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Original Research Article

Awareness of Patients with Peptic Ulcers Regarding Lifestyle Modifications in Shendi City, Sudan: A Cross-Sectional Study

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Abstract: ***Background*:** Peptic ulcer disease significantly impacts the healthcare system and remains a considerable cause of patient morbidity and mortality, leading to numerous psychosocial, emotional, and economic consequences. Gastrointestinal disorders significantly affect not only the health-related quality of life of those afflicted but also that of their relatives and families. Its onset at a young age disrupts a particularly active phase of human life. ***Objectives*:** This study aims to assess patients' awareness of lifestyle modifications for managing peptic ulcers. ***Methods*:** This study was a descriptive, cross-sectional, hospital-based research study conducted among patients with peptic ulcer disease (N = 50). Participants were selected from individuals attending the referral clinic of Elmek Nimir University Hospital, as well as patients who were admitted. The selection was carried out through convenience sampling. Before implementing the program, patients' knowledge was assessed using a structured, standardized questionnaire. The collected data were analyzed using SPSS Version 22 and the Excel program. ***Results*:** This study indicated that fewer than half (44%) of the participants fell within the 31- to 40-year-old age range. Over half (58%) had gastric ulcers, and a similar proportion (58%) expressed satisfaction with the definitions and risk factors. Half (50%) reported having satisfactory knowledge regarding the causes, while the majority (70%) demonstrated a satisfactory understanding of the complications of peptic ulcer disease. Almost all (92%) participants used medication for treatment, and over half (60%) reported the ineffectiveness of the medication in stabilizing ulcers as a personal barrier to treatment. Additionally, more than half (56%) cited low socioeconomic status as a socio-cultural barrier. ***Conclusion*:** The awareness of factors that aggravate peptic ulcers varied among individuals in Shendi City. Our study revealed that most people understood relevant food types, *Helicobacter pylori*, analgesic medications, coffee intake, smoking, and social stress. In contrast, weather changes, genetic predispositions, and body weight were associated with poor awareness. Ultimately, these findings should be validated by additional research involving a larger sample from the general population across various regions of Sudan.

Keywords: R Awareness, Lifestyle Modifications, Peptic Ulcer Disease.

1. INTRODUCTION

Before the twentieth century, stomach ulceration accounted for the majority of peptic ulcer disease, with the incidence of duodenal ulcers increasing progressively, peaking in the 1950s. The cause of this rise remains unclear, as *H. pylori* is believed to have been widespread in the human population for thousands of years [1]. In developing countries, the prevalence of infection can be as high as 80% among adults. Person-to-person transmission of *H. pylori* is likely due to familial clustering of the disease, which refers to the tendency for family members to share the same strain of *H. pylori*. In Sudan, data on the prevalence of *H. pylori* infection is relatively sparse, with only one study indicating a high prevalence (80%) among patients exhibiting symptoms of gastritis, with 56% also having a

