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# A study of the knowledge, attitudes, and risk factors for *H. pylori* infection among the OPD patients of the gastroenterology department

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**Abstract**
**Background:** *H. pylori* is an opportunistic infection that is drawn to changes in the gastrointestinal mucus brought on by inflammation and ulceration. 95% of cases of stomach cancer are caused by *H. pylori* infection.
**Aim:** The purpose of this study was to evaluate the knowledge, risk factors, and way of life of the individuals who had *H. pylori* infections.
**Methods:** A self-structured socio-demographic perfoma and self-structured questionnaires were used to major the knowledge, life style & risk factors towards nursing research. A total number of 120 participants were selected by using a non-probability purpose sample technique. It was a non-experimental descriptive survey study carried out in IMS & Sum Hospital from December 2021 to February 2022. In this study population consist of both male and female from age group 20 to 60 years.
**Result:** The study's findings showed that males made up 56.6% of the elderly subjects. The present study also revealed that 52% patients are having good knowledge score. In this study, 45.83% of the participants had a history of *H. pylori* infection in their families.

**Keywords:** *H. pylori* infection, knowledge, life style and risk factors

## Introduction

The most notable biochemical traits of the gram-negative, slow-growing Helicobacter pylori (*H. pylori*) bacteria are the copious synthesis of urease and the presence of catalase and oxidase. This bacterium colonises the gastric mucosa and releases a number of bacterial and host-dependent cytotoxic chemicals that cause inflammation and permanent immunological responses [1]. Because *H. pylori* infection is more widespread in poor nations than the developed world, the frequency of this infection is closely related to socioeconomic situations [2]. *H. pylori* has been linked to the development of chronic gastritis and peptic ulcer disease, according to pathological research and large clinical trials conducted in recent years [3]. It appears that this bacterium is also causally connected to gastric mucosa-associated lymphoid tissue low-grade B-cell lymphoma (MALT-lymphoma) [4]. Additionally, it has been determined that *H. pylori* infection increases the risk of developing both diffuse and intestinal kinds of gastric cancer [5].

Various factors, including age, cultural background, genetic predisposition, socioeconomic status, and environmental factors, may all contribute to the acquisition and transmission of the organism, according to variation in the epidemiology of *H. pylori* infection between and within people. The prevention of *H. pylori* infection is greatly aided by improvements in living conditions, such as appropriate sanitation, access to clean water, improvement of basic hygiene, a balanced diet, and avoidance of crowded living situations [6].

*H. pylori* is one of the most prevalent bacterial diseases in humans and is thought to affect half of the world's population [7]. Around 50% of people around the world have *H. pylori* infection, ranging from 80% to 90% in underdeveloped nations, and 35% to 40% in the United States. 20% of people with *H. pylori* infection experience associated gastro duodenal diseases at some point in their lives [8]. In underdeveloped nations, the annual incidence of *H. pylori* infection ranges from 4% to 15%, compared to 0.5% in industrialised nations [9]. Low socioeconomic position, crowding, subpar sanitation or hygiene, and residing in a developing nation are all documented risk factors [10].

A study by Mitchell *et al.* (1992) that was a sizable cross-sectional investigation suggested that a history of pulmonary tuberculosis may be linked to a higher prevalence of *H. pylori* infection [11]. The prevalence of *H. pylori* infection was 35.2% and 20.4%, respectively, in TB-infected patients and non-TB controls, according to a comparative cross-sectional study done in 2015 at Jimma Hospitals in Southwest Ethiopia among healthy controls and tuberculosis

patients [12]. Helicobacter pylori has been linked to Mycobacterium tuberculosis, and Filipe et AL study's in Greece/Athens found that the sero-prevalence of *H. pylori* was 87.5% in 80 consecutive patients while it was much lower - 61.4% in 70 controls [13]. A 1992 study by Mitchell *et al.* that was a suitable cross-sectional investigation suggested that a history of pulmonary tuberculosis may be linked to a higher prevalence of *H. pylori* infection [14].

The Helicobacter species is a member of the proteo, or purple, bacteria's epsilon subgroup. The Helicobacter species is an ancient bacterium that has coevolved with its hosts for a very long time, as evidenced by the extraordinary degree of morphological variation and host specialisation [15].

## Methods

### Study Design and Setting and Sample

This non-experimental descriptive survey study was conducted at department of Gastroenterology OPD of IMS & Sum Hospital, Bhubaneswar with 120 participants who are diagnosed with *H. pylori* infection. Patients having gastritis and peptic ulcer disease were also included in this study. A self-structured socio-demographic perfoma and self-structured questionnaires were used to major the knowledge, life style & risk factors towards nursing research.

