

Original Research

Received 22 April 2026

Revised 20 May 2026

Accepted 21 June 2026

Natural Resources for Human Health 2026, Vol. 6 (5s): 768–777

KEYWORDS:

Irritable bowel syndrome (IBS),
Quality of life, Somatic symptoms,
Saudi Arabia

Burden of Irritable Bowel Syndrome on Quality of Life Among Saudi Adults

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ABSTRACT:

Background: Irritable Bowel Syndrome (IBS) is a prevalent functional gastrointestinal disorder. The consequences of IBS extend beyond physical discomfort, as the condition severely impacts patients' quality of life. This study assessed the impact of IBS on behavioural, emotional, and social dimensions of quality of life among Saudi adults.

Methods: A quantitative cross-sectional study was conducted among the Saudi population. Data were collected from the participants via online questionnaires. All participants were asked to complete self-administered questionnaires. Participants completed the validated IBS-36 questionnaire and demographic measures. Descriptive and inferential analyses (Mann–Whitney U and Kruskal–Wallis tests) were used to evaluate associations between quality-of-life domains and sociodemographic variables.

Results: A total of 317 respondents were included (73.2% female, 26.8% male; mean age 24 years). Emotional distress was pronounced, with 53.3% fearing symptom worsening and 50.8% reporting frequent tearfulness. Behavioural adjustments were common: 43.8% avoided favourite foods and 42.3% left social settings suddenly due to symptoms. Social and occupational functioning were also affected, with 40.4% reporting work interference and 30% difficulty enjoying leisure time. Female patients reported significantly greater emotional symptoms and bowel severity than males ($p \leq 0.003$). Married individuals experienced greater disruption in daily activities compared to singles ($p \leq 0.001$).

Conclusion: These findings underscore the pervasive impact of IBS on quality of life and emphasize the need for comprehensive management strategies for IBS patients in Saudi Arabia. Future research exploring the role of dietary and lifestyle modifications could provide further insights into effective management strategies.

INTRODUCTION

Irritable Bowel Syndrome (IBS) is a common illness of the belly and intestines, also known as the gastrointestinal tract (GI). Symptoms include cramping, bloating, belly pain, gas, and constipation or diarrhea, or both. Management of IBS is long-term since it is a chronic condition (Mayo Clinic, 2024). Worldwide, 10–20% of adults experience IBS, a condition linked to a reduced quality of life (AlButaysh et al., 2020; El-Gamal et al., 2022; MENDONÇA et al., 2020). Although it isn't life-threatening, it can disrupt everyday activities and routines (Alnasser et al., 2023; Rawa & Alghamdi, 2024). IBS is usually related to psychological distress and can result in a large economic impact because of healthcare costs, absenteeism, and loss of work productivity. (Aljahdli et al., 2023; Rawa & Alghamdi, 2024; Weaver et al., 2018). A complete understanding of the IBS pathophysiology is not fully elaborated. It is usually thought of as being multifactorial since it is postulated based on

genetics, diet, stress, and mental condition variables (AlButaysh et al., 2020; Alkalash et al., 2023; Bawahab et al., 2023). Besides, IBS is often accompanied by another ailment, such as anxiety disorder, depression, or even severity with symptom variation between individuals being usually quite large (Aljahdli et al., 2023; Alkalash et al., 2023; Almasary et al., 2023).

The burden of IBS is particularly high in the Middle East, with prevalence rates varying; some studies even report higher rates compared to the global average (Aljammaz et al., 2020; Almasary et al., 2023). Studies conducted in Saudi Arabia have reported a wide range of IBS prevalence, from 7.9% to 49.3%, indicating that more research is required in this region (Makkawy et al., 2023). It is as high as 16% in Jizan according to Alhuzaim et al. (2022), while other reports put it at an average of 4% based on Rome IV criteria (Arishi et al., 2021). Almasary et al., 2023, estimated that the overall pooled prevalence among the Saudi population was 20.7%. Even within the regions of Saudi Arabia, it has shown variation: 30.5% in the central region, as mentioned by Aljammaz et al. in 2020 and Alhuzaim et al. in 2022, and in Al-Qunfudah governorate, it has been reported to be 30.4% by Alkalash et al. in 2023. Other studies have also reported a higher prevalence among students, 22% (Almasary et al., 2023). Such differences reflect variability in methods and cultural or regional factors as influencing factors in the determination of IBS prevalence (Alhuzaim et al., 2022; Arishi et al., 2021). Several studies have indicated that IBS adversely affects the patient's psychological and social state (El-Gamal et al., 2022; Alkalash et al., 2023, Alruwaili et al., 2018). The depression score and overall quality of life also shared strong negative associations; it was revealed that depression is associated with lower quality of life in IBS patients (Kopczyńska et al., 2018).

