Descriptive Study: Knowledge and Symptoms Severity among Patients with Gastroesophageal Reflux Disease

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Abstract

Background: Gastroesophageal reflux disease (GERD) is a widespread disorder that generally refers to the unrestricted passage of stomach contents into the esophagus, which irritates the lining of the esophagus, causing uncomfortable symptoms. **The study aimed to** assess the knowledge and severity of symptoms among gastroesophageal reflux disease patients. Research design: descriptive research design. **Methods:** A purposive sample composed of sixty patients who met the inclusion criteria. The study was carried out at the Assiut University outpatient clinic of the AL-Rajhi Liver Hospital, Egypt. A demographic data sheet, GERD Knowledge assessment sheet, and Gastro-esophageal Reflux Disease Questionnaire were used to collect relevant data. **Results**: The participants' total knowledge score was poor. Most of the studied patients (83.3%) had severe symptoms of GERD. A highly statistically significant relationship was shown between the patient's characteristics, including occupation and educational attainment, and their overall GERD knowledge scores. **Conclusion and recommendation:** The study concludes that poor knowledge among GERD patients is common, and patients experience severe symptoms regardless of their level of knowledge. This suggests that factors other than knowledge, such as psychological well-being and adherence to treatment, play a significant role in the severity of GERD symptoms. Further studies could explore these additional factors to develop more comprehensive management strategies for GERD patients.

Keywords: Gastroesophageal reflux disease, Knowledge & Symptoms severity

Introduction:

Gastroesophageal reflux disease is a widespread disorder that generally refers to the unrestricted passage of stomach contents into the esophagus, which irritates the lining of the esophagus, causing uncomfortable symptoms (**Simadibrata et al., 2023**). An epidemiological study of GERD found that the global pooled incidence was 13.98%, with significant regional variations (19.55% in North America, 4.16% in China, and 22.40% in Turkey) (**Nirwan et al., 2020**).

The disease arises from a dysfunction in the lower esophageal sphincter, a muscle at the junction of the esophagus and stomach. A weakened or relaxed lower esophageal sphincter (LES) allows stomach acid to reflux more easily. Several factors contribute to this dysfunction, including obesity, hiatal hernia, pregnancy, certain medications, smoking, alcohol consumption, large or fatty meals, certain foods (e.g., citrus fruits, chocolate, spicy foods, tomatoes) (**Baklola et al., 2023**).

Patients with GERD can present with a variety of symptoms that is classifiable as either typical (i.e. heartburn and regurgitation) or atypical which include prolonged sore throat, dental erosions, laryngitis, asthma, persistent cough, hoarseness, and non-cardiac chest pain (**Kuribayashi et al., 2022**).

A diagnosis of GERD is primarily based on symptoms when alarm symptoms are absent. Patients with heartburn and regurgitation, can be diagnosed and treated empirically using proton pump inhibitors (PPIs) (**Katz et al., 2022**). If patients have extraesophageal symptoms or if symptoms continue after taking a PPI, more diagnostic testing could be required. For such situations, endoscopy, pH monitoring, and esophageal manometry are reserved (**Baklola et al., 2023**).

If left untreated, chronic GERD can lead to several serious complications such as Inflammation of the esophageal lining, Barrett's esophagus, Narrowing of the esophagus due to scarring, and Esophageal cancer (**Tanvir et al., 2024**).

Lifestyle adjustments and education of the elements that cause physiological and pathological reflux should be part of the first treatment for GERD. This includes guidance on weight loss, sleep posture, alcohol and tobacco use, and diet. The start of acid suppression therapy is the next stage in GERD treatment. Histamine-receptor antagonists, PPIs, and antacids are among the drug classes used to reduce acid production (**Klenzak et al., 2018**).

A limited number of research examined patients' knowledge, according to **(Bert et al., 2021)**. In a number of illnesses, patient education has been demonstrated to be helpful. It's important to determine how much patients already know about gastroesophageal reflux disease in order to educate them appropriately. Another major goal was to find out how much people knew about the best diet and habits to follow when they had GERD **(Jeong et al., 2017)**

Patients who are better informed about the disease will not only be aware of symptoms that could be signs of GERD, but they will also be aware of the behavioral changes that are required, such as controlling substance use and diet, taking the right medications, avoiding or lessening the severity of symptoms, and seeking medical attention sooner rather than later **(Boulton & Dettmar, 2021).**

Significance

The incidence of GERD is high in the general population, it is estimated to affect up to 20% of the population worldwide. Nowadays GERD is found to be the most common diagnosis made in a gastroenterology practice **(Boulton & Dettmar, 2021).** Persistent GER not only diminishes patients' quality of life but also elevates the risks of complications such as Barrett's esophagus and esophageal adenocarcinoma, thereby making GERD a significant health concern is important.