### Procedure for Data Collection

After getting permission from ethical committee the data were collected by the researcher using self-structured questionnaire from December 2021 to February 2022 at IMS & Sum Hospital Bhubaneswar. In this study population consist of both male and female from age group 20 to 60 years.

### Ethical Consideration

Formal permission will be taken from ethical committee of research of Sum Nursing College after that a written permission taken from the medical superintendent of IMS & Sum Hospital. After getting all the permission from college and hospital, a written consent will be taken from the entire participant then the tool will be administered to the participant. Through out the study the anonymity and confidentiality of the participants was protected and freedom was given to withdraw from the study at any point of the time. The participants had the rights to ask questions regarding the questionnaire.

## Results

According to Socio-demographic questionnaire which shows that 18.3% elderly subjects were belong to 20-30yrs age group and 20% elderly subjects were belong to 31-40yrs age group, 29.1% elderly subjects were belong to 41-50yrs age group and 32.5% elderly subjects were belong to 51-60yrs age group. In gender of elderly, 56.6% subjects were male, 40.8% subjects were female and 2.5% subjects were trans-woman. In marital status 18.3% subjects were unmarried, 80% subjects were married and 1.6% subjects were divorced. In educational status 10.8% subjects were illiterate, 51.6% subjects have completed matriculation, 14.1% subjects were under graduate and 23.3% subjects have completed graduation.

According to the knowledge of participants regarding *H. pylori* infection shows that 27.5% subjects do have knowledge about *H. pylori* infection. 23.3% subjects were aware of *H. pylori* infection symptoms. 47.5% subjects answered that *H. pylori* is a bacteria. 52.5% subjects gave right answer regarding sign/symptoms of *H. pylori*. 43.3% subjects answered nausea, 45% subjects answered that low socio-economic structure is a risk factor, 55.83% subjects given right answer regarding route through which *H. pylori* get spread and 20.83% subjects given right answer of the question "through which investigation we can identify *H. pylori*.

According to the Risk factors of *H. pylori* infection among participants shows that 45.83% subjects do have family history of *H. pylori* infection, 56.6% subjects do consume unhealthy diet, 46.67% subjects are addicted to un-prescribed drugs, 75.83% subjects are taking excessive hot/cold food, 85.83% subjects are staying often in empty stomach, 20% subjects maintain an irregular time for food intake and 76.67% subjects are taking stress in day to day life.

Chi-square analysis showing the association between knowledge with selected socio-demographic variables. There is significant association between knowledge with age, gender, education, income, family, area of living and occupation as the calculated chi-square values were 1375.8, 2076.03, 1346.2, 1541.8, 1201.32, 1865.63 and 1171.1 respectively 'p' value 0.05 level of significance. Hence the null hypothesis is rejected as there is significant association between knowledge with selected socio-demographic variables.

**Table 1:** Demonstrates the frequency and percentage distribution of the study sample according to the socio-demographic data (N=120)

| Variables | Frequency (F) | Percentages (%) |
|---|---|---|
| **Age** | | |
| 20-30 yrs | 22 | 18.3 |
| 31-40 yrs | 24 | 20 |
| 41-50 yrs | 35 | 29.1 |
| 51-60 yrs | 39 | 32.5 |
| **Gender** | | |
| Male | 68 | 56.6 |
| Female | 49 | 40.8 |
| **Marital status** | | |
| Unmarried | 22 | 18.3 |
| Married | 96 | 80 |
| **Education** | | |

| | | |
|---|---|---|
| No education | 13 | 10.8 |
| Matriculate | 62 | 51.6 |
| Undergraduate | 17 | 14.1 |
| Graduate | 28 | 23.3 |
| **BMI** | | |
| Normal | 83 | 69.1 |
| Over weight | 19 | 15.8 |
| Obesity | 17 | 14.1 |
| **Income** | | |
| ≥20,000 | 51 | 42.5 |
| 20,001-50,000 | 66 | 55 |
| **Family** | | |
| Nuclear | 44 | 36.67 |
| Joint | 76 | 63.33 |
| **Residential Area** | | |
| Urban | 75 | 62.5 |
| Rural | 45 | 37.5 |
| **Food habits** | | |
| Vegetarian | 9 | 7.5 |
| Non-vegetarian | 111 | 92.5 |
| **Occupation** | | |
| Govt. Employee | 18 | 15 |
| Private employee | 52 | 43.33 |
| Unemployed | 36 | 30 |
| Self-employed | 13 | 10.83 |
| **Previous knowledge** | | |
| Mass Media | 11 | 9.16 |
| Friends | 12 | 10 |
| None Of These | 96 | 80 |