The present study will contribute to the literature by examining the impacts of IBS on quality of life in Saudi adults, using a cross-sectional study design. In this context, the present study will examine those aspects of quality of life that relate to behavioral changes, social and daily activities, and emotional well-being in Saudi adults with IBS.

METHODOLOGY:

This study employs a quantitative cross-sectional design to investigate the impact of IBS on the quality of life among Saudi adults. The dependent variables include behavioural changes, social life, daily activities, and depressive symptoms, while the independent variables are gender, age, marital status, region, and education level. Online questionnaire distributed throughout deferent social media apps that are popular to use within Saudi society (i.e. X-App and WhatsApp).

A total number of 317 eligible Saudi adults diagnosed with IBS participated in this study. The sample participants were collected by using social media apps such as WhatsApp and X-App. According to, the prevalence of IBS in Saudi Arabia is estimated to be 18.2%. However, IBS is believed to be underdiagnosed condition in Saudi Arabia. Therefore, the percentage of the prevalence was increased up to 20% in calculating the sample size in this study. Based on 95% level of confidence, and p-value of 0.05 and z-score of 1.96. using the equation:

$$n = Z^2 p(1-p) / m^2, n = 1.96^2 0.2(1-0.2) / 0.05^2 = 246$$

The estimated minimum sample size is 246. The inclusion criteria were all Saudi adults who were diagnosed with IBS and aged from 18 years and older. While the exclusion criteria were Saudi adults who live abroad, and those who were not willing to participate in the study.

An instrument of 41 questions was used in this research. It consisted of two parts, a demographic part with 5 socio-demographic questions and the IBS-36 questionnaire, which is a 7-point Likert scale with a total number of 36 questions that address different aspects of quality of life that can be impacted by IBS. It has been used in many studies since it was developed. The questionnaire was tested in a pilot study with 21 IBS patients before the beginning of conducting this research. It showed a high validity with a 0.914 result in Cronbach's Alpha.

Data were collected from 355 participants using different social media platforms to contact Saudi IBS patients. This was followed by a data cleaning process, in which 38 uncompleted responses and participants who live outside Saudi Arabia were excluded. An initial pool of 355 responses was reduced to 317 valid entries after data cleaning to remove incomplete or inconsistent responses. Ethical approval was obtained from the Institutional Review Board at Imam Abdulrahman Bin Faisal University.

Both descriptive and inferential statistical analyses of the data were carried out. Simple frequencies and percentages of the sociodemographic characteristics of the patients of IBS, and other categorical variables were calculated and tabulated. Mann Whitney U Test and the Kruskal Wallis Test are used to find the significant difference in different parameters among the

different genders, age groups, marital status, educational status, and regions of Saudi adults with IBS. Statistical significance was established at a p-value of 0.05 with a 95% Confidence Interval. All the statistical calculations were performed using the SPSS Software.

Results:

The sociodemographic features of 317 participants with irritable bowel syndrome (IBS) are shown in **Table 1**. Most participants (73.2%) were female, with males accounting for 26.8%. Most participants (62.1%) were between the ages of 18 and 24. The vast majority (82.3%) were single, with married patients accounting for (17.7%). **Table 1** shows the geographic distribution of the participants with IBS. 31.2% of them are from the western region, followed by the Central Region (26.8%), Eastern (17.4%), Southern (16.1%), and Northern (8.5%). Most of the participants (67.6%) had a university degree, followed by a school degree (32.4%).

Table 1: Sociodemographic characteristics of IBS patients

Variables		Frequency (n)	Percentage (%)
Gender	Male	85	26.8
	Female	232	73.2
Age	18-24	197	62.1
	25-34	84	26.5
	35-44	32	10.1
	≤45	4	1.2
Marital Status	Single	261	82.3
	Married	56	17.7
Region	Eastern	55	17.4
	Central	85	26.8
	Western	99	31.2
	Southern	51	16.1
	Northern	27	8.5
Education	School degree	103	32.4
	University degree	214	67.6

Figure 1 presents the different IBS symptoms felt by 317 Saudi adult patients and the severity that had the greatest impact on their quality of life. Participants reported; troubled by bloating (65.6%), troubled by abdominal pain (63.1%), troubled by loose bowel movement (58%), bowel movements difficult to pass (52.4%), passing a large amount of gas (49.8%), constantly feel the need to use the bathroom (43.2%), sleeping difficulty (38.2%), always check washrooms at new places (24.9%), accidental soiling of underwear (16.4%).

