

Assessment of Knowledge, Attitude, Practice, and Related Factors among a Sample of Patients with Irritable Bowel Syndrome Attending Al-Imamain Al-Kadhimain Medical City in 2023

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Abstract

Background: Irritable bowel syndrome (IBS) is the most common functional gastrointestinal disorder seen in both primary and secondary care. It is a major socioeconomic burden because affected patients use more health-care resources with reduced work productivity when compared to the healthy population. **Objectives:** The objectives of this study were to assess the knowledge, attitude, and practice of IBS patients and to assess some sociodemographic factors that may related to these variables. **Patients and Methods:** A cross-sectional study was conducted in the Gastroenterology Clinic and Internal Medicine clinic at Al-Imamain Al-Kadhimain Medical City in Baghdad/Iraq during the period from April 1, 2023, to August 31, 2023. All patients 18 years and older diagnosed with IBS were included in the study. A total of 280 patients participated in the study. Data were collected through a face-to-face interview with the patients using a standardized questionnaire with some modifications. **Results:** The average participant age was 39.61 ± 14.77 years, with most (72.1%) falling between 18 and 45 years, and 65.7% reported having a family history of IBS. The results show that 171 patients (61%) had an acceptable level of knowledge score. Two hundred and sixty-six patients (95%) acknowledged the role of stress and anxiety in IBS, and most participants (92.5%) knew the importance of immediate medical attention for serious symptoms. Education plays a pivotal role ($P = 0.0001$). Higher education correlates with excellent knowledge, Illiterates mostly have poor knowledge. One hundred and seventy-eight patients (64%) had positive attitude. One hundred and sixty-nine patients (60%) had bad practice. One hundred and ninety-five patients (69.6%) avoid certain foods that are known to trigger IBS symptoms, and 157 patients (56.1%) reported adequate sleep. **Conclusions:** The majority of IBS patients had an acceptable level of knowledge, positive attitude, and bad practice. Most of them know that managing anxiety and changing diet can improve IBS symptoms.

Keywords: Fodmap, IBS, rome criteria

INTRODUCTION

Overview of irritable bowel syndrome

Irritable bowel syndrome (IBS) is a functional bowel disorder characterized by abdominal pain or discomfort and altered bowel habits in the absence of detectable structural abnormalities.^[1] A pooled analysis showed a global prevalence of 11.2%.^[2] IBS affects around 10%–20% of the population; however, about 35% of them are likely to obtain medical advice due to their symptoms. Because of the unknown and complicated pathophysiology of the disease, there is no radical treatment and medical intervention is based on relieving the symptoms.^[3]

IBS is a major socioeconomic burden because affected patients use more health-care resources with reduced work productivity when compared to the healthy population.^[4] IBS also has a significant negative impact on the quality of life (QoL), and it can affect both work and daily activities of patients. The

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pathophysiology of IBS has not been clearly understood yet and multifactorial, have been involved such as alterations in gastrointestinal (GI) motility, visceral hypersensitivity, small intestinal bacterial overgrowth, environmental factors, such as dietary habits and intestinal microbiota alterations (dysbiosis) which is still unclear if it is a cause or a consequence in the pathogenesis of this syndrome.^[5] Compared with the general population, IBS does not increase the overall risk of cancer. Conversely, IBS is associated with a lower risk of incident colorectal cancer and cancer-specific mortality.^[6]

According to a study by Lami and Hazaa in Baghdad, Iraq, in 2018, the prevalence of IBS was 29.7% in high school students.^[7]

One study done by Ismael *et al.* in Kirkuk city, Iraq, in 2022, shows that the IBS prevalence is 7.9% in Iraqi society. The highest correlations with IBS are female gender, minimal family income, plus occupational situation.^[8]

Study done by Khan *et al.* in Saudi Arabia, 2019, this study was done to assess the knowledge and beliefs regarding IBS among Al-Ahsa population, Saudi Arabia, It was concluded that a great number of participants had good knowledge about the symptoms, signs, risk factors, prognosis, and management of the disease.^[9]