**Table 2:** Shows that frequency and percentage distribution of the study sample according to the knowledge score of participants regarding *H. pylori* infection

| Sl. No. | Questions to assess knowledge | Frequency (F) | Percentage (%) |
|---|---|---|---|
| 1 | Knowledge About *H. pylori* Infection | 33 | 27.5 |
| 2 | Aware Of Symptoms | 28 | 23.33 |
| 3 | *H. pylori* Is A | 57 | 47.5 |
| 4 | Sign/Symptom Of *H. pylori* | 63 | 52.5 |
| 5 | Person Suffering From *H. pylori* Will Experience | 52 | 43.33 |
| 6 | Risk Factor | 54 | 45 |
| 7 | Routes | 67 | 55.83 |
| 8 | Investigated By | 25 | 20.83 |
| 9 | Prevention Of *H. pylori* | 84 | 70 |
| 10 | Treatment | 38 | 31.66 |
| 11 | Immediate medical advice for certain condition | 84 | 70 |
| 12 | True Statement Regarding *H. Pylori* | 106 | 88.33 |
| 13 | Complication | 106 | 88.33 |

**Table 3:** Mean, SD, Frequency (f) and Percentage (%) of the subjects to assess the level of knowledge about *H. pylori*

| Knowledge Score | Frequency (F) | Percentage (%) | Mean ± SD |
|---|---|---|---|
| Good | 63 | 52% | 6.63±2.65 |
| Poor | 57 | 48% | |

Data presented in Table 1.2 shows that the mean value is 6.63 and standard deviation is ±2.65 and according to that 63% subjects are having good knowledge score and 57% subjects are having poor knowledge score.

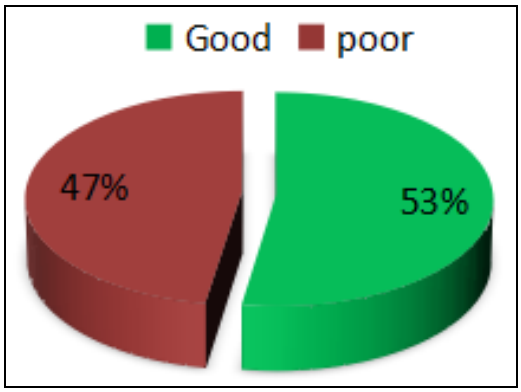


**Fig 1:** Pie chart is showing percentage (%) & distribution of sample according to good/poor knowledge score of the subjects

The data presented in the fig-(1.0) shows that 63% subjects are having good knowledge score and 57% subjects are having poor knowledge score.

**Table 4:** Ranking, percentage (%) and frequency (f) of the subjects according to Risk factors of *H. pylori* infection

| Risk Factors | Total Score | Obtained score | Percentage (%) | Rank |
|---|---|---|---|---|
| Family History | 120 | 55 | 45.83 | 7 |
| Eating Fast Food | 120 | 68 | 56.67 | 5 |
| Unprescribed Drug | 120 | 56 | 46.67 | 6 |
| Eating Hot/Cold Food | 120 | 91 | 75.83 | 4 |
| Empty Stomach | 120 | 103 | 85.83 | 1 |
| Irregular Food Intake | 120 | 94 | 78.3 | 2 |
| Stress | 120 | 92 | 76.67 | 3 |

The data presented in table- 1.3 shows that 85.83% subjects are coming under rank-1 who are staying often in empty stomach, 78.3% subjects are coming under rank- 2 who maintain an irregular time for food intake, 76.67% subjects are coming under rank- 3 who are taking stress in day to day life, 75.83% subjects are coming under rank- 4 who are consuming excessive hot/cold food, 56.6% subjects are coming under rank- 5 consume unhealthy diet, 46.67% subjects are coming under rank- 6 who are addicted to prescribed drugs and 45.83% subjects are coming under rank-7 who have family history of *H. pylori* infection.