Figure 1: *Different IBS Symptoms felt by Saudi IBS Patients*

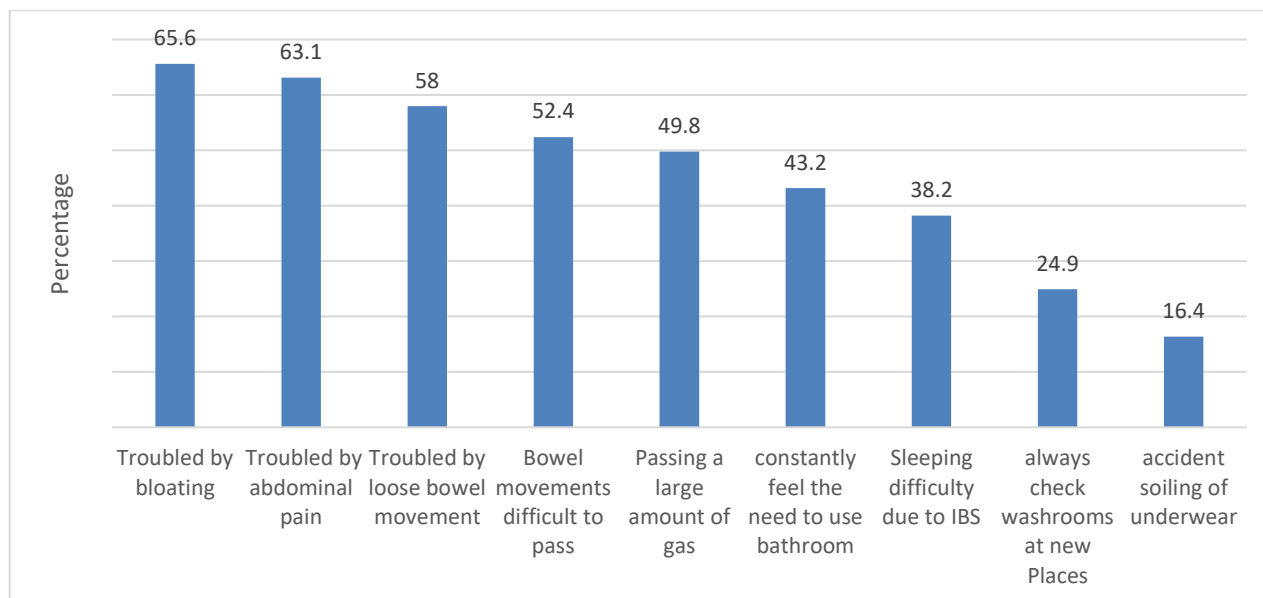


Figure 2 outlines the behavioural adjustments made by Saudi adults with IBS to manage their condition. Common behavioural changes among Saudi IBS patients were as follow; avoid favourite foods (43.8%), need to leave suddenly due to IBS (42.3%), always checking diet (38.5%), afraid to eat out (34.7%), miss work due to IBS (27.1%), delay going to work (24.3%), avoid planning activities ahead of time (13.9%) and avoid traveling due to IBS (7.3%).