Understanding the knowledge level of patients regarding their condition is crucial for effective disease management and improving health outcomes. Furthermore, understanding symptom severity can help identify patients at risk for complications, such as esophagitis or Barrett's esophagus, thereby enabling timely medical or surgical interventions **(Afzal et al., 2025).** So, this study aims to assess the knowledge of patients with GERD and the severity of symptoms.

Aim of the study:

The study aimed to assess the knowledge and severity of symptoms among gastroesophageal reflux disease patients.

Questions for Research:

1. What is the level of knowledge among participants about GERD?
2. To what extent are GERD symptoms severe?
3. Does the severity of GERD symptoms correlate with patients' level of knowledge?

Patient and Methods:

Research design:

This study was conducted using a descriptive research design.

Setting:

The study was conducted at the Assiut University outpatient clinic of AL-Rajhi Liver Hospital.

Sample:

A purposive sample composed of sixty patients who had clinical features of GERD (heartburn and acid regurgitation) and also exhibited atypical symptoms, including chest pain, belching, or extra-esophageal symptoms like cough and asthma.

Exclusion criteria:

Pregnancy, significant coexisting illnesses (such as uremia or decompensated liver cirrhosis), previous stomach surgery, and the presence of gastrointestinal malignancies or peptic ulcers.

Sample size:

During the preceding six months, from November 2022 to April 2023, a total of 425 GERD patients visited the outpatient clinic. Using "Epi Info" version 7.2, the sample size was determined to be 203 with a 99% confidence level and a 5% confidence limit.25% of this sample (51) were initially enrolled in the nursing teaching program, which was expanded to 60 in order to prevent refusal and dropout.

Study's tools:

Tool (I): Patient's interview questionnaire: It was developed by the researcher using pertinent literature **(Jallepalli et al., 2022)**, **(Mosa et al., 2024)**. It consists of two parts**:**

Part (1): Demographic data-sheet as age, gender, education level, and occupation, and marital status, duration of illness**.**

Part (2): GERD knowledge assessment sheet:

It consisted of 10 open-ended questions that covered knowledge about the GERD as definition, signs and symptoms, causes of disease**,** risk factors, warning signs of GERD, complications, lifestyle management, dietary management, medication management, and investigations and follow-up.

The patients' responses were scored using the following knowledge scoring system: (0) for an incorrect response, (1) for an incomplete correct response, and (2) for a correct response. After being computed using simple summation, the overall score was transformed into percentages. Patients considered to possess satisfactory knowledge if their score is 60% or greater, and unsatisfactory if it is less than 60%.

Tool II: Gastro-esophageal Reflux Disease Questionnaire.

It is a six-item tool that was developed by **Jones et al. (2009)** to examine GERD symptoms during the past week. It includes two negative predictors (epigastric pain and nausea) that are scored using a reversed Likert scale, and four positive predictors of GERD (frequency of heartburn, regurgitation, sleep disturbance due to these symptoms, and use of over-

the-counter medications in addition to those prescribed) that are scored using a 4-grade Likert scale.

- The patient's likelihood of experiencing GERD symptoms increases with the number of points assigned by the scoring system, which ranges from 0 to 18.
- "-" The patient's score ranged from 0 to 2, meaning that they either had no GERD or had no possibility of getting any symptoms.
- There was a 50% likelihood that the patient will experience mild GERD symptoms between points 3 and 7.
- The patient's chances of experiencing mild to moderate GERD symptoms were 79% between 8 and 10 points.
- There is an 89% risk of having GERD or severe GERD symptoms between 11 and 18 points.

Content validity:
A panel of five experts, including two professors of tropical medicine and gastroenterology and three professors of medical surgical nursing, reviewed the study tools for accuracy, relevance, inclusivity, comprehension, applicability, and simplicity.

Reliability:
The stability of the instruments was evaluated for internal consistency using the Alpha Cronbach test. it was (0.856) for the GERD knowledge assessment sheet and (0.897) for the Gastro-esophageal Reflux Disease Questionnaire.

Pilot study:
Carried out on six patients to assess the clarity and usability of the suggested instruments. Consequently, the necessary modifications were made. Participants in the pilot study were not included in the study's initial sample.

