



# **STUDY ON FACTORS AND DIETARY PATTERN RESPONSIBLE FOR GERD (GASTROESOPHAGEAL REFLUX DISEASE) IN GERIATRIC PEOPLE**

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**Abstract:** Gastroesophageal reflux disease (GERD) is a common disease that presents with a variety of symptoms including heartburn and acid regurgitation. Although dietary modification is currently regarded as first-line therapy for the disease, the role of diet in the pathogenesis and management of GERD is still poorly understood. There has been speculation for many years that certain dietary and lifestyle factors may play a role in the pathogenesis or course of GERD. A general consensus on the control of GERD through alterations in diet and lifestyle factors. The study was conducted on geriatric people aged from 50- 90 years, Hyderabad. The 100 samples were collected randomly. A structured questionnaire was developed in order to create awareness to know the knowledge on what food needs to be avoided and included. The data collected was tabulated and analysed statistically using one sample t-test and  $p > 0.100$  and is significant at  $t = 100$  hence, hypothesis is proved. The study concluded that patients suffering from GERD have poor knowledge on dietary pattern. The most of the population who are suffering from diabetes or hypertension or CVD, they are more prone to GERD.

**Index Terms - Gastroesophageal reflux disease (GERD), Heartburn, Bitter liquid, Diet, Lifestyle.**

## **I INTRODUCTION**

Gastroesophageal reflux is the involuntary movement of gastric contents to the oesophagus. Gastroesophageal reflux is a normal physiological process that occurs several times a day without symptoms or damage of the oesophageal mucosa in most otherwise healthy individuals. Gastroesophageal reflux disease (GERD) is a condition in which reflux of gastric contents into the oesophagus produces frequent or severe symptoms that negatively affect the individual's quality of life or result in damage to oesophagus, pharynx, or the respiratory tract. Gastroesophageal reflux disease (GERD) occurs when stomach acid frequently flows back into the tube connecting your mouth and stomach (oesophagus). This backwash (acid reflux) can irritate the lining of your oesophagus. Many people experience acid reflux from time to time. GERD is mild acid reflux that occurs at least twice a week, or moderate to severe acid reflux that occurs at least once a week. Most people can manage the discomfort of GERD with lifestyle changes and over-the-counter medications. But some people with GERD may need stronger medications or surgery to ease symptoms. Gastroesophageal reflux is the involuntary movement of gastric contents to the oesophagus. It is a common disease, occurring in one third of the population in the United States. However, reflux is only considered a disease when it causes frequent or severe symptoms or when it produces injury. About 3–7% of the population suffers from frank oesophageal reflux disease. Most reflux disease is not life threatening, as demonstrated by the relatively small number of patients (20%) who are admitted to hospitals with gastroesophageal reflux as the primary cause for admission. Common complications of reflux include esophagitis oesophageal strictures, and Barrett's oesophagus. Gastroesophageal reflux disease (GERD) is a common condition in which the stomach contents move up into the oesophagus. Reflux becomes a disease when it causes frequent or severe symptoms or injury. Reflux may damage the oesophagus, pharynx or respiratory tract.

### **1.1 WHAT ARE THE MAIN SYMPTOMS OF GERD (CHRONIC ACID REFLUX)?**

The main symptoms are persistent heartburn and acid regurgitation. Some people have GERD without heartburn. Instead, they experience pain in the chest, hoarseness in the morning or trouble swallowing. You may feel like you have food stuck in your throat, or like you are choking or your throat is tight. GERD can also cause a dry cough and bad breath.

### **1.2 HOW COMMON IS GERD (CHRONIC ACID REFLUX)?**

GERD is very common. The condition and its symptoms touch a huge number of people: 20% of the U.S. population.

Anyone of any age can develop GERD, but some may be more at risk for it. For example, the chances you'll have some form of GERD (mild or severe) increase after age 40.

### **1.3 FACTORS THAT CAN LEAD TO THIS INCLUDE:**

- Too much pressure on the abdomen. Some pregnant women experience heartburn almost daily because of this increased pressure.
- Particular types of food (for example, dairy, spicy or fried foods) and eating habits.
- Medications that include medicines for asthma, high blood pressure and allergies; as well as painkillers, sedatives and anti-depressants.
- A hiatal hernia. The upper part of the stomach bulges into the diaphragm, getting in the way of normal intake of food.