Figure 2: *Common behavioral changes reported by IBS Patients*

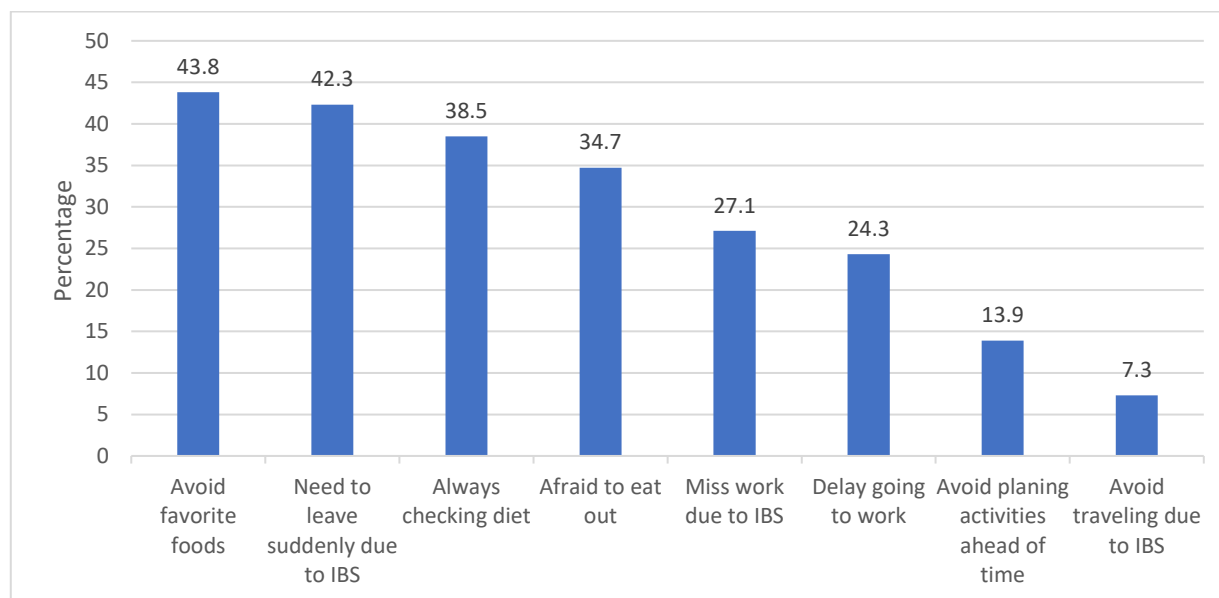


Figure 3 describes the emotional and depressive symptoms experienced by Saudi IBS patients. A significant portion of individuals with IBS experience emotional and psychological challenges related to their condition. Specifically, 53.3% fear that their IBS will worsen, and nearly half of the participants have felt tearful (50.8%) or angry (50.5%) due to their symptoms. Additionally, 36.6% worry about never feeling better, while 34.7% report always feeling tired in the morning. Concentration difficulties affect 29% of those with IBS, and 27.8% have experienced embarrassment related to their condition. Many individuals also feel alone or isolated as a result of their symptoms, and 18.3% express concern about the possibility of having cancer.

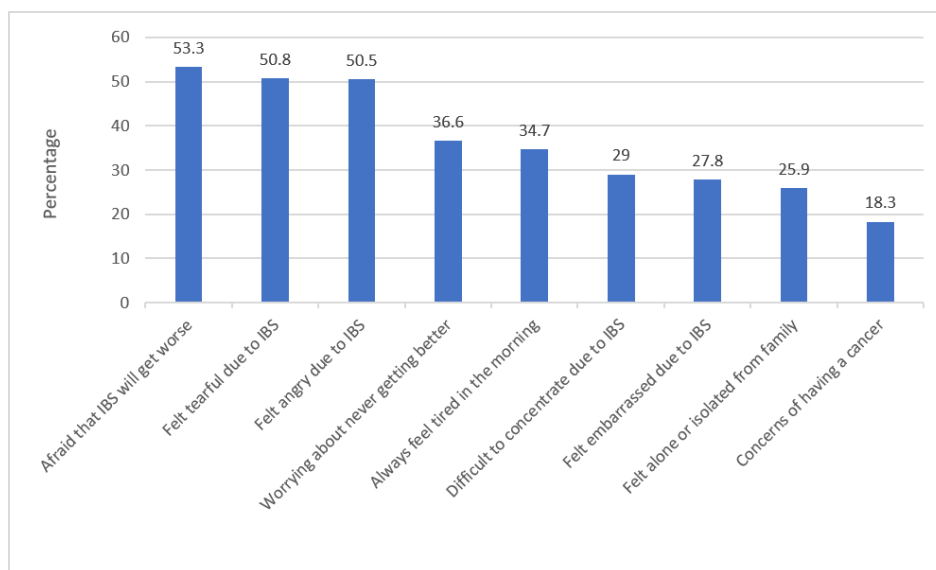


Figure 3: *Different Emotional Symptoms experienced by IBS Patients*

Figure 4 illustrates the influence of IBS symptoms on the social lives and daily activities of the patients. A notable 40.4% struggle to perform well at work or in daily activities, while 30% find it difficult to enjoy their leisure time. Additionally, 29.3% have had to stop participating in sports, and 25.9% often cancel social outings due to their symptoms. There is also a concern that family and friends may not take their symptoms seriously, as reported by 25.9% of individuals. Furthermore, 19.6% feel that IBS interferes with their relationships with family, and 16.7% experience a reduction in work hours because of their condition. Lastly, 5.7% report that IBS negatively affects their sexual relations.