A similar study was done by Khanna *et al.*, who developed and validated a questionnaire for the assessment of knowledge, attitude, and practice (KAP) in patients with IBS in India.^[10]

A study done by Khalil *et al.* in Saudi Arabia, 2023, assessing KAP regarding the Rome IV Criteria for the diagnosis of IBS among primary health-care physicians.^[11]

Rational of the study

IBS is the most common functional GI disorder, and it has been well documented that IBS patients exhibit a poorer QoL and utilize the health-care system to a greater degree than patients without this diagnosis, thus this research was conducted to fill the gap in knowledge about factors that may contribute to IBS.

There are very restricted studies related to the KAP of IBS patients in Iraq, thus this study will help to identify the need for improvement in their KAP regarding IBS.

Objectives of the study

1. To assess the KAP among patients with IBS attending Al-Imamain Al-Kadhimain Medical City
2. To assess some sociodemographic factors that may be related to the KAP of IBS patients.

PATIENTS AND METHODS

Study design

A cross-sectional study with analytic element was adopted for this study.

Study setting and period

The study was conducted in the Gastroenterology Clinic and

Internal Medicine Clinic at Al-Imamain Al-Kadhimain Medical City in Baghdad/Iraq, and the data were collected on 3 days per week for a period of 5 months (from April 1, 2023, to August 31, 2023).

Study sample

Study population

All patients 18 years and older diagnosed with IBS by a specialist doctor (patients meeting the Rome IV Diagnostic Criteria for IBS) were included in the study. Routine blood tests, celiac serology, thyroid-stimulating hormone evaluation, abdominal ultrasound, lactose breath test, fecal calprotectin, and colonoscopy were performed when indicated to rule out possible organic disease.

Sampling technique

A convenient sample of patients with IBS attending the Gastroenterology Clinic and Internal Medicine Clinic was included in the study. The sample size was estimated by the equation:^[12]

$$n = \frac{(Z)^2 (P) (1 - P)}{\sigma^2}$$

where n = The sample size

Z = The standard deviation (SD) at a confidence level of 95%, which is 1.96

P = 25% (this calculation assumed a prevalence of 25%)^[13]

$1 - P$ = is the probability of the event not to occur

σ^2 = The margin of error equals 5%.

$$n = \frac{(1.96)^2 (0.25) (1 - 0.25)}{(0.05)^2}$$

n = 280 (estimated sample size).

Inclusion criteria

ALL patients aged 18 years and older and diagnosed with IBS were included in the study.

Exclusion criteria^[7]

1. Patients with a history of confirmed diagnosis of GI disease other than IBS or surgery for GI diseases were excluded
2. Patients with alarming “red flag” symptoms: blood in stool, unexplained weight loss in the last 3 months, bloody vomiting, fever, nocturnal symptoms, family history of colon cancer and inflammatory bowel disease, or celiac disease were also excluded
3. Patients who nonresponse.

Data collection

Data were collected through a face-to-face interview with the patients using a standardized questionnaire with some modifications that have been adapted from a similar previous study.^[10]

The average time needed to complete the form is between 10 and 15 min.

The questionnaire consists of two parts including the following data:

- First part: Sociodemographic characteristics that included age, gender (male, female), occupation, education, marital status, family history of IBS, smoking, and alcohol
- The second part consisted of a total of 33 questions divided into three sections A and B and C that collect information about knowledge (20 questions), attitude (5), and practice (8), respectively
- Correctly answered questions were assigned a score (1), while incorrectly answered questions or bad practice were assigned a score of 0. A scoring system was divided into three categories: 0% to 30% represented poor knowledge, 31% to 70% represented an acceptable level of knowledge, and 71% or above represented an excellent level of knowledge^[9]
- Regarding the attitude, the score $\geq$ mean and SD is considered positive attitude and the score $<$ mean and SD is considered a negative attitude
- Regarding the practice, the score $\geq$ mean and SD is considered good practice and the score $<$ mean and SD is considered bad practice.