### **1.4 SYMPTOMS**

- A burning sensation in your chest (heartburn), usually after eating, which might be worse at night, Chronic cough, Laryngitis, New or worsening asthma, Disrupted sleep
- Chest pain, Difficulty swallowing, Regurgitation of food or sour liquid, Sensation of a lump in your throat

### **1.5 CAUSES**

The term “gastroesophageal” refers to the stomach and oesophagus. Reflux means to flow back or return. Gastroesophageal reflux is when what’s in your stomach backs up into your oesophagus.

In normal digestion, your LES opens to allow food into your stomach. Then it closes to stop food and acidic stomach juices from flowing back into your oesophagus. Gastroesophageal reflux happens when the LES is weak or relaxes when it shouldn’t. This lets the stomach's contents flow up into the oesophagus. GERD is caused by frequent acid reflux.

When you swallow, a circular band of muscle around the bottom of your oesophagus (lower oesophageal sphincter) relaxes to allow food and liquid to flow into your stomach. Then the sphincter closes again.

If the sphincter relaxes abnormally or weakens, stomach acid can flow back up into your oesophagus. This constant backwash of acid irritates the lining of your oesophagus, often causing it to become inflamed.

### **1.6 RISK FACTORS**

•Obesity, Bulging of the top of the stomach up into the diaphragm (hiatal hernia), Pregnancy, Connective tissue disorders, such as scleroderma, Delayed stomach emptying

Factors that can aggravate acid reflux include:

- Smoking, Eating large meals or eating late at night, Eating certain foods (triggers) such as fatty or fried foods, Drinking certain beverages, such as alcohol or coffee, Taking certain medications, such as aspirin.

### **1.7 COMPLICATIONS**

- Narrowing of the oesophagus oesophageal stricture).
- An open sore in the oesophagus (oesophageal ulcer).
- Precancerous changes to the oesophagus (Barrett's oesophagus)

### **1.8 DIET CHANGES FOR GERD**

Proper treatment of gastroesophageal reflux disease (GERD) always begins with a visit to a healthcare professional to obtain an accurate diagnosis. It is important to recognize that chronic reflux does not get better on its own. Over-the-counter remedies may provide short-term symptom relief, but can mask an underlying disease if used long-term.

Examples of things to reduce or steer clear of in your diet include:

- High fat foods, Caffeine, Chocolate, Onions, Peppermint, Citrus and tomato products.

## **II AIM AND OBJECTIVES**

### **2.1 AIM**

In the light of above literature, the Aim of the present study is

To study and evaluate the relationship between GERD and dietary pattern in geriatric population.

### **2.2 OBJECTIVES**

- To study the prevalence of the GERD among geriatric people.
- To assess the nutrition status of patients suffering from GERD.
- To study the clinical background of geriatric population suffering from GERD.
- To study the impact of life style and diet on the prevalence of GERD among geriatric population.

### III REVIEW OF LITERATURE

A study was conducted by, Kenneth R. DE Vault (2007) on Management of Reflux Disease in Elderly Patients. At what age does the typical symptomatic profile of a GERD patient begin to change, it is difficult to pinpoint a specific age. The largest issue with older gastroesophageal reflux disease (GERD) patients is that they develop a disconnect between the severity of their symptoms and the severity of their underlying esophageal damage. Generally, this begins when patients are in their 50s and 60s, when the ability to sense acid in the esophagus begins to fade. This is a progressive phenomenon that becomes more profound as patients reach their 70s-80s.

A study was conducted by, Maxwell M Chait et al, (2010) on Gastroesophageal reflux disease: Important considerations for the older patients (GERD) is the most common upper gastrointestinal disorder seen in the elderly. Although elderly patients with GERD have fewer symptoms, their disease is more often severe. Although the evaluation and management of GERD are generally the same in elderly patients as for all adults, there are specific issues of causation, evaluation and treatment that must be considered when dealing with the elderly.

A study was conducted by Danica M. Claret (2018) on Gastroesophageal reflux disease affects millions of people worldwide with significant clinical implications. GERD is a very common digestive disorder worldwide with an estimated prevalence of 18.1–27.8% in North America. Approximately half of all adults will report reflux symptoms at some time. Successful treatment of GERD symptoms has been associated with significant improvement in quality of life.

A study was conducted by Andrew young (2020) on GERD A practical approach, Gastroesophageal reflux disease (GERD) is mainly a clinical diagnosis based on typical symptoms of heartburn and acid regurgitation. Gastroesophageal reflux disease (GERD) is common, accounting for more than 5.6 million physician visits each year. From 10% to 20% of adults in Western countries and nearly 5% of those in Asia experience GERD symptoms at least weekly. The prevalence of GERD symptoms is increasing by about 4% per year, in parallel with increases in obesity rates.

