Research Article

Impact of IBS on quality of life; a Systematic Review

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Abstract|

Background: IBS is a prevalent GIT disorder known to affect millions worldwide, causing distressing symptoms like abdominal pain, bloating, and altered bowel habits. Understanding the impact of IBS on quality of life is crucial.

Objective: To censoriously gauge the existing literature on the effects of irritable bowel syndrome on the health, social life, and academic performance of affected people

Methods: We performed a systematic review of relevant literature from different databases like PubMed and Google Scholar on the impact of irritable bowel syndrome on quality of life. To ensure transparency in this systemic review, we strictly followed PRISMA guidelines.

Results: We selected 17 studies after strictly following our inclusion criteria. Every study employed different ways to assess the impact on the quality of life. Four studies highlighted that a greater degree of work impairment was seen among patients with irritable bowel syndrome. Seven studies highlighted that anxiety and depression were more prevalent. Moreover, IBS seems to be more prevalent among females and was also associated with GIT-specific anxiety.

Conclusion: This systematic review underscores the multifaceted impact of IBS on individuals' quality of life, encompassing health-related quality of life, work productivity, daily activities, and mental health. It also suggests a gender-related susceptibility to IBS, particularly in females. These findings collectively emphasize the need for comprehensive care and support for individuals living with IBS to improve their overall well-being.

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Introduction

Abdominal unease, constipation, diarrhea, and abdominal distention are the most typical chronic or recurrent symptoms of irritable bowel syndrome.[1] An individual displaying symptoms of irritable bowel syndrome could potentially fall into one of three categories of the condition: IBS with a primary focus on diarrhea, IBS with a primary focus on constipation, or the mixed type of IBS, which can include episodes of either diarrhea or constipation. He also faces difficulties in his routine tasks depending upon their severity. It is typically observed that individuals with IBS, regardless of age, tend to have a lower overall health status compared to healthy individuals. IBS is currently estimated to affect 15% of the world's population and 10–20% of Westerners experience symptoms.[2]

Irritable bowel syndrome (IBS) affects 33.2% of Pakistan's population overall. The study also showed that women were more likely to experience IBS than men. IBS was more prevalent in people between the ages of 20 and 29. Bloating and increased stool frequency were the two symptoms of IBS that individuals in this study most frequently experienced.[3] While IBS tends to affect more women than men, the actual prevalence of this gastrointestinal condition differs across various cultures and geographical regions. The diagnosis of irritable bowel syndrome is made after excluding any sort of infectious or inflammatory etiology. Nowadays, the Rome criteria are used for the diagnosis of IBS.[4]

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Global assessment is not considered to be efficacious in testing complicated disease hypotheses; on the other hand, generic instruments use simple, generalized questions that cover a broad spectrum of diseases. Before the 1990s, "global assessments" and symptom reports served as the primary outcome metrics for epidemiological and therapeutic trials of irritable bowel syndrome.[5] To assess patients with irritable bowel syndrome's health-related quality of life (HRQoL), both generic and disease-specific measures were created. For evaluating irritable bowel syndrome, doctors typically use the "Medical Outcomes Study Short Form" (SF-36). The SF-36 questionnaire covers a range of physical and mental health domains, allowing healthcare professionals to assess and monitor how IBS affects a patient's overall health. For instance, the SF-36 assesses the quality of life in the following domains: social functioning (SF), role emotional (RE), mental health (MH), physical functioning (PF), role physical (RP), bodily pain (BP), and general health (GH)[6].

Since these symptoms may not manifest in other medical conditions, specialized tools (such as questionnaires) designed for specific diseases may have limited relevance in broader contexts. There are at least four distinct disease-specific instruments available, which encompass the Functional Digestive Disorders Quality of Life (FDDQoL), the Irritable Bowel Syndrome Questionnaire (IBSQ), and the Irritable Bowel Syndrome-Quality of Life[7].

Methods

A Systematic review was done. In order to find related Research on how irritable bowel syndrome affects quality of life, we extensively reviewed the literature. While performing our research, we adhered to The PRISMA's guidelines for a thorough literature review. The methodologies used in this review are outlined under the following topics.