duodenal ulcer. In contrast, 60% of those with duodenitis and 16% appear normal [2, 3]. Multiple studies in Iraq have assessed the prevalence of *H. pylori* infection in peptic ulcer disease, revealing figures ranging from 60% to 70%. The annual incidence of *H. pylori* infection is approximately 4% to 15% in developing countries, compared to about 0.5% in industrialised nations. This prevalence correlates with increasing age, non-white ethnicity, larger family size, low socioeconomic conditions during childhood, and a greater number of siblings. These findings underscore the need for targeted interventions to address the socioeconomic factors that contribute to *H. pylori* infection [4, 5]. Peptic ulcer disease (PUD) is among the most prevalent human ailments, affecting roughly 50% of the global population. The lifetime risk of developing a peptic ulcer is about 10%, which resulted in 301,000 deaths in 2013, a figure that has since risen to 327,000. Notably, many of these fatalities are preventable, providing hope for the potential impact of our work in this field. Infections with *Helicobacter pylori* roughly correlate with age, with rates increasing from 20% at age 20 to 30% at age 30 and reaching 80% at age 80 [6]. Peptic ulcer disease is a prevalent issue, affecting millions of Americans each year, with over a million patients requiring hospital admission. The associated medical costs are staggering, estimated at £5.65 billion annually in the U.S. Nevertheless, recent medical advances have significantly enhanced our understanding of ulcer formation. This progress has led to improved and diverse treatment options, providing hope and relief to those affected [7-9]. The prevalence is higher in developing countries, estimated at 70% of the population, whereas in developed countries, it reaches a maximum rate of 40%. Researchers in Sabah, Malaysia, confirmed a *prevalence of Helicobacter pylori infection* of 32.26% among 1,156 subjects aged 12 to 80. In the past, duodenal ulcers were ten times more common in men than in women, while gastric ulcers exhibited a male majority of 3:2. Currently, the frequency is much lower, primarily due to the more equitable incidence of *H. pylori* eradication and the global sale of antacid drugs exceeding $5 billion, rendering ulcer disease a significant burden on the public healthcare system [10-12]. Peptic ulcer disease (PUD) is a global health concern, with *Helicobacter pylori* infection and the use of non-steroidal anti-inflammatory drugs (NSAIDs) being the most common causes. This includes aspirin, ibuprofen, and naproxen, as well as smoking or tobacco use. The test-and-treat strategy for detecting *H. pylori* is particularly effective when the risk of gastric cancer is low, specifically in individuals younger than 55 years and those without concerning symptoms. This strategy empowers healthcare professionals to make informed decisions about patient care. For most other patients, upper endoscopy is recommended to rule out malignancy and other serious causes of dyspepsia [13]. Therefore, this study aims to assess the level of awareness of patients with peptic ulcers regarding lifestyle modifications in Shendi City, Sudan.

2. MATERIALS AND METHODS

Study Design: This study was a descriptive, cross-sectional, hospital-based investigation.

Study Area: The study took place in the River Nile State, specifically in Shendi town, located 176 km north of Khartoum and 110 km south of El-Damer, the capital of the River Nile State. Shendi lies on the eastern bank of the River Nile and spans an area of approximately 14,596 km². The estimated population of Shendi locality is 197,589, with 116,713 residing in rural areas and 80,876 in urban centres. Most residents are engaged in farming. Shendi serves as the centre of the Jalilin tribe and is historically significant as a trading hub. Shendi University, established in the early 1990s, is a key institution for higher education. The town is home to three major hospitals: Elmek Nimer University Hospital, Shendi Teaching Hospital, and Military Hospital.

Setting: The study was conducted at Elmek Nimer University Hospital, which was established in 2002. The hospital comprises various departments, including Medicine, Paediatrics, Surgery, Obstetrics, the Renal Centre, the Cardiac Centre, the Ophthalmic and Dental Unit, Dialysis, Laboratory, Pharmacies, and Referral Clinics. Details of the Cardiac Centre: Cardiac Care Unit (CCU): 8 beds, Intermittent Cardiac Care Unit, Stress Test, Electrocardiogram (ECG) Room, Echocardiogram Room, and Cardiac Catheterization Lab (with 2 follow-up rooms). The staff consists of 6–8 nurses working in three shifts. Intensive Care Units (ICUs): Surgical ICU: 4 beds with 4 nurses (three shifts), Medical ICU: 8 beds with 8–12 nurses (three shifts).

Study Population: Patients with peptic ulcer disease attended the referral clinic and were admitted to the hospital during the study period.

Inclusion Criteria: Patients diagnosed with peptic ulcer disease who have been on medication for at least one month, with or without other co-existing medical conditions, and possessing a medical history of peptic ulcer.

Exclusion Criteria: Patients were not present during data collection, nor were those who declined to participate.

Sampling Techniques: Convenience sampling consisted of patients who attended the outpatient clinic or were admitted to the hospital and met the inclusion criteria.

Sample Size: Fifty patients were selected.

Data Management: The data was entered into the computer using the SPSS software. The information gathered from all participants was recorded in a spreadsheet format. Analysis was conducted using SPSS (version 22) for any statistical significance, with some

questions analysed using Excel. Data was summarized with frequency tables. The chi-square test was employed to compare proportions, and correlation (cross-tabulation) analysis was conducted. An analysis was conducted to identify the most significant predictor variable among all variables. *P-value* of 0.05 or less was considered statistically significant.