A study was conducted by Rakesh Kalapa (2018) on Gastro-oesophageal reflux disease (GERD), affects one third of the population worldwide and prevalence in India ranges between 8 to 19%. (Gut consensus) Majority of the patients have impaired quality of life (QOL) due to symptoms such as heartburn, regurgitation or dysphagia and long-term complications associated with it. The pathogenesis of GERD is multifactorial, involving transient lower oesophageal sphincter relaxations and other lower oesophageal sphincter pressure abnormalities. As a result, reflux of acid, bile, pepsin and pancreatic enzymes occurs, leading to oesophageal mucosal injury.

### IV METHODOLOGY

Methodology is a significant part of any research study, which enables the research to produce a blue print of the research undertaken.

Methodology of present study is discussed under the following heads-

- Research design
- Selection of area
- Size of sample
- Data collection
- Data analysis

**4.1 RESEARCH DESIGN:** Communicative study, Design of the study is in the following flow chart.

Selection of area (Hyderabad)



Selection of sample



Size of sample (100)



Data collection (using questionnaire as tool)



Data analysis

**4.2 RESEARCH APPROACH:** Communicative study.

**4.3 SELECTION OF AREA:** A study performed on GERD among geriatric people, was done in different zones of Hyderabad city.

**4.4 SELECTION OF SAMPLE:** Through random sampling, 100 samples from general population was selected for survey.

**4.5 DURATION OF STUDY:** The Study has been carried for a period of 1 months.

#### **4.6 COLLECTION OF DATA:**

**Questionnaire:** The questionnaire contains both open ended and close ended questions.

The questionnaire contains questions related to general information, awareness questions, dietary information and medical information. The questionnaire contains Demographic information, anthropometric measurements, questions regarding knowledge of symptoms and risk factors of GERD, family history of GERD Consumption of antacids their dietary habits and lifestyle.

**4.7 DATA ANALYSIS:** The collected data was tabulated and calculated by using statistical formula, one sample t- test, and it is a alternate hypothesis.

#### **FORMULA:**

$$t = \frac{\bar{X} - \mu}{\frac{S}{\sqrt{n}}}$$

Where,

$\bar{X}$  is the sample mean,

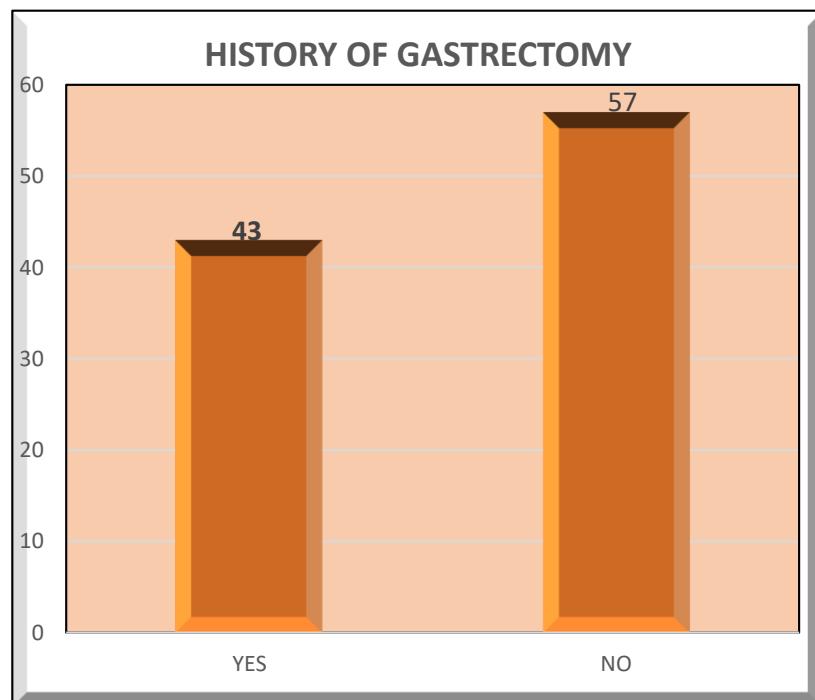
$\mu$  is the hypothesized population mean,