We included publications that were published between January 2016 and June 2022. We used sources like PubMed and Google Scholar to find relevant published articles for the methodology. We used Boolean operators in conjunction with keywords and MeSH headings (database-specific headers) in each database, such as "Irritable Bowel Syndrome (IBS)," "Quality of Life (QoL)," and "Health-related Quality of Life (HRQoL)."

We included studies involving all age groups to cover the entire spectrum of Irritable Bowel Syndrome (IBS). We focused on recent research published from January 1, 2016, to January 1, 2022, in the English language for accessibility. Our preferred study designs were trials, randomized-controlled trials (RCTs), and placebo-controlled studies to ensure robust evidence. Additionally, we considered articles authored by experts in IBS, those with a track record of more than three related studies. We prioritized articles with electronically available full texts to enable comprehensive analysis.

We excluded studies published before 2016, focusing on recent developments. Articles in languages other than English were also omitted due to translation limitations. Additionally, we excluded articles lacking electronically accessible full texts, as comprehensive analysis requires complete data. Our preferred study designs were trials, RCTs, and placebo-controlled studies, known for providing robust evidence. We also excluded articles from authors without significant IBS research experience, emphasizing authoritative sources.

To ensure a comprehensive review of the articles, we divided the retrieved works from the datasets using our chosen keywords. Each author conducted an initial screening based on the titles and uniqueness of the pieces. After this initial screening, each author independently reviewed the selected articles and made the final selection following the PRISMA inclusion and exclusion criteria as shown in fig 1. This approach enabled us to carry out an objective and thorough examination of the literature. Additionally, we utilized the "Rayyan AI tool for systematic review" to aid in this process.

Two authors extracted data separately on the basis of the included study and ethical issues. The extracted data were assembled narratively by describing the research's characteristics and the ethical problems that arise in such studies while using the Microsoft Excel program, data extraction, and synthesis.

Results

A total of 228 studies were discovered from different databases. 159 articles remained after removing duplicates. The full text of 38 articles was available. Following our inclusion criteria, we included 17 studies in our systematic review as shown in Fig 1.

These studies looked at how irritable bowel syndrome affected various aspects of people's quality of life. Different articles used various methods to evaluate the disease's impact. There were 8 cross-sectional studies, 4 case-control studies, 2 cohort studies, and the remaining 3 were longitudinal studies, an online survey, and a population based survey

Our systematic review's main goal was to determine the effect of IBS on quality of life, and despite the broad definition of the term, every study that used a variety of methods found that IBS patients who had already been diagnosed as well as those who were later diagnosed by ROME criteria or who had similar symptoms had significantly lower quality of life in the form of work impairment, GIT specific anxiety, anxiety, and depression as shown in Fig 2.

According to four studies (1, 6, 7, and 11), those who initially

had irritable bowel syndrome had a larger degree of occupational impairment. The analysis of cohort 1 of the first study (cross-sectional) by Frändemark, which included 370 people, revealed that 24.3% of the employed patients had missed work due to their IBS in the previous week and that 86.8% had reported productivity impairment while at work in the same time frame. The mean score for "interference with activity" of 101 participants in the sixth research [cross-sectional (descriptive)] done by Sherwin, L. B. was 58.63 with an SD of 26.6, implying a considerable negative influence on job productivity that in turn lowers the overall quality of life. In the seventh research (an online survey) done by Ballou, S., the majority (76.5%) of 179 respondents experienced IBS-related impairment in five or more domains of daily functioning. According to the 11th research (cross-sectional) by Goodoory VC, people of working age miss between 72 and 188 million hours of work annually as a result of IBS.

Seven studies (2, 3, 8, 10, 11, 13, and 15 depression) concluded that there were greater levels of anxiety, depression, and stress in patients suffering from irritable bowel syndrome.

According to the second study (case-control), out of 228 patients in the case group, 43% had anxiety and 14% had depression. In the control group, 24.7% had anxiety and only 4% had depression, which proves our result.