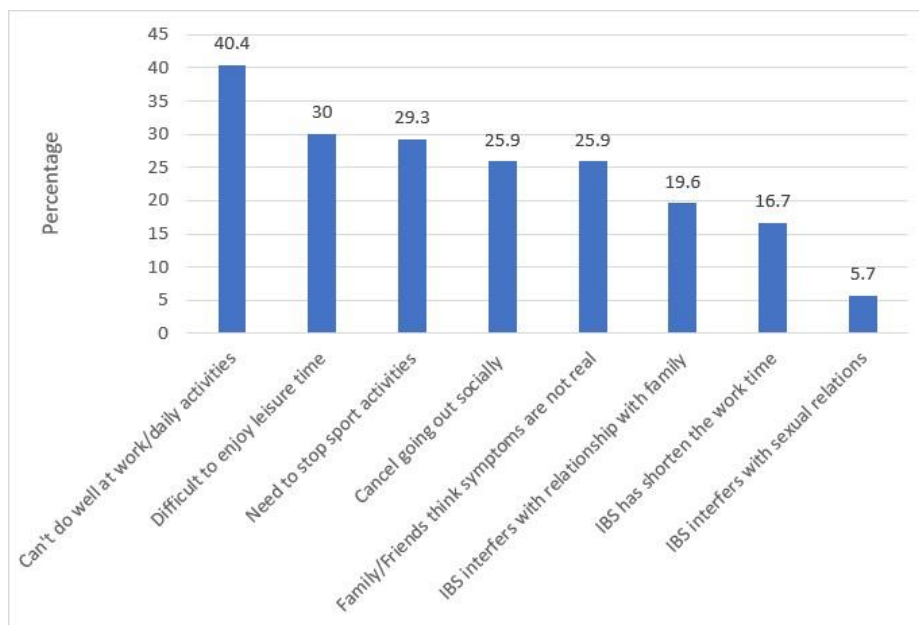


Figure 4: *Impact of IBS Symptoms on Social Life & Daily Activities*

Table 2.

Table 2 provides a comprehensive overview of different aspects of the quality of life of IBS patients, segmented by various demographic categories such as gender, education level, age group, marital status, and region.

Variables	Emotional Symptoms			Social Life & Daily Activities			Behavioural Changes			IBS Symptoms		
	N	Mean	Sig. Value	N	Mean	Sig. Value	N	Mean	Sig. Value	N	Mean	Sig. Value
Male	85	132.98	0.002*	85	148.88	0.232	85	159.49	0.954	85	135.58	0.003*
Female	232	168.53		232	162.71		232	158.82		232	167.58	
School Degree	103	156.89	0.771	103	155.02	0.590	103	146.70	0.096	103	154.75	0.540
University Degree	214	160.02		214	160.92		214	164.92		214	161.05	
18-24	197	163.23	0.803	197	157.50	0.611	197	155.09	0.215	197	165.19	0.397
25-34	84	148.86		84	152.88		84	153.46		84	145.75	
35-44	32	159.42		32	180.38		32	192.47		32	153.44	
Over 45	4	169.17		4	194.17		4	202.50		4	155.67	
Single	261	158.48	0.822	261	150.28	0.000*	261	153.10	0.013*	261	160.03	0.644
Married	56	161.44		56	199.65		56	186.52		56	154.20	

Female patients reported significantly higher emotional symptoms compared to male patients, with mean ranks of 168.53 and 132.98, respectively ($p \leq 0.002$). There was no significant difference in emotional symptoms between patients with a school degree and those with a university degree. Emotional symptoms did not significantly differ across different age groups. Single and married patients did not show significant differences in emotional symptoms.

Female patients reported higher interference in social life and daily activities compared to male patients, though the difference was not statistically significant. No significant differences were observed between different education levels. Older age groups (35-44 and over 45) reported higher interference in social life and daily activities. Married patients reported significantly higher interference in social life and daily activities compared to single patients ($p \leq 0.001$).

There were no significant differences between male and female patients in terms of behavioral changes. University degree holders reported higher behavioral changes compared to school degree holders, though not statistically significant. Older age

groups (35-44 and over 45) reported higher behavioral changes. Married patients reported significantly higher behavioral changes compared to single patients ($p \leq 0.013$).