Definition of some variables

- Self-employed: A person is self-employed if they run their business for themselves and take responsibility for its success or failure^[14]
- Government employee means a person employed under the state in any capacity in any department to which this act applies^[15]
- Smoking is classified into four types:^[16]
 - Current smoker: An adult who has smoked 100 cigarettes in his or her lifetime and who currently smokes cigarettes
 - Former smoker: An adult who has smoked at least 100 cigarettes in his or her lifetime but who had quit smoking at the time of interview
 - Never smoker: An adult who has never smoked
 - Environmental tobacco smoke (ETS) is also called second-hand smoke. Inhaling ETS is called passive smoking.

- Adequate sleep: Adults should sleep 7 or more hours per night on a regular basis to promote optimal health among adults aged 18–60 years^[17]
- Regular exercise should do at least 150–300 min of moderate-intensity aerobic physical activity, or at least 75–150 min of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate and vigorous-intensity activity throughout the week.^[18]

Ethics approval

This study was approved by the ethical committee of Department of Family and Community Medicine, Medical College, Al-Nahrain University, Baghdad, Iraq on 3rd April 2023.

1. No incentives were offered to the participants in return for their participation

Table 1: Distribution of irritable bowel syndrome patients by sociodemographic characteristics attending Al-Imamain Al-Kadhimain Medical City in 2023 (n=280)

Variable	n=280, n (%)
Gender	
Female	156 (55.7)
Male	124 (44.3)
Marital status	
Single	84 (30.0)
Married	175 (62.5)
Divorced	9 (3.2)
Widowed	12 (4.3)
Occupation	
Government employed	62 (22.1)
Self-employed	103 (36.8)
Retired	17 (6.1)
Unemployed	98 (35.0)
Education level	
Illiterate	19 (6.8)
Primary school	74 (26.4)
Secondary school	80 (28.6)
Higher education	107 (38.2)

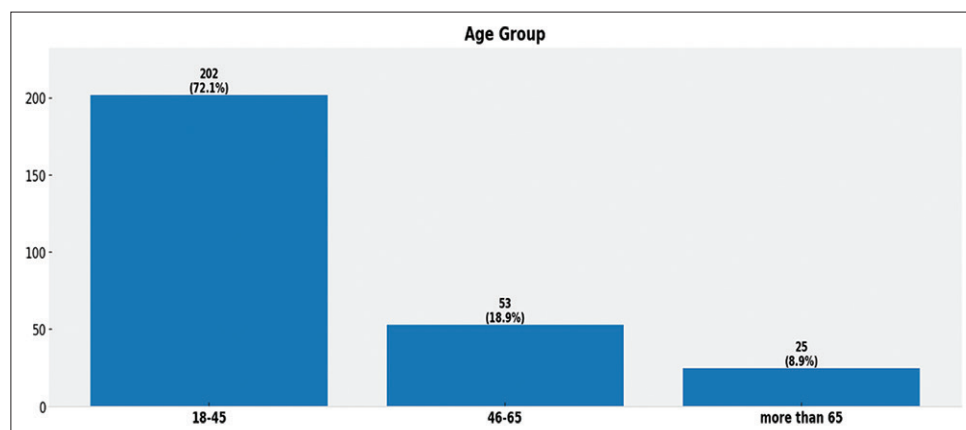


Figure 1: Bar chart showing the distribution of irritable bowel syndrome patients by age attending Al-Imamain Al-Kadhimain Medical City in 2023

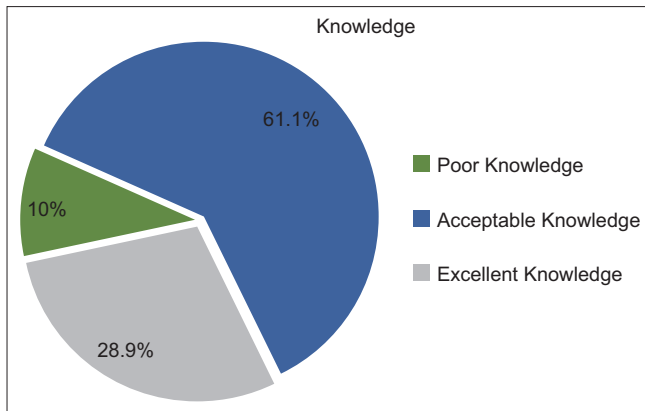


Figure 2: Pie chart showing the distribution of irritable bowel syndrome (IBS) patients according to their overall score of knowledge about IBS attending Al-Imamain Al-Kadhimain Medical City in 2023