S is the standard deviation of the sample and

n is the number of observations in the sample

## **V RESULT AND DISCUSSION**

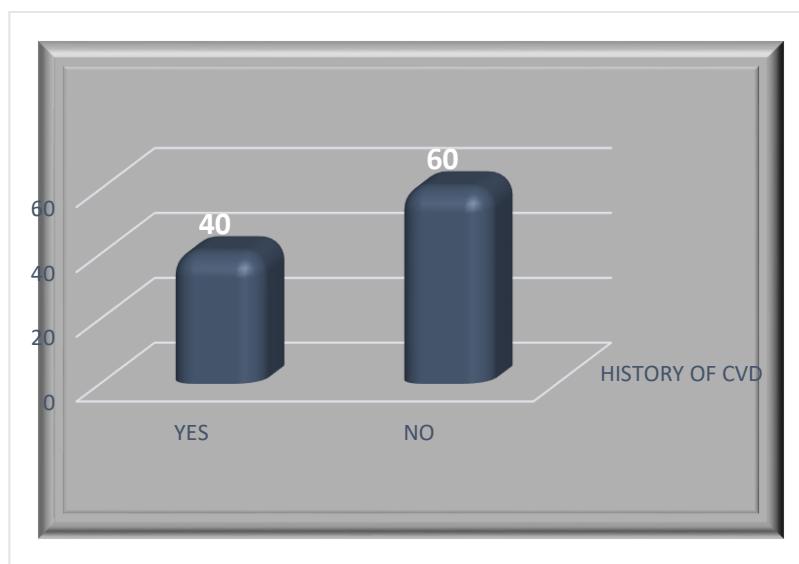
### **5.1 FIGURES:**



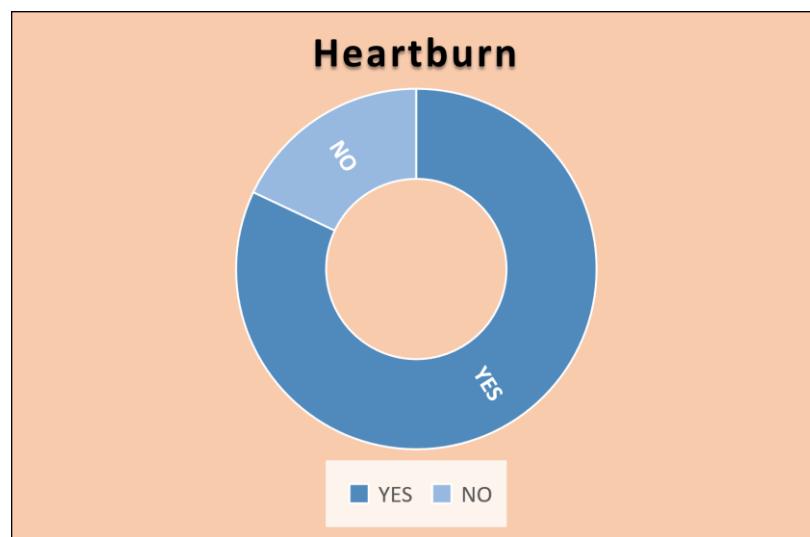
**5.1 The above figure shows history of gastrectomy**



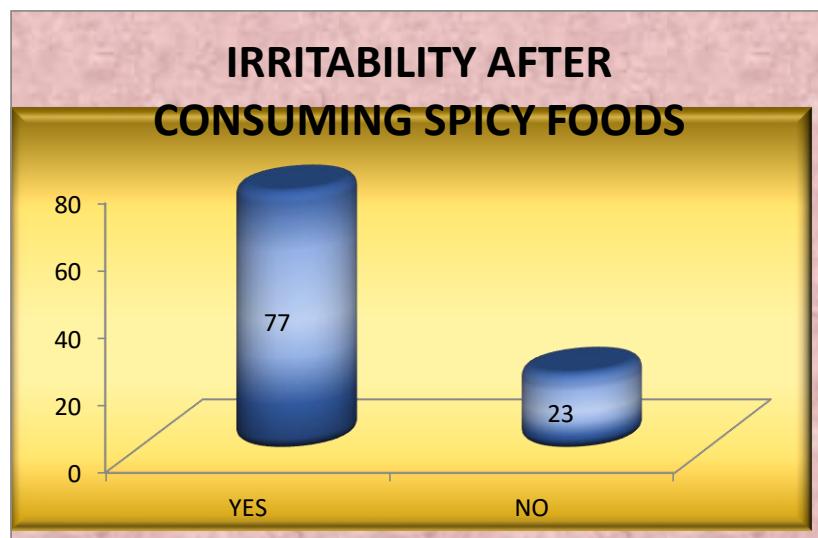
5.2 The above figure shows suffering from GI tract problem