Ethical consideration:
The research proposal was approved by the Ethical Committee within the Faculty of Nursing. There was no risk to study participants during the application of the research. The study was following common ethical principles in clinical research. Formal consent was obtained from the patients who were willing to participate in the study, after explaining the nature and purpose of the study. The confidentiality of the subject data was assured. They were informed that participation was voluntary and that patients could withdraw at any time of the study. Anonymity was considered during the collection of data.

Procedure
To carry out the study and gather the necessary data, the researcher obtained formal approval from the director and the head of the Tropical Medicine and Gastroenterology Department at AL-Rajhi Liver Hospital, Assiut University Hospital. The department heads received a brief overview of the study's

purpose, benefits, and data collection methods. The fieldwork lasted approximately six months, starting in August 2023 and concluding at the end of January 2024. Patients who were willing to participate in the study provided formal consent before completing the questionnaire. Upon distributing the questionnaire sheets, the researcher encouraged participants to respond freely. For those who were illiterate, the researcher read the questions aloud and recorded their exact responses. Completing the knowledge and demographic data sheets took about 20- 30 minutes, while the Gastroesophageal Reflux Disease Questionnaire required around 10- 20 minutes to complete.

Statistical analysis:
The Statistical Package for the Social Sciences (SPSS) version 22 was used for data entry and analysis. Frequency, percentage, mean, and standard deviation were used to display the data. To quantify the correlation between quantitative data, a Pearson correlation assessment was performed. A P-value of < 0.05 was considered statistically significant.

Results

Table (1): Patients' demographic variables under study (n = 60)

Demographic variables	No.	%
1. Age: (years)		
18 < 40	31	51.7%
40 < 60	24	40.0%
60 – 65	5	8.3%
Mean ± SD (Range)	**39.63 ± 10.57 (20.0-62.0)**	
2. Gender:		
Male	27	45.0%
Female	33	55.0%
3. Marital status:		
Single	11	18.3%
Married	44	73.3%
Divorced	2	3.3%
Widow	3	5.0%
4. Educational level:		
Illiterate	13	21.7%
Read and write	10	16.7%
Basic education	3	5.0%
Secondary	19	31.7%
University	15	25.0%
5. Occupation:		
Employer	30	50.0%
Housewife	19	31.7%
Not wok	11	18.3%
6. Duration of illness:		
< 4 months	10	16.7%
4 - 6 months	8	13.3%
> 6 months	42	70.0%

Table (2): Percentage distribution of GERD knowledge scores obtained by patients(n=60)

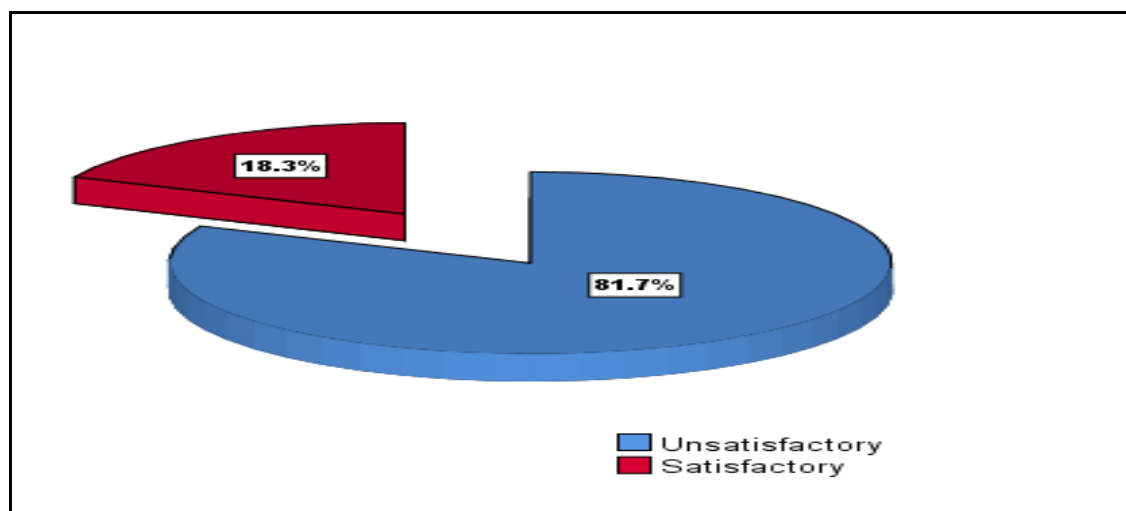| GERD knowledge items	Incorrect		Incomplete correct		Complete correct	
	No.	%	No.	%	No.	%
1. Definition of disease	24	40.0	26	**43.3**	10	16.7
2. Risk factors	41	68.3	15	25.0	4	6.7
3. Causes of disease	37	61.7	21	35.0	2	3.3
4. Signs and symptoms	19	31.7	25	**41.7**	16	26.7
5. Warning signs	35	58.3	15	25.0	10	16.7
6. Complication	39	65.0	10	16.7	11	18.3
7. Life style management	34	56.0	14	23.3	12	20.0
8. Dietary management	36	60.0	16	26.7	8	13.3
9. Medication management	26	43.3	21	**35.0**	13	21.7
10. Investigations and follow up	40	66.7	12	20.0	8	13.3