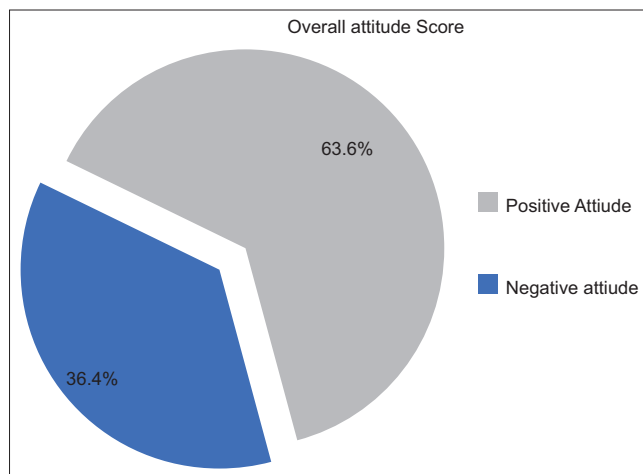


Figure 3: Distribution of the irritable bowel syndrome (IBS) patients according to their overall score for Attitude toward IBS attending Al-Imamain Al-Kadhimain Medical City in 2023

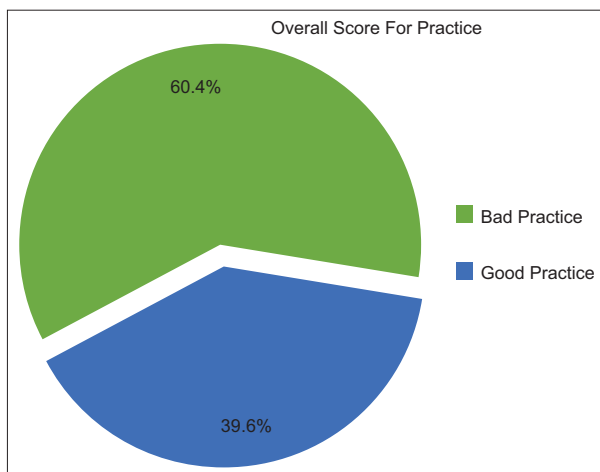


Figure 4: Distribution of the irritable bowel syndrome patients according to overall practice score attending Al-Imamain Al-Kadhimain Medical City in 2023

Table 2: The social and past family history among irritable bowel syndrome patients attending Al-Imamain Al-Kadhimain Medical City in 2023 (n=280)

Variable	n=280, n (%)
Family history of IBS	
No	96 (34.3)
Yes	184 (65.7)
Smoking	
No	174 (62.1)
Yes	106 (37.9)
Alcohol	
No	263 (93.9)
Yes	17 (6.1)

IBS: Irritable bowel syndrome

- Verbal consent was obtained from the participants before filling the questionnaire.
- All the participants' information was kept private by keeping it in a secured folder in a password-protected computer owned by the study investigators. No information was shared with any other individuals or entities.

RESULTS

Sociodemographic characteristics

The average participant age was 39.61 ± 14.77 years, with most 202 patients (72.1%) falling between 18 and 45 years [Figure 1].

Table 1 shows that gender was nearly balanced with 55.7% of females and 44.3% of males, and marital status showed a majority of married individuals at 62.5%. Occupationally, the largest group was self-employed (36.8%), and 38.2% had higher education. Table 2 shows the social and past family history among irritable bowel syndrome patients attending Al-Imamain Al-Kadhimain Medical City in 2023, where about 184 patients (65.7%) had positive family history.