According to the 3rd study (case-control) conducted by Kopczyska M., Based on the BDI, depression was identified in IBS patients 38 out of 87 (46.34%) more often than in the control group (5 out of 56 (8.93%); this difference was statistically significant (p 0.0001).

According to the 8th study (population-based survey) conducted by Schauer B., When compared to those without IBS, those with IBS reported significantly higher levels of stress, anxiety, and depression. In the 10th study (cross-sectional) conducted by Goodoory VC, it was stated that anxiety and depression are independently associated with lower quality of life in irritable bowel syndrome.

In the 11th study (cross-sectional) conducted by Goodoory VC, it was concluded that people who had any activity limitation were much more likely to have severe IBS, more anxiety, and depression.

In the 12th study (cross-sectional) conducted by Chen HH in Taiwan, Students with IBS reported significantly more stress than students without IBS.

According to the 14th study (case-control) done by Addante R., anxiety and depression were significantly higher in patients than in controls. This study also reveals that HRQOL scores were significantly lower in IBS patients than in healthy participants as given below.

Four studies (5, 11, 14, and 17) have concluded the presence of GI tract-specific anxiety in patients with irritable bowel syndrome. The presence of disease-specific anxiety made it difficult for the patients to focus on their daily life tasks and also aggravated the disease, which in turn decreased their overall quality of life.

Three studies (6, 11, and 14) have clearly stated that in IBS patients, the health-related quality of life (HRQOL) was significantly low.

Several studies also indicated the predominance of irritable bowel syndrome in females because females are emotionally more vulnerable to stress, depression, and anxiety. That smooths the way for them to get irritable bowel syndrome more often.

To conclude, irritable bowel syndrome (IBS) seems to have multifaceted effects on a person's quality of life, whether it be health-related quality of life (HRQOL), work productivity, daily activity, or mental health.

Variable	Controls(417)	IBS(290)	p-value
Anxiety (0-21)	3.38 (2.8)	7.48 (4.15)	P< 0.001
Depression (0-21)	1.35 (1.88)	3.78 (3.26)	P< 0.001