**Table 5:** Showing Frequency (F) and Percentage (%) of the subjects according to Life style

| Variables | Frequency (F) | Percentage (%) |
|---|---|---|
| **Drinking Coffee/Tea In Empty Stomach** | | |
| Yes | 95 | 79.17 |
| No | 25 | 20.83 |
| **Doing Daily Exercise** | | |
| Yes | 33 | 27.5 |
| No | 87 | 72.5 |
| **Vaccinated For Hep. B Virus** | | |
| Yes | 24 | 20 |
| No | 96 | 80 |
| **Drinking Alcohol Frequently** | | |
| Yes | 39 | 32.5 |
| No | 81 | 67.5 |
| **Do You Smoke** | | |
| Yes | 51 | 42.5 |
| No | 69 | 57.5 |
| **If Yes, No. Of Cigarettes** | | |
| 1-5 Per Day | 20 | 16.67 |
| More Than 5 Per Day | 31 | 25.83 |
| Do Not Smoke | 69 | 57.5 |
| **Sleeping Pattern** | | |
| 6 Hours | 27 | 22.5 |
| 8 Hours | 87 | 72.5 |
| **Working Pattern** | | |
| 8 Hours | 75 | 62.5 |
| ≥ 12 Hours | 43 | 35.83 |

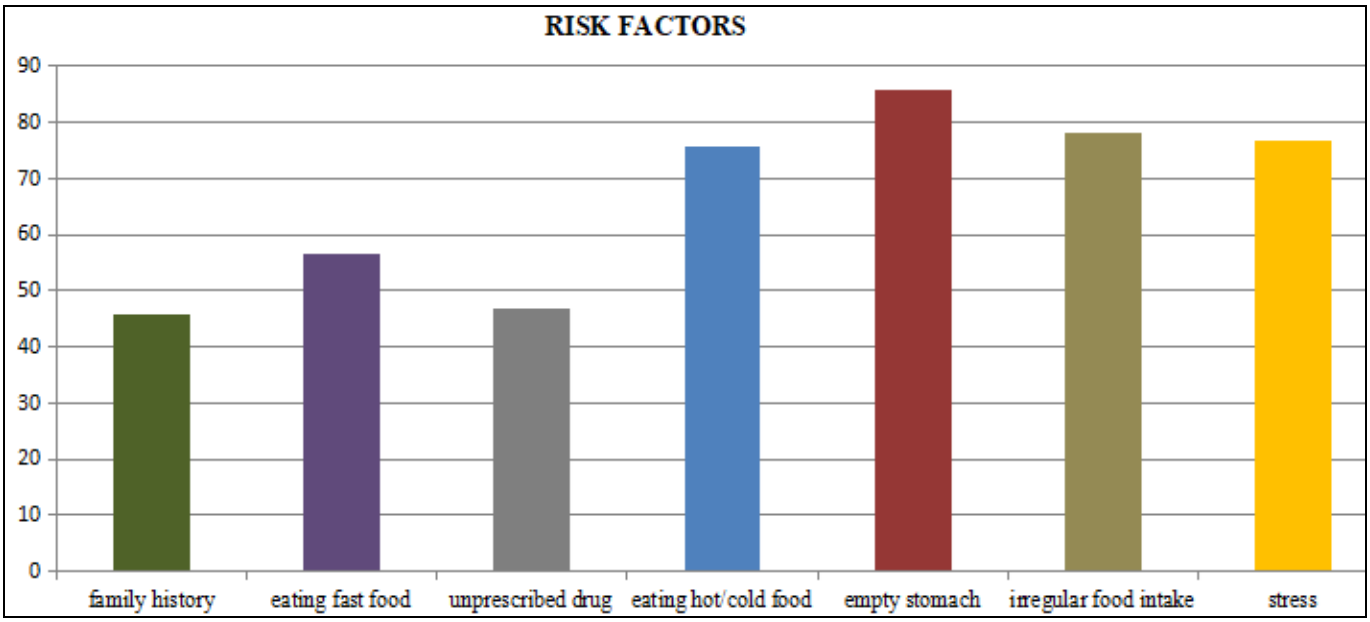


**Fig 2:** Showing the percentage, ranking & distributions according to risk factors of *H. pylori* infection

**Table 5:** Chi-square analysis showing association between knowledge with selected socio-demographic variables

| Variables | Chi-square value | D.F. | P-value | Inference |
|---|---|---|---|---|
| Age | 1375.8 | 6 | .001 | Significant |
| Gender | 2076.03 | 4 | .001 | Significant |
| Education | 1346.2 | 6 | .001 | Significant |
| Income | 1541.83 | 6 | .001 | Significant |
| Family | 1201.32 | 4 | .001 | Significant |
| Area | 1865.63 | 2 | .001 | Significant |
| Occupation | 1171.1 | 6 | .001 | Significant |