3. RESULTS

Table 1: The distribution of sociodemographic characteristics

Variables	Frequency	Percent %
Age		
20-30	11	22%
31-40	22	44%
41-50	14	28%
More than 50	3	6%
Gender		
Male	25	50%
Female	25	50%
Occupation		
Housewife	12	24%
Government employee	11	22%
Freelancer	19	38%
Student	8	16%
Total	**50**	**100%**

Table 2: Distribution of Study Groups by Knowledge Source

Source of Knowledge	Frequency	Percent %
Social media	4	8%
Health Workers	44	88%
Community	2	4%
Total	**50**	**100%**

Table 3: Study Group's Awareness about Peptic Ulcer Disease.

Knowledge Aspect	Level	Frequency	Percent %
Definition	Good	18	36%
	Fair	29	58%
	Poor	3	6%
Risk Factors	Good	20	40%
	Fair	29	58%
	Poor	1	2%
Causes	Good	22	44%
	Fair	25	50%
	Poor	3	6%
Complications	Good	11	22%
	Fair	35	70%
	Poor	4	8%

Table 4: Historical Background of the Study Group

Variables	Category	Frequency	Percent %
Duration of Disease	<5 years	26	52%
	5-10 years	19	38%
	>10 years	5	10%
Type of Ulcer	Gastric	29	58%
	Duodenal	20	40%
	Do not know	1	2%
Appetite	Normal	7	14%
	Increased	17	34%
	Decreased	26	52%

Table 5: Adherence to Lifestyle Modifications Regarding Medication Use

Variables	Category	Frequency	Percent %
Medication Taken	Pharmaceutical	46	92%
	Herbal	2	4%
	Both	2	4%
Medication Knowledge	Know by name	37	74%
	Know by packaging	13	26%
NSAID Use	Occasionally	43	86%
	Regularly	7	14%
	Never	0	0%

Table 6: Adherence to Lifestyle Modifications Regarding Diet

Dietary Component	Level	Frequency	Percent %
Fruits	Occasionally	44	88%
	Regularly	6	12%
Vegetables	Occasionally	40	80%
	Regularly	10	20%
Fiber Diet	Occasionally	39	78%
	Regularly	11	22%
Spices	Occasionally	38	76%
	Regularly	12	24%
Fat	Occasionally	33	66%
	Regularly	17	34%
Coffee	Occasionally	36	72%
	Regularly	12	24%
	Never	2	4%
Milk/Dairy	Occasionally	38	76%
	Regularly	10	20%
	Never	2	4%

Table 7: Barriers to Lifestyle Practice among Study Group

Barrier	Specific Barrier	Frequency	Percent %
Personal Barriers	Perceived medicine ineffectiveness	30	60%
	Lack of motivation	18	36%
	Difficulty complying with dietary restrictions	2	4%
Socio-Cultural Factors	Socioeconomic constraints	28	56%
	Lack of social support	19	38%
	Cultural values	3	6%
Therapy-Related Barriers	Adverse effects of treatment	43	86%
	High cost of therapy	4	8%
	Complex treatment regimen	3	6%
Access to Care	Lack of health insurance	14	28%
	Transportation difficulties	36	72%

4. DISCUSSION

Peptic ulcer disease is an important condition that requires vigilance in a patient population frequently exposed to NSAIDs, oral corticosteroids, and anticoagulants. Gastrointestinal ulceration and peptic ulcer disease are significant causes of morbidity both in the United States and globally. The results of the study indicated that less than half (44%) of the study group were aged between 31 and 40 years, and half (50%) of them were male. This result agrees with a previous study conducted in China, which reported that peptic ulcer disease was more common in men than in women (61.9%) [14]. Moreover, more than one-third (38%) of the participants were identified as free workers, and more than one-third (36%) had attended secondary school. This finding does not align with a previous study conducted in Taiwan, which demonstrated that subjects with a lower education level had a higher risk of peptic ulcer [15]. Less than half (44%) of the participants had a first-degree family history of peptic disease. The study revealed that most participants (88%) acquired their knowledge about the disease from health workers, which aligns with a previous study conducted in Bangladesh, which reported that 32.7% of participants learned about the disease from health workers [16]. More than half (58%) of the participants were satisfied with their understanding of the definition and risk factors, while half (50%) felt satisfied with their knowledge of the

