0%
H/O Episodic Epigastric Pain	11	1.3%	10.0%
H/O Chronic Liver Disease	55	6.4%	50.0%
H/O Chronic Renal Disease	22	2.6%	20.0%
Water Intake unfiltered	11	1.3%	10.0%
H/O ICU Admittance	55	6.4%	50.0%
Total	858	100.0%	780.0%

a. Dichotomy group tabulated at value 1.

Table no. 4: Age Cross-tabulation for Risk Factors:

	Risk Factors		Age		
			15 - 30 years	31 -60 years	Total
	Family History	Count	4	29	33
		% within Age	21.1%	31.9%	
	NSAIDs Use	Count	14	52	66
		% within Age	73.7%	57.1%	
	High Stress Levels	Count	15	84	99
		% within Age	78.9%	92.3%	
	Residential Status	Count	14	74	88
		% within Age	73.7%	81.3%	
	Caffeine Intake	Count	9	46	55
		% within Age	47.4%	50.5%	
	Nicotine Intake	Count	5	28	33
		% within Age	26.3%	30.8%	
	Alcohol Intake	Count	3	19	22
		% within Age	15.8%	20.9%	
	History of Abdominal Pain	Count	6	38	44
		% within Age	31.6%	41.8%	
	Blood Group (O)	Count	10	34	44
		% within Age	52.6%	37.4%	

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Table no.5: Age Cross-tabulation for Risk Factors(Continued):

Risk Factors			Age		
			15 - 30 years	31 -60 years	Total
	Food Habits	Count	9	46	55
		% within Age	47.4%	50.5%	
	Oily Food Consumption	Count	10	67	77
		% within Age	52.6%	73.6%	
	H/O Radiotherapy	Count	7	26	33
		% within Age	36.8%	28.6%	
	Lifestyle sedentary	Count	8	36	44
		% within Age	42.1%	39.6%	
	H/O Sleep Inducers	Count	1	10	11
		% within Age	5.3%	11.0%	
	H/O Episodic Epigastric Pain	Count	2	9	11
		% within Age	10.5%	9.9%	
	H/O Chronic Liver Disease	Count	6	49	55
		% within Age	31.6%	53.8%	
	H/O Chronic Renal Disease	Count	4	18	22
		% within Age	21.1%	19.8%	
	Water Intake unfiltered	Count	1	10	11
		% within Age	5.3%	11.0%	
	H/O ICU Admittance	Count	8	47	55
		% within Age	42.1%	51.6%	
Total		Count	19	91	110

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Table no. 6: Sex Cross-tabulation for Risk Factors:

		Sex		
		Male	Female	Total
Family History	Count	22	11	33
	% within Sex	33.3%	25.0%	
NSAIDs Use	Count	44	22	66
	% within Sex	66.7%	50.0%	
High Stress Levels	Count	55	44	99
	% within Sex	83.3%	100.0%	
Residential Status	Count	55	33	88
	% within Sex	83.3%	75.0%	
Caffeine Intake	Count	22	33	55
	% within Sex	33.3%	75.0%	
Nicotine Intake	Count	33	0	33
	% within Sex	50.0%	.0%	
Alcohol Intake	Count	22	0	22
	% within Sex	33.3%	.0%	
History of Abdominal Pain	Count	11	33	44
	% within Sex	16.7%	75.0%	
Blood Group (O)	Count	33	11	44
	% within Sex	50.0%	25.0%	

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

Table no. 7: Sex Cross-tabulation for Risk Factors(Continued):

		Sex		Total
		Male	Female	
Oily Food Consumption	Count	44	33	77
	% within Sex	66.7%	75.0%	
H/O Radiotherapy	Count	22	11	33
	% within Sex	33.3%	25.0%	
Lifestyle sedentary	Count	33	11	44
	% within Sex	50.0%	25.0%	
H/O Sleep Inducers	Count	0	11	11
	% within Sex	.0%	25.0%	
H/O Episodic Epigastric Pain	Count	0	11	11
	% within Sex	.0%	25.0%	
H/O Chronic Liver Disease	Count	33	22	55
	% within Sex	50.0%	50.0%	
H/O Chronic Renal Disease	Count	11	11	22
	% within Sex	16.7%	25.0%	
Water Intake unfiltered	Count	0	11	11
	% within Sex	.0%	25.0%	
H/O ICU Admittance	Count	22	33	55
	% within Sex	33.3%	75.0%	
Total	Count	66	44	110

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 1.