Knowledge responses and scores

Table 3 shows a mixed understanding of IBS among participants. For example, 53.2% correctly stated that IBS is not hereditary, while 86.4% knew that it affects both genders. Ninety-five percent acknowledged the role of stress and anxiety in IBS, and a similar proportion identified the typical symptoms such as abdominal pain and bloating.

The overall knowledge of the participants about IBS score can be classified into three categories: poor knowledge 28 patients (10%), who demonstrated limited understanding and misconceptions; acceptable knowledge 171 patients (61.1%), characterized by a reasonable grasp of key IBS aspects with some lingering misconceptions; and excellent knowledge 81 patients (28.9%), showcasing an advanced and accurate comprehension of IBS-related concepts as shown in Figure 2.

Table 3: Distribution of irritable bowel syndrome patient's response toward knowledge of irritable bowel syndrome questionnaire attending Al-Imamain Al-Kadhimain Medical City in 2023

	Knowledge of the participants regarding IBS	
	Correct, n (%)	Incorrect, n (%)
IBS is always a hereditary disease (no)	149 (53.2)	131 (46.8)
IBS affects only women (no)	242 (86.4)	38 (13.6)
IBS is a life-threatening condition (no)	152 (54.3)	128 (45.7)
IBS increases the risk of developing cancer of the colon and/or rectum (no)	69 (24.6)	211 (75.4)
IBS symptoms considerably affect patient's daily life (yes)	222 (79.3)	58 (20.7)
IBS is more common than chronic diseases such as high blood pressure (hypertension)/high sugar (diabetes) (no)	58 (20.7)	222 (79.3)
Patients with IBS may develop symptoms because of allergy to various foods (yes)	126 (45.0)	154 (55.0)
IBS develops because of increase in stress/anxiety (yes)	266 (95.0)	14 (5.0)
Patients with IBS develop symptoms because they have a motility disorder (a muscle or nerve problem) of their GI tract (yes)	151 (53.9)	129 (46.1)
IBS is associated with symptoms such as abdominal pain/discomfort, constipation/diarrhea, bloating (yes)	262 (93.6)	18 (6.4)
IBS is also associated with other GI disorders such as acidity GERD (yes)	135 (48.2)	145 (51.8)
IBS may also be associated with joint pains, rashes, muscle pain, fatigue, etc., (yes)	75 (26.8)	205 (73.2)
Patients should immediately see their doctor if they notice blood in stools, experience weight loss and nighttime symptoms, develop fever, etc., (yes)	259 (92.5)	21 (7.5)
IBS can be diagnosed and treated by primary care physician (general practitioner) (yes)	151 (53.9)	129 (46.1)
IBS symptoms can be improved by changing the diet (yes)	242 (86.4)	38 (13.6)
IBS can also be managed by managing stress/anxiety and other lifestyle changes (yes)	243 (86.8)	37 (13.2)
IBS treatment requires surgery (no)	181 (64.6)	99 (35.4)
Alternative medications (home remedies/acupuncture, herbs, teas, roots etc.) can improve IBS symptoms (yes)	167 (59.6)	113 (40.4)
IBS medications need to be taken for the entire span of life (no)	112 (40.0)	168 (60.0)
IBS can be effectively managed to lead a good daily life (yes)	204 (72.9)	76 (27.1)

GERD: Gastroesophageal reflux disease, GI: Gastrointestinal, IBS: Irritable bowel syndrome

Table 4 provides an in-depth look at IBS knowledge across demographics. Age is a crucial factor; marital status, occupation, and education significantly influence knowledge levels.

Attitude

Table 5 shows the distribution of IBS patients' response towards Attitude questions of IBS questionnaire Attending Al-Imamain Al-Kadhimain Medical City in 2023. While Figure 3 shows the distribution of the IBS patients according to their overall score for Attitude toward IBS.

Practice

Table 6 shows the distribution of IBS patients' response towards Practice questions of IBS questionnaire Attending Al-Imamain Al-Kadhimain Medical City in 2023. While Figure 4 shows the distribution of the IBS patients according to their overall score for Practice toward IBS.