Figure (1): Knowledge score levels regarding GERD attained by studied patients (n = 60)

Table (3): Percentage distribution of GERD symptoms scores reported by patients (n = 60)

Symptoms of GERD	Symptoms Frequency	No.	%
1- Heart burn.	0 day	0	0.0
	1 day	0	0.0
	2 - 3 days	4	6.7
	4 - 7 days	**56**	**93.3**
2-Reguigitation.	0 day	0	0.0
	1 day	2	3.3
	2 - 3 days	8	13.3
	4 - 7 days	**50**	**83.3**
3- dyspepsia.	0 day	38	63.3
	1 day	10	16.7
	2 - 3 days	2	3.3
	4 - 7 days	10	16.7
4-Nausea	0 day	28	46.7
	1 day	12	20.0
	2 - 3 days	9	15.0
	4 - 7 days	11	18.3
5-Difficulty getting good night sleep	0 day	8	13.3
	1 day	9	15.0
	2 - 3 days	17	28.3
	4 - 7 days	26	43.3
6-Take over counter medication	0 day	1	1.7
	1 day	6	10.0
	2 - 3 days	13	21.7
	4 - 7 days	**40**	**66.7**

Table (4): Levels of GERD symptoms severity reported by patients (n = 60)

Level of severity of GERD symptoms	No.	%
No GERD	0	0.0%
Mild	0	0.0%
Moderate	10	16.7%
Severe	50	83.3%
Mean ± SD	**12.07 ± 1.87**	

Table (5): Correlation between total knowledge scores and GERD symptoms scores (n = 60)

	GERD symptoms scores	
GERD knowledge scores	**r-value**	0. 200
	P-value	0.125

Table (6): Relationship between total knowledge scores and demographic variables (n= 60)

Demographic variables	Total knowledge score
	Mean ± SD
Age: (years)	
18 - < 40	3.81 ± 2.93
40 – 65	2.86 ± 2.90
P-value	0.215
Gender:	
Male	3.93 ± 3.14
Female	2.88 ± 2.70
P-value	0.170
Marital status:	
Married	3.25 ± 2.95
Not married	3.63 ± 2.94
P-value	0.665
Educational level:	
Less than secondary	1.85 ± 1.52
Secondary	3.11 ± 2.56
University	6.27 ± 3.20
P-value	**0.000***
Occupation:	
Employed	4.43 ± 3.09
Unemployed	2.27 ± 2.33
P-value	**0.003***

Table (1): Illustrates that most of the patients in the study (73.3%) were married, and 40% were between the ages of 40 and 60 with mean age of 39.63 ± 10.57 years. Half of them (50%) were employed, and one-third (31%) had completed secondary school. Over half of the patients in the study (55%) were female, and the bulk of the sample (70%) had illness for more than six months.

Table (2): Shows that slightly less than half of patients-43.3%, 41.7%, and 35%, respectively-know some knowledge about the definition, symptoms, and treatment of GERD. In the following areas, more than fifty percent of them lacked adequate knowledge: illness risk factors, causes, warning signs, complications, lifestyle and nutritional management, investigations, and follow-up.

Figure (1): Illustrates that the majority of the sample under study has unsatisfactory level of knowledge regarding gastroesophageal reflux disease.

Table (3): Represents that most of the patients with GERD experienced heartburn and regurgitation (93.3%, 83.3%, respectively), and more than half of them (66.7%) took over-the-counter drugs.

Table (4): Demonstrate that most of studied patients (83.3%) had severe symptoms of gastroesophageal reflux disease.

Table (5): Show that no significant correlation between patients GERD knowledge and severity of their symptoms.

Table (6): Shows a highly statistically significant relationship between the patients' characteristics, including occupation and educational attainment, and their overall GERD knowledge scores, with P-values of 0.000 and 0.003.