RESULTS:

- Total number of subjects in our research was 110. Their mean age is 40.1727, median is 41.00, mode is 34.00 and standard deviation is 9.61732. Minimum age is 17 years and maximum age is 58 years.(Table no.1 & Graph no.1)

- Out of 110, 66 were males and 44 were females. Among males, mean age is 40.0606, standard deviation of age is 10.39064,minimum age is 17 years and maximum age being 58 years. Among females, mean age is 40.3409, standard deviation of age is 8.4384, minimum age is 21 years and maximum age is 56 years (Table no.2)

- About 30%(33) of cases presented with positive family history which constitute 3.8% of all risk factors. 60%(66) of cases had h/o NSAIDs use contributing 7.7% to overall risk factors. 90%(99) had high stress levels which makes 11.5% of all risk factors.80%(88) of cases live in overcrowded residencies which makes 10.3% of all risk factors. 50%(55) cases had h/o caffeine intake with attributable risk of 6.4%. 30%(33) of cases had h/o nicotine intake with attributable risk of 3.8%. 20%(22) of cases had h/o alcohol intake with attributable risk of 2.6%. 40%(44) of cases had h/o abdominal pain with attributable risk of 5.1%. 40%(44) of cases had blood group O with attributable risk of 5.1%. 50%(55) of cases had h/o spicy food intake with attributable risk of 6.4%. 70%(77) of cases had h/o oily food consumption with attributable risk of 9%. 30%(33) of cases had h/o radiotherapy with attributable risk of 3.8%. 40%(44) of cases had sedentary lifestyle with attributable risk of 5.1%. 10%(11) cases had h/o sleep inducers with attributable risk of 1.3%. 10%(11) cases had h/o episodic epigastric pain with attributable risk of 1.3%. 50%(55) cases had h/o chronic liver disease

with attributable risk of 6.4%. 20%(22) of cases had h/o chronic renal disease with attributable risk of 2.6%. 10%(11) cases had been using unfiltered water attributing 1.3% to overall risk of disease. 50%(55) of cases had h/o icu admission with attributable risk of 6.4%. (Table no.3 Graph no.2)

- Among those with positive family history, 4 were below 30 years of age(21.1%) and 29 above 30 years(31.9%). With NSAIDs use, 14 were below 30 years (73.7%) and 52 above 30 years(57.1%). With high stress levels, 15 were below 30 years of age(78.9%) and 84 above 30 years(92.3%). With overcrowded residential status, 14 were below 30 years and 74 above 30 years(81.3%). With h/o caffeine intake, 9 were below 30 years (47.4%) and 46 were above 30 years(50.5%). With h/o nicotine intake, 5 were below 30 years(26.3%) while 28 were above 30 years(30.8%). With history of alcohol intake, 3 were below 30 years(15.8%) while 19 were above 30 years(20.9%). With h/o abdominal pain, 6 were below 30 years(31.6%) while 38 were above 30 years(41.8%). With blood group O, 10 were below 30 years(52.6%) while 34 were above 30 years of age(37.4%). With spicy food habits, 9 were below 30 years(47.4%) while 46 were above 30 years(50.5%). With h/o oily food intake, 10 were below 30 years(52.6%) while 67 were above 30 years(73.6%). With h/o of radiotherapy, 7 were below 30 years(36.8%) while 26 were above 30 years(28.6%). With h/o sedentary lifestyle, 8 were below 30 years(42.1%) while 36 were above 30 years(39.6%). With h/o sedative use, 1 was below 30 years(5.3%) and 10 were above 30 years(11.0%). With h/o episodic epigastric pain, 2 were below 30 years(10.5%) while 9 were above 30 years(9.9%). With h/o chronic liver disease, 6 were below 30 years(31.6%) while 49 were above 30 years(53.8%). With h/o chronic renal disease, 4 were below 30 years(21.1%) while 18 were above 30 years(19.8%). With h/o unfiltered water intake, 1 was below 30 years(5.3%) while 10 were above 30 years(11.0%). With h/o ICU admittance, 8 were below 30 years(42.1%) while 47 wereabove 30 years(51.6%). (Table no.4)

- With Positive family history, 22 were males(33.3%) while 11 were females(25%). With NSAIDs use, 44 were males(66.7%) while 22 were females(50%). With high stress levels, 55 were males(83.3%) and 44 were females(100%). With overcrowded residential status, 55 were males(83.3%) and 33 were females(75%). With h/o caffeine intake,22 were males(33.3%) and 33 were females(75%). With h/o nicotine intake, 33 were males(50%) while there was no female. With h/o alcohol intake, 22 were males(33.3%) while there were no females. With h/o abdominal pain, 11 were males(16.7%) and 33 were females(75%). With blood group O, 33 were males(50%) while 11 were females(25%). With h/o oily food consumption, 44 were males(66.7%) while 33 were females(75%). With h/o radiotherapy, 22 were males(33.3%) while 11 were females(25%). With sedentary lifestyle, 33 were males(50%) while 11 were females(25%). With h/o sedative/hypnotics, there was no male while 11 were females(25%). With h/o episodic epigastric pain, only 11 were females(25%). With h/o chronic liver disease, 33 were males(50%) while 22 were females(50%). With h/o chronic renal disease, 11 were males(16.7%) and 11 were females(25%). With h/o unfiltered water intake, there was no male and 11 females(25%). With h/o ICU admittance, 22 were males(33.3%) while 33 were females(75%).(Table no.5)