DISCUSSION

In the current study, participants' knowledge shows that 61% represent an acceptable level of knowledge, 29% show an excellent level of knowledge, and 10% represent poor knowledge, and these categorizations highlight varying levels of knowledge among IBS patients.

This result corresponds to study of Algabr *et al.* in Riyadh city, 2017, with the majority of the subjects had proper

knowledge regarding the IBS and its risk factors (81.1%) while only 18.9% had poor knowledge about the syndrome.^[19]

This result also corresponds to Khan *et al.*, 2019 study which concluded that a great number of participants had good knowledge about the symptoms, signs, risk factors, prognosis, and management of the disease.^[9]

It is worth noting that 95% of the participants recognized the role of stress and anxiety in either triggering or worsening symptoms of IBS. Hafidh and Ibrahim (2019) conducted a study in Iraq,^[20] which revealed that stress plays a paramount role in the development of IBS. This disorder, characterized by disrupted communication between the brain and the gut, frequently coexists with anxiety and depression, eventually leading to the development of IBS.

Education is a crucial determinant of IBS knowledge. Higher education levels are strongly associated with excellent knowledge (57.0%). In contrast, illiterate individuals predominantly have poor knowledge, and those with primary and secondary education levels mostly possess acceptable knowledge. This finding underscores the importance of education for health literacy. Individuals with higher levels of education may have better critical thinking skills, research capabilities, and access to information resources, all of which contribute to a deeper understanding of health conditions like IBS. This finding is similar to that of Algabr *et al.*^[19] and to that of Bawahab *et al.*^[21]

Table 4: Association between the overall knowledge score of irritable bowel syndrome patients with sociodemographic characteristics attending Al-Imamain Al-Kadhimain Medical City in 2023

Characteristics	Knowledge level			P
	Poor, n (%)	Acceptable, n (%)	Excellent, n (%)	
Age (years old)				
Young (18–45)	17 (8.4)	114 (56.4)	71 (35.1)	0.0001
Middle (46–65)	4 (7.5)	39 (73.6)	10 (18.9)	
Old (>65)	7 (28.0)	18 (72.0)	0	
Gender				
Female	11 (7.1)	93 (59.6)	52 (33.3)	0.062
Male	17 (13.7)	78 (62.9)	29 (23.4)	
Marital status				
Divorced	1 (11.1)	7 (77.8)	1 (11.1)	0.0001
Married	15 (8.6)	108 (61.7)	52 (29.7)	
Single	6 (7.1)	50 (59.5)	28 (33.3)	
Widowed	6 (50.0)	6 (50.0)	0	
Occupation				
Government employed	1 (1.6)	26 (41.9)	35 (56.5)	0.0001
Retired	1 (5.9)	15 (88.2)	1 (5.9)	
Self-employed	15 (14.6)	68 (66.0)	20 (19.4)	
Unemployed	11 (11.2)	62 (63.3)	25 (25.5)	
Educational level				
Higher education	0	46 (43.0)	61 (57.0)	0.0001
Illiterate	12 (63.2)	7 (36.8)	0	
Primary school	11 (14.9)	56 (75.7)	7 (9.5)	
Secondary school	5 (6.3)	62 (77.5)	13 (16.3)	
Family history of IBS				
No	13 (13.5)	62 (64.6)	21 (21.9)	0.098
Yes	15 (8.2)	109 (59.2)	60 (32.6)	
Smoking				
No	15 (8.6)	95 (54.6)	64 (36.8)	0.001
Yes	13 (12.3)	76 (71.7)	17 (16.0)	
Alcohol				
No	25 (9.5)	157 (59.7)	81 (30.8)	0.022
Yes	3 (17.6)	14 (82.4)	0	

IBS: Irritable bowel syndrome

Table 5: Distribution of irritable bowel syndrome patient's response toward attitude questions of irritable bowel syndrome questionnaire attending Al-Imamain Al-Kadhimain Medical City in 2023