Discussion
In order to establish baseline data for the creation of an appropriate and significant GERD education program, this study evaluated the level of disease-related knowledge among GERD patients. Patients who are better informed about the disease will not only be aware of symptoms that could be signs of GERD, but they will also be aware of the behavioral changes that are required, such as dietary and substance use changes, understanding how to prevent and lessen the severity of symptoms, taking the right

medications, and seeking medical attention sooner rather than later (**Newberry & Lynch, 2021**)

Regarding the sample's demographics, the findings revealed that over half of the study participants were female and with an average age of 39.63 ± 10.57 years. This outcome is in line with research by **Mosa et al. (2024)**, which discovered that the average age of the participants was 42.5 years. According to **Manterola et al. (2020)**, GERD is greater in older individuals and female patients, which supports the idea that GERD is more noticeable in older people and female patients. Additionally, **Nirwan et al. (2020)** corroborated that the occurrence of gastroesophageal reflux is more prevalent among women than men.

According to the study's findings, the majority of the patients were married. These findings align with the study by (**Zein Elgendi et al., 2023**) which showed that the majority of patients were married. One-third of the patients in the study had a secondary school degree, and fifty percent of them had employment, according to the results regarding occupation and educational attainment. These findings are in line with those of **Shrief (2021)**, who found that quite all participants were employed and that one-third had a secondary school degree.

The majority of the group under study had been ill for more than six months, according to the study's analysis of disease duration. This outcome is consistent with the findings of **Ahamed et al. (2018)**, who reported that over fifty percent of patients experienced an illness duration exceeding six months. Regarding the study's inquiry concerning the participants' overall knowledge of GERD, the findings indicated that their knowledge was unsatisfactory. Because most participants had the disease for more than six months, had visited the hospital more than once, knew they had the disease, and knew some information about it, the study analysis showed that less than half of patients had moderate knowledge regarding the meaning, symptoms, and medication used. Conversely, over fifty percent of participants lacked adequate knowledge about the etiology, symptoms, alarm signs, dietary and lifestyle management, and follow-up of the disease.

The findings mentioned above highlight the necessity for patients to get education about their condition and how to alter their diet and lifestyle. This is consistent with the findings of **Alshaikh et al. (2021)**, who reported that a significant proportion of respondents accurately recognized heartburn and regurgitation and gave accurate answers about their comprehension of GERD, but that their level of knowledge about the causes, symptoms, and treatment of GERD was low.

According to this study, most of patients with GERD experienced heartburn and regurgitation, and more than half of them took over-the-counter drugs. This is because a large number of individuals with the illness do not seek medical assistance. Instead, people use over-the-counter medications from pharmacies to treat symptoms without a prescription. This result is consistent with that of **Domakunti & Lamture (2022)**, who discovered that heartburn, regurgitation, and epigastric pain were the most prevalent symptoms.

Regarding the study question about the intensity of GERD symptoms among the participants, the findings indicated that most of patients experienced severe GERD symptoms. This is because most people waited until their symptoms were severe before seeking medical advice. This finding was supported by **Ahamed et al. (2018),** who reported that the majority of people experienced severe GERD symptoms before to employing the approach he described.

Regarding the study question concerning the correlation between participants' knowledge of GERD and the severity of their symptoms, the results showed no statistically significant correlation. This could be because some patients may not follow suggested therapies and lifestyle modifications even when they are knowledgeable about them. These findings come consistent with **Mari et al., (2023), who** discovered no significant correlation between erosive esophagitis grade and quality of life in GERD patient. Also, the study carried out by **Alhawsawi et al., (2023)** showed no association between level of GERD knowledge and development of complications. Finally, the results of the current investigation showed a significant relationship between patients' knowledge and their occupation and educational attainment. This result is consistent with a study by **Jeong et al. (2017),** which showed that the degree of disease awareness varied significantly depending on education and occupation.

Conclusion:

The study concludes that poor knowledge among GERD patients is common, and patients experience severe symptoms regardless of their level of knowledge. This suggests that factors beyond knowledge, such as psychological well-being and adherence to treatment, play a significant role in the severity of GERD symptoms. Further studies could explore these additional factors to develop more comprehensive management strategies for GERD patients.

Recommendations:

Some suggestions are made in light of the study's findings:

1. Enhance Patient Education: Develop comprehensive educational programs to improve patients' understanding of GERD, its symptoms, and management strategies.
2. Target High-Risk Groups: Focus educational efforts on demographics with lower levels of education and specific occupations that may be at higher risk.
3. Regular Follow-Ups: Implement regular follow-up sessions to reinforce knowledge and address any emerging symptoms or concerns.
4. Collaborative Care: Encourage collaboration between healthcare providers, patients, and caregivers to ensure consistent and accurate information dissemination

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