DISCUSSON:

Upper Gastrointestinal (UGI) symptoms are among the commonest complaints for which patients seek medical attention, with the annual prevalence of dyspepsia approximating 25%. Diseases associated with these symptoms are leading causes of morbidity and mortality globally[8] Peptic ulcer disease (PUD), gastroesophageal reflux disease (GERD) and cancers affect millions of people worldwide. Acute upper gastrointestinal bleeding is a frequent and life-threatening medical emergency, and its most common etiological factor is Peptic Ulcer Bleeding.. Gastric mucosal damage and barrier factors play important roles in the development of peptic ulcers. Peptic ulcers are caused by defects in the gastro-duodenal mucosal barrier that result from epithelial cell damage, which is evoked by caustic agents, including gastric acid and pepsin[9].

A research on the attributable risk of NSAID's was conducted by the American College of Physicians. The estimated relative risk for the development of peptic ulcer disease among current users of non aspirin nonsteroidal anti-inflammatory drugs was compared with that among nonusers. The research showed that for current users, the risk increased with increasing dose, from a relative risk of 2.8 (CI, 1.8 to 4.3) for the lowest to a relative risk of 8.0 (CI, 4.4 to 14.8) for the highest dose category[10]
In our Research, out of 110 patients, 66 gave a positive history of NSAID use. The Male to female ratio was 2:1, correlating the fact that male patients suffer from PUD more frequently
A cross-sectional study was conducted in a total of 408 consecutive patients with upper abdominal complaints at Hawassa University Hospital from

October 2012 to January 2013 to calculate the relative frequency of H.Pylori infestation in the rural and urban populations. The overall seroprevalence of *H. pylori* infection was 83.3% (340/408), and it was significantly higher in rural (71.2%) compared to urban residents (28.8%) [11] .The high prevalence rate in rural areas relate to the low socio-economic status of people living in those environment. In our research, 88 out of the 110 people interviewed reported to have been living in an over crowded environment. People living in close proximities and small houses are more prone to get infected from any other member of the family. And since these people often receive inadequate healthcare facilities, the infectious agents ideally harbors in such deprived classes.

H.Pylori infects more than 50% of the world population [12]. There has been a slight decline in the incidence of H. Pylori cases specially in Asian countries owing to the improved sanitation and living conditions and the use of broad spectrum antibiotics[13].

A research was conducted by Department of Physiology, Indian Institute of Chemical Biology, Kolkata, India to establish the relation between tobacco smoking and the incidence of peptic ulcer disease. The results establish that smoking and nicotine intake are a major risk factor in development of PUD. Smoking and chronic nicotine treatment stimulate basal acid output which is more pronounced in the smokers having duodenal ulcer. This increased gastric acid secretion is mediated through the stimulation of H2-receptor by histamine released after mast cell degranulation and due to the increase of the functional parietal cell volume or secretory capacity in smokers[14]. In our research, the incidence of smoking was found exclusively in males where 50% of the patients were smokers. Smoking not only have direct toxic effects on the mucosal linings of body but also increases the virulence and susceptibility to H. pylori infection. Thus the data analyzed from our research when compared with other researches on eastern and western populations provide similar results. The gastric and duodenal ulcers were more common in men. The prevalence of peptic ulcers increase with age with a peak incidence at around 5th decade of life[15]. A research conducted by department of gastroenterology, Sher-i-Kashmir insititute of medical sciences, Srinagar concluded that peptic ulcer is not related to socio economic status which is contradictory to our result where more than 80% of the peptic ulcer patients belonged to poor socio-economic status

CONCLUSION:

The Major Risk factors (Family History, NSAIDs, H. Pylori infection, High stress levels, low socio-economic status, smoking) contribute to around 60-80% of all cases of PUD. Out of total 110 patients interviewed, 60% of cases had h/o NSAIDs use. 90% were either hypertensive or had high stress levels. 80% of the cases lived in overcrowded residencies. Endoscopy reveals H. pylori in majority of the patients. Most of the male patients were smokers. The Minor Risk factors (caffeine, nicotine, alcoholism, history of radiotherapy/chemotherapy, co morbid conditions, O Blood group, sedentary life style, unhealthy dietary habits and use of tranquilizers) contribute to around 20-40% of all cases of PUD. The Study establishes that peptic ulcer is directly related to NSAIDs use, stressful life style, and poor socio economic status while healthy eating habits and physical exercise can help prevent PUD and its complications. Sedentary Life styles, fatty food consumptions and high stress levels contribute hugely to peptic ulcer in Pakistani population. Use of Non-steroidal Anti-inflammatory drugs and the prevalence of multi drug resistant H. Pylori in the general population is the primary pathological factor.

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