5.3 The above figure shows history of CVD



5.4 The above figure shows people feel heartburn



**5.5** The above figure shows irritability after consuming spicy foods

## 5.2 TABLES:

**5.1** The below table shows whether they get bitter liquid coming up?

OPTIONS	FREQUENCY	PERCENTAGE%
YES	57	57
NO	43	43

**5.2** The below table shows whether they feel pain or discomfort in upper abdomen

OPTIONS	FREQUENCY	PERCENTAGE%
YES	66	66
NO	34	34

**5.3** The below table shows how often they have nausea

OPTIONS	FREQUENCY	PERCENTAGE%
DAILY	29	29
ALTERNATE	37	37
ONCE A WEEK	34	34

**5.4** The below table shows type of diet consumption

OPTIONS	FREQUENCY	PERCENTAGE%
VEGETARIAN	29	29
NON-VEGETARIAN	21	21
BOTH	50	50

### 5.5 The below table shows consumption of alcohol

OPTIONS	FREQUENCY	PERCENTAGE%
YES	32	32
NO	68	68

## VI SUMMARY AND CONCLUSION

Gastroesophageal reflux disease, or GERD, is a digestive disorder that affects the ring of muscle between oesophagus and stomach. This ring is called the lower oesophageal sphincter. The term “gastroesophageal” refers to the stomach and oesophagus. Reflux means to flow back or return. Gastroesophageal reflux is when what’s in stomach backs up into oesophagus. The most common symptom of GERD is heartburn (acid indigestion). It usually feels like a burning chest pain that starts behind your breastbone and moves upward to your neck and throat. Many people say it feels like food is coming back into the mouth, leaving an acid or bitter taste.

The study was aimed to know the impact of diet and life style of geriatric population suffering from GERD. It was carried on 100 samples from different zones of Hyderabad. A well-structured questionnaire was used to gather information from samples. The samples have online as well as face to face interview. Disease related questions, clinical background related questions, nutritional assessment related questions, dietary pattern of the patient, physical activity and food habits of the patient. Awareness on the foods they need to avoid and consume were asked in the questionnaire. The collected data depicts the following results.

**The first objective of the study was to assess the prevalence of GERD among geriatric population.** The result reveals that 78% of population have GI tract problem, and 22% do not have GI tract problem. 60% suffer from heartburn and 40% do not suffer from heartburn. 57% of population get bitter liquid coming up throat and 43% do not get bitter liquid coming up throat. 66% have pain and discomfort in the upper abdomen and 34% do not have pain and discomfort in the upper abdomen. They were asked about nausea, 29% have nausea daily, 37% have nausea alternate, and 34% have nausea once a week.

**The second objective of the study was to assess the nutritional status of people suffering from GERD.** The result reveals that 29% of population follow vegetarian diet, 21% follow non-vegetarian diet and 50% follow both. About 65% of population consume 3 meals per day, 30% consume 4 meals per day and 5% consume 6 meals per day. About 33% of population have food allergy and 67% do not have any food allergy. 61% of population had changed their meal pattern after suffering from GERD, and 39% did not change their meal pattern after suffering from GERD. 62% have knowledge on avoiding foods and 38% do not have knowledge on avoiding foods. About 68% consume tea & coffee and 32% do not consume tea & coffee. 77% of the population find irritability after consuming spicy & oil foods, 23% do not find irritability after consuming spicy & oil foods.

**The next objective of the study was to know the clinical background of the geriatric population suffering from GERD.** The result reveals that 40% of population have history of CVD and 60% of population do not have history of CVD. 43% of population have history of gastrectomy and 57% of population do not have history of gastrectomy. 57% of population have history of diabetes and 43% of population do not have history of diabetes. 63% of population have history of hypertension and 37% of population do not have history of hypertension. About 53% people had markedly increase in their body weight and 47% does not increase their body weight.

**The last objective of the study was to know the impact of life style and diet on the prevalence of GERD among geriatric population.** The result reveals that 28% of population cause heartburn due to spicy foods, 23% of population cause heartburn due to oily foods, 6% of population cause heartburn due to citrus foods and 43% of population cause heartburn due to all of these foods. About 77% of population consume whole grains and 23% do not consume whole grains. 71% know that whole grains are beneficial for gerd, and 29% do not know whole grains are beneficial for gerd. 67% consume oatmeal and 33% do not consume oatmeal. 71% include protein rich foods in their diet and 29% do not include protein rich foods in their diet. About 78% of population perform home remedy to reduce heartburn and 22% do not perform home remedy to reduce heartburn.

**CONCLUSION:** The collected data was tabulated and analyses by using the formula

$$t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$$

one sample t-test the results show that the p value are ( $p > 0.100$ ) and is significant at  $t < 0.100$ , hence, hypothesis is proved. Thus, concluded that population had changed their meal pattern after suffering from GERD.

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