causes. The majority (70%) were also satisfied with their understanding of the complications of peptic ulcer disease. Furthermore, the study showed that more than half (52%) of the participants had been diagnosed for less than five years, while more than half (58%) had gastric ulcers. This result agrees with a study conducted in the USA, which stated that these ulcerations most commonly occur in the stomach (gastric ulcer) [17]. More than half (52%) of them reported issues with their appetite. Regarding adherence to lifestyle modification among the study group, almost 92% use medication for treatment. Additionally, a majority (74%) are familiar with the names of their medications, and most (86%) use NSAIDs. This result corresponds with a previous study conducted in the Hoskote area of Bangalore, India, which states that non-steroidal anti-inflammatory drugs (NSAIDs) are an important factor causing ulcers [18]. Regarding nutrition, the study indicates that most (88%) of the study group consume fruit occasionally, while a majority (80%) eat vegetables occasionally. Furthermore, a majority (78%, 76%, 72%, 76%) consume fiber and spicy foods occasionally, and drink coffee and dairy milk occasionally, respectively. Two-thirds (66%) of the participants occasionally consume fats in their diet. On the other hand, a majority (82%) engage in regular daily exercise. Concerning their bad habits, most (88%) are non-smokers. This result contrasts with a previous study conducted in Malaysia, which reported that smoking was a significant factor associated with infection [4]. It also disagrees with another study from Kano, Nigeria, which found a strong correlation between H. pylori infection and cigarette smoking (P< 0.01) [19]. Furthermore, 100% do not consume alcohol, and 76% reported experiencing anxiety. The study clarified that barriers to practicing a healthy lifestyle include the ineffectiveness of medicine to stabilize their ulcers, which was reported by more than half (60%) of the study group as a personal barrier. More than half (56%) cited low socioeconomic status as a sociocultural barrier. This result aligns with a previous study conducted at Atbara Hospital, which reported that ulcers are associated with low socioeconomic status, poor hygiene, and overcrowding [3]. Additionally, most (86%) reported adverse effects as a therapy-related barrier, and a majority (72%) lacked transportation as a barrier to accessing care. *H. pylori* is now accepted to be the infective pathogen that causes most gastric and duodenal ulcers. *H. pylori* infection causes chronic atrophic gastritis during the later stage of the illness [20].

5. CONCLUSION

The patient's knowledge of peptic ulcer disease showed that over half of the study group felt confident in their understanding of its definition, risk factors, and causes. Moreover, most participants demonstrated a sufficient understanding of the disease's complications. When it comes to lifestyle changes, nearly all members relied on medication for treatment, predominantly NSAIDs. In terms of nutrition, the study found that most participants consumed fruit occasionally, while the majority ate vegetables, fiber, and spicy foods on an intermittent basis. They also occasionally drank coffee, milk, and dairy products. Additionally, two-thirds incorporated fats into their diet from time to time. As for obstacles to implementing lifestyle changes, more than half of the respondents indicated that ineffective medication for stabilizing ulcers presented a personal barrier. Furthermore, over half cited low socioeconomic status as a socio-cultural barrier, and many reported adverse effects as a therapy-related hurdle. Most participants also mentioned a lack of transportation as a challenge in accessing care.

Consent: The patient's written consent has been collected.

Ethical Approval

The Department of Community Health in the College of Medicine at Shendi University approved the study. The ethical review committee reviewed the study. The aims and benefits of this study were explained, along with assurances of confidentiality. All protocols in this study were conducted in accordance with the Declaration of Helsinki (1964).

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Conflict of Interest: The authors have declared that no competing interests exist.

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