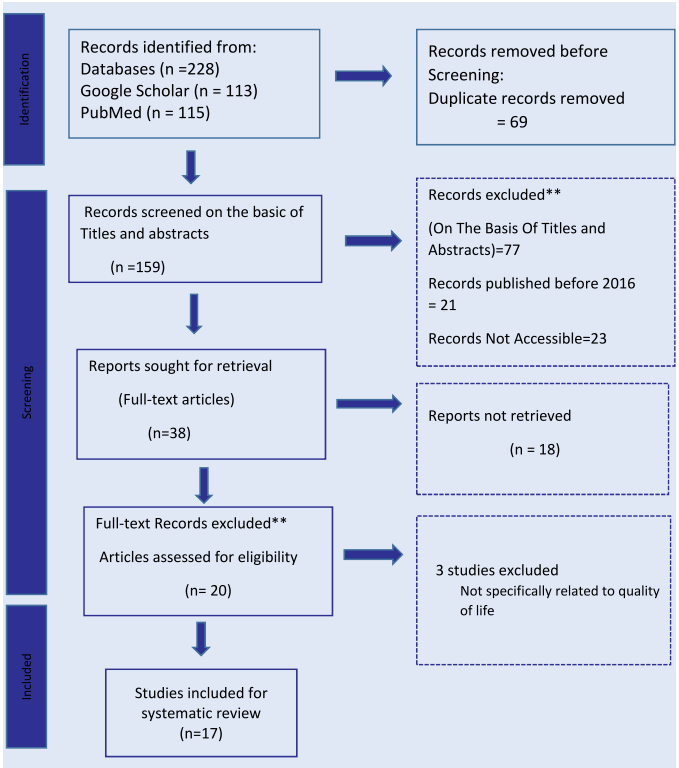

Fig 1: *Prisma 2020 Flow Diagram Showing Selection Of Studies*

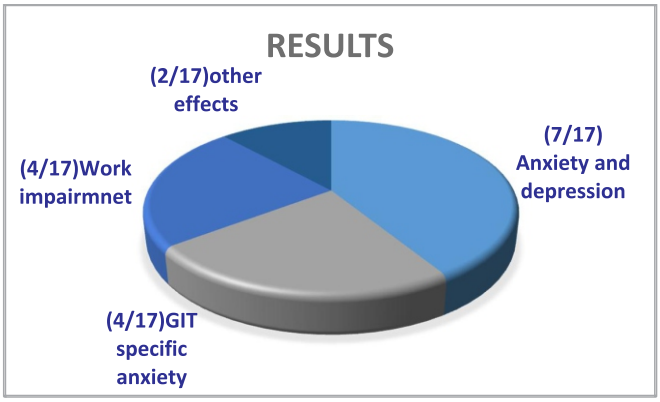

Fig 2. *The Results Of Studies Included*

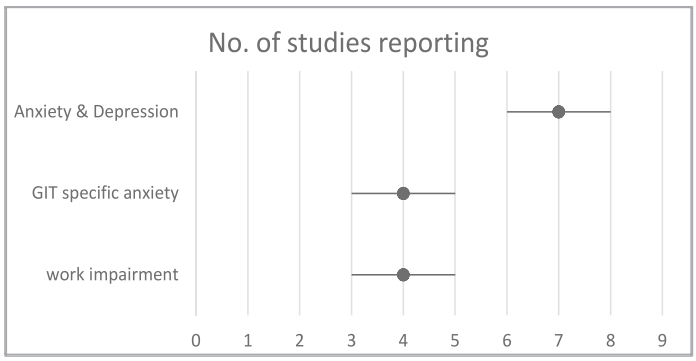

Fig 3. *Forest Plot Showing Results Of Studies Included*

Table 1: *Data Extraction Table*

Sr.	Study Design	Author	Year of Study	Country	No of participants	age of participants	OUTCOME
1	Cross-sectional study[8]	Frändemar Å, et al.	2018	Sweden	525 Cohort-1 n= 370 Cohort-2 N=155	median age=35 (17–80) Median age=31 (18–60)	→A significant negative impact on work productivity and daily activities. With an increase in severity of IBS symptoms and gastrointestinal-specific anxiety in patients, a greater level of work disruption was observed. Additionally, lower quality of life was linked to reduced work productivity among individuals with IBS.
2	Case-control study[9]	Melchior C., et al.	2020	France	456 IBS Group: 228 Control Group: 228	Median age (42.5 ± 13.9 years)	→Patients with IBS had lower BMIs, higher anxiety levels, and poorer lifestyles compared to healthy individuals. →However, in cases where IBS and ED were present together, anxiety and depression were more prevalent.
3	Case-control study[10]		2018	Poland	143 IBS Group =87 Control Group =56	Median age (39.22 ±11.84) (37.0536 ±12.74)	Significantly higher Beck Depression Inventory (BDI) scores and significantly lower Quality of Life (QoL) scores were found.
4	Cross-sectional survey[11]	Kutschke J, et al.	2022	United Kingdom	5288 twins	average age (62.03, SD=9.03)	IBS was linked to higher levels of anxiety and depression, as well as negative perceptions of one's physical and mental health
5	Longitudinal study[12]	Clevers E, et al.	2018	Sweden	276 patients	(70% females of ages 19-76 years)	It was found that the female gender, younger age, and baseline psychological distress as risk factors for the onset of IBS symptoms.
6	Cross-Sectional study[13]	Sherwin, L. B., Henderson, W. A., Leary, E.	2016	USA	101 (total 192 participants	30 to 50 years	Overall decrease in health-related quality of life accompanied by food avoidance, interference with activity & health worry.
7	Online survey[14]	Keefer, L., Ballou, S.	2017	USA	Out of a total of 227 respondents, 179 individuals were deemed eligible.	20 to 30 years	IBS impaired different domains of life and it was significant in those with psychiatric conditions like anxiety, depression, and panic disorders.