Female patients reported significantly higher IBS symptoms compared to male patients, with mean ranks of 167.58 and 135.58, respectively ($p = 0.003$). No significant differences were found between education levels. IBS symptoms did not significantly differ across different age groups. No significant differences were found between single and married patients.

DISCUSSION:

The present study aimed at investigating the impact of IBS on quality of life, indicating differences regarding gender and marital status. IBS is a long-term digestive issue that causes frequent pain or discomfort in the abdomen and is linked to changes in bowel habits even when there is no underlying illness (Zarnoog et al., (2021). The study's findings add to the growing body of research that testifies to the complexity of IBS and its diverse influence on individuals.

Notably, female patients reported higher levels of emotional symptoms and overall IBS symptom severity than male patients. This is consistent with previous research suggesting that women may experience the disorder with more noticeable psychological and physical symptoms (Alhuzaim et al., 2022; Aljahdli et al., 2023; Alkalash et al., 2023; Trindade et al., 2022). These differences may be linked to hormonal variations and the higher stress levels that women often encounter (Aljahdli et al., 2023).

Indeed, the findings showed that the level of education is not significantly related to emotional symptoms and neither to IBS symptoms. This goes in contrast to a number of studies maintaining that a low educational status does imply a poorer quality of life (Aljahdli et al., 2023). Nonetheless, university graduates have a trend of reporting more behavioral changes due to IBS, suggesting this as evidence of heightened awareness and or a higher propensity to report such changes (Aljahdli et al., 2023). As for age, older subjects (35-44 and over 45) also reported more interference in social life and daily activities and more behavioral changes. This may be due to the cumulative effect of IBS or due to a reduction in physical function. Another factor to emerge was marital status. For the interference in social life and daily activities, and behavioral changes, married patients showed significantly higher values than single patients. This might be because of the more social and family responsibilities among married people that are easily disrupted by IBS (Alhuzaim et al., 2022). This could also indicate that the need to adapt to IBS within a relationship might lead to more noticeable behavioral changes, especially in diet and routines. However, there were no significant differences in emotional or IBS symptoms between married and single individuals (Aljahdli et al., 2023).

While the severity of IBS symptoms is indeed a factor in poor mental and physical quality of life (Aljammaz et al., 2020; Issa et al., 2022; Khalifah et al., 2024; MENDONÇA et al., 2020; Trindade et al., 2022), it is not the sole or main factor. GI-specific anxiety, as well as symptoms of somatic and depressive symptoms, mediates a large part of the effects of IBS on quality of life (Alkalash et al., 2023; Khalifah et al., 2024; MENDONÇA et al., 2020; Trindade et al., 2022). This suggests that an intervention on these factors can lead to increased well-being in IBS sufferers who have low quality of life. In addition, avoidance behaviors related to somatic symptoms contribute to lowering quality of life (Trindade et al., 2022). The above findings mean that management of IBS should be holistic, and interventions must cover both physical and psychosocial domains. Additionally, psychological interventions such as Cognitive Behavioral Therapy, third-wave therapies like Acceptance and Commitment Therapy, and stress-coping strategies should be considered for anxiety and depressive symptoms since they are associated with a reduced quality of life (Horn et al., 2023; Melchior et al., 2022).

Results from this study should be treated with consideration of the limits of this research. First, the collection of data was done through an online questionnaire only, which might have brought about a form of selection bias, since people without access to the internet or those less active online could have become excluded from participation. Thus, the sample may also not be representative of all people with IBS. This may affect the generalization of the findings from this study. Secondly, the cross-sectional design of the study does not allow the establishment of any causality between IBS and diminished quality of life. In this design, data is captured at one point in time; hence, one cannot establish the direction of influence or understand how these factors change over time. Additionally, the study didn't consider factors like dietary habits, physical activity, other health conditions, and medications, which could independently influence both IBS symptoms and quality of life.

CONCLUSION:

This study underscores the significant impact of IBS on the quality of life among Saudi adults. The findings reveal strong association between IBS with psychological distress, including anxiety and depression.

In conclusion, addressing the multifaceted impact of IBS on quality of life requires a holistic approach that includes medical, psychological, and social interventions. By recognizing and addressing the comprehensive needs of IBS patients, healthcare systems can improve outcomes and enhance the quality of life for those affected by this chronic condition.

Author Contributions

All authors have read and agreed to the published version of the manuscript.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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