Attitude questions	Responses				
	Strong disagree, n (%)	Disagree, n (%)	Neutral, n (%)	Agree, n (%)	Strong agree, n (%)
For treating IBS, medication should be taken in consultation with physicians only	4 (1.4)	16 (5.7)	55 (19.6)	100 (35.7)	105 (37.5)
Dietary and lifestyle changes are critical to manage IBS symptoms	-	5 (1.8)	42 (15.0)	88 (31.4)	145 (51.8)
Controlling stress/anxiety is as important as taking regular medications for IBS management	-	4 (1.4)	38 (13.6)	90 (32.1)	148 (52.9)
IBS management requires good compliance to drugs prescribed by your physician	-	7 (2.5)	43 (15.4)	108 (38.6)	122 (43.6)
You should report change/worsening of your symptoms immediately to the doctor	-	9 (3.2)	9 (3.2)	97 (34.6)	165 (58.9)
Overall mean±SD	18.49±2.47				

IBS: Irritable bowel syndrome, SD: Standard deviation

Attitude

The mean attitude score of 18.49 (SD = 2.47) suggests a

positive general attitude toward IBS management among the study participants. This indicates a general alignment with

Table 6: Distribution of the irritable bowel syndrome patient's responses according to their practice section of irritable bowel syndrome attending Al-Imamain Al-Kadhimain Medical City in 2023

	Practice of the participants regarding IBS	
	Correct, n (%)	Incorrect, n (%)
Do you avoid certain foods that are known to trigger IBS symptoms? (Yes)	195 (69.6)	85 (30.4)
Do you perform yoga/meditation to minimize the stress/anxiety? (Yes)	32 (11.4)	248 (88.6)
Do you exercise regularly to prevent IBS symptoms? (Yes)	87 (31.1)	193 (68.9)
Do you avoid eating gluten (e.g., wheat, barley, and rye)-containing food products that might worsen your symptoms? (Yes)	54 (19.3)	226 (80.7)
Do you have adequate sleep? (Yes)	157 (56.1)	123 (43.9)
Do you take your medications prescribed for IBS regularly? (Yes)	91 (32.5)	189 (67.5)
Do you skip medications after few days of symptom relief? (No)	39 (13.9)	241 (86.1)
After following advice from your physician regarding diet, lifestyle, and medications, do you feel that your daily life is less affected now? (Yes)	189 (67.5)	91 (32.5)

IBS: Irritable bowel syndrome

the importance of various aspects of IBS management. In the positive attitude category, comprising 178 participants (63.6%), there is a sense of optimism and cooperation with health-care recommendations. Their favorable outlook not only fosters better disease management but also contributes to improved overall well-being and QoL for those living with IBS. The results of this study corresponding to Algabr *et al.*'s study,^[19] it was found that all participants believed that diet, prescription medications, and counseling were effective methods for managing IBS.^[19] On the other hand, Issa *et al.*'s study revealed that a majority of participants believed that IBS significantly reduced the QoL and that dietary factors and sensitivities played a role in IBS incidence.^[22]

Practice

In the current study, it was found that approximately 70% of participants are avoiding specific foods that trigger symptoms of IBS, while roughly 30% remain unaware. This indicates a substantial level of awareness concerning dietary management, which is crucial for individuals dealing with IBS. A study done by Capili *et al.* revealed that a high level of awareness about dietary management is encouraging, as avoiding certain foods that trigger IBS symptoms can significantly improve the QoL of patients. However, it is important to note that dietary triggers may vary from person to person, and not all foods that are commonly associated with IBS may cause problems for everyone.^[23]

Among the participants, approximately 31% stated that they exercise regularly to avoid IBS symptoms. This recognition suggests that just a limited proportion of individuals are aware of the benefits of exercise for controlling IBS. In addition to improving oxygen and blood supply to the stomach, exercise can help improve gut function and lower inflammation. Exercise can also regulate bowel movements and prevent constipation or diarrhea.^[24]

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Conflicts of interest

There are no conflicts of interest.

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