## Discussion

Evaluation of knowledge, lifestyle, and risk factors for *H. pylori* infection among OPD gastro patients at IMS & Sum Hospital, Bhubaneswar, was the goal of the current study. The results of the survey revealed that the majority of 56.6% of senior people are male and 40.8% are female, according to a study by Purushothaman Rangaswamy & Shaikh Afzal Rubby [15], and male patients are more likely than female patients to have *H. pylori* infection (66.67% vs. 33.3%).Risk Factors of *H. pylori* Infection lists poor sanitation, congestion, and inadequate water supplies as risk factors for *H. pylori* infection. According to several studies, *H. pylori* prevalence is influenced by a variety of sociodemographic factors, including gender, age, occupation, and alcohol use [16, 17].

According to the findings of the current study, 52% of patients had high knowledge scores, whereas 48% had low knowledge scores. In their descriptive cross-sectional study, conducted in Saudi Arabia, Taghreed A. Hafiz, Juliana Linnette D'Sa, Sahar Zamzam, Maria Liza Visbal Dionaldo, Murad A. Mubaraki, and Regie Buenafe Tumala compared the knowledge of *H. pylori* infection between undergraduate students studying health sciences (44.44%) and non-health science undergraduate students (46.75%), and discovered that the general level of knowledge was Considering their perceived greater knowledge levels, it is likely that the students who did not major in health sciences may have been exposed to some literature on the *H. pylori* diseases, which could have affected their knowledge scores [18].

According to the current study, 45.83% of the subjects have a family history of *H. pylori* infection, 56.6% of the subjects eat an unhealthy diet, 46.67% of the subjects are addicted to illegal drugs, 75.83% of the subjects eat excessively hot or cold food, 85.83% of the subjects frequently stay without eating, 20% of the subjects have irregular eating schedules, and 76.67% of the subjects experience stress in their daily lives.

According to the current study, 42.5% of the individuals smoke, and 79.17% of the subjects drink tea or coffee on an empty stomach. There is no statistically significant difference in *H. pylori* infection between smokers and non-smokers, according to a related study by Rana M. Abu-Mugesieb. However, those who drink coffee were less likely to contract the virus (41.0%) than those who don't (54.0%) [19]. Positive results were found in 46.9% of smokers and 49.1% of nonsmokers, respectively.

The current study indicated that 32.5% of adults frequently consume alcohol, while Yisak, Belete, and Mahtsentu's study found that patients with a drinking habit (74.9%) had a seven and six times higher risk of having *H. pylori* infection than patients without a drinking habit (28.6%) [20].

Poor socioeconomic conditions during childhood are the main risk factor for contracting *H. pylori*. In affluent countries, the prevalence of *H. pylori* infection ranges from 10% in toddlers to 60% in people over 60 [21]. A survey of *H. pylori* infection was conducted in China on a sample of the general population from locations with a high prevalence of gastrointestinal cancer, according to the Poor Life Style and Low Socio-Economic Structure [22]. The 13C-breath test was used to evaluate 5417 healthy people between the ages of 30 and 69. In people with the dyspeptic sign, India, the prevalence of infection ranged from 58% to 62%. [23]. The population's Sociodemographic, socio-economic position, cleanliness, and way of life all have an impact on the prevalence of *H. pylori* [24, 25]. There are numerous ways to find *H. pylori*, but each has drawbacks. Rapid urease test, histology, and culture are invasive techniques that need endoscopy to identify *H. pylori* infection. Other non-invasive diagnostics include carbon-13

urea breath testing, serology, and stool testing [26].

**Recommendations**

The following recommendations are provided as you continue to read the study's findings. The results of this study, which utilised a non-probability convince sample, can only be used as a guide for subsequent research. The study can be generalised to large samples of people in various age groups in order to have a larger relevance.

The entire public should consider receiving health education about the dangers of *H. pylori* infection. Our findings must be validated using more patients, control groups, and other laboratory techniques. As a result of our study, we advise future research to identify any potential *H. pylori* infection sources, especially in individuals who frequently keep an empty stomach and have irregular eating schedules.

**Conclusion**

The study's findings led to the following conclusion. The study attempted to evaluate the patients with *H. pylori* infections in terms of their knowledge, way of life, and risk factors. The knowledge was significantly correlated with a few demographic factors, including age, gender, education, income, family, neighborhoods, and occupation.

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**Conflict of interest:** Nil.

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