8	Population-based survey[15]	Schauer B, et al.	2019	Germany	2199		It was observed that the predominance of IBS was 11.8% When compared to those without IBS, those with IBS reported significantly higher levels of stress, anxiety, and depression.
9	Cross-sectional study[16]	Bachani P, et al.	2021	Lahore, Pakistan	800 individuals		Higher reporting in females than in males It was found that the majority of participants reported missing work or school due to IBS symptoms, which had a significant impact on their daily lives.
10	Cross-sectional survey[17]	Goodoory VC, et al.	2022	United Kingdom	4280	mean age 47.2 years (range 18–89 years).	Reduced quality of life, both in relation to the specific disease and overall health.
11	Cross-sectional study[18]	Goodoory VC, et al.	2022	United kingdom	Out of 4280 participants, 1278 responded and completed the questionnaire	average age of 45.3 years.	Individuals with more severe symptoms experience higher levels of impairment in daily activities and work productivity.
12	Cross-sectional design[19]	Chen HH, et al.	2021	Taiwan	Out of 2520, 1894 female students completed the questionnaire	mean age: of 21.59 ± 1.40 years.	IBS was linked to lower quality of life, higher levels of perceived stress, and unhealthy eating habits.
13	Cross-sectional study[20]	Tausif HM, Akhtar MF, et al.	2021	Pakistan	323 individuals	Mean age:22±3 years.	The study reveals a high incidence of IBS among students due to stressful conditions that affect their quality of life.
14	Case-control study[21]	Addante R, et al.	2019	United States	Healthy controls (N = 417) IBS patients (N = 290)		HRQOL scores were significantly lower in IBS patients than in healthy participants.
15	Retrospective cohort study[22]	Yildiz A, et al.	2022	Brazil	Out of 614, 274 filled questionnaire	mean age (44.1 ± 5.5)	It was found that the patient's quality of life was lower than that of the general population.
16	Case-control study[23]	Mendonca APM, et al.	2020	Brazil	Case group:34 Control group:36	Mean age: 39.5 years	Women with IBS had a low quality of life. They were more likely to eat a diet high in fat and low in fiber and to be overweight or obese.
17	Cohort study[24]	Dong Y, et al.	2020	United States	Out of 366 patients,158 patients participated.	Age 18 years and above.	Stressful Life Events moderated the relationship between changes in Health-Related Quality Of Life (HRQOL) and changes in IBS symptom severity.

Discussion

Irritable Bowel Syndrome (IBS) is a gastrointestinal disorder in which the patients have abdominal pain and distention, either with predominant diarrhea or constipation. The disease, potentially dependent on the brain-gastrointestinal axis, also results in drastic difficulties for the patients, physically, mentally, and emotionally. The prevalence of IBS varies across various cultures and geographical regions.

The objective of our systemic review was to expand on the impact that Irritable Bowel Syndrome has in different spheres of patients' lives. Studies chosen for the review were selected after meticulous deliberation and in strict accordance with the PRISMA guidelines. The subjective term "quality of life" led us to include both Health Related Quality Of Life (HRQOL) and work productivity in our review. We assessed the scope and span of IBS in a patient's life, ranging from physical implications to psychological and emotional problems they can face.

Patients having IBS, according to the studies included in the review, reported not only an impairment in the mundane activities of their daily lives but also experienced a significant negative impact on work productivity. A study estimated the loss of several hundred millions of work hours owing to IBS. The psychological manifestations of IBS as reported by several studies included anxiety, depression, and stress, which also fed back to disease-related symptoms. The linkage between IBS and neurological stress was also found in students with IBS. Several studies found females to be more IBS-prone because of being more emotionally vulnerable to stress and anxiety.

A cross-sectional study of IBS patients in a Tertiary Care Hospital[25] substantiated our findings of lower Health Related Quality Of Life (HRQOL) index, so much so that patients wanted to get rid of IBS-related symptoms "as soon as possible". It also sheds light on the psychological implications of IBS, in which patients who were psychologically upset sometimes aggravated their IBS-related symptoms. The study differed from our finding of female preponderance because most patients reported were male. However, another study done in the same hospital[26] to find out the effect of a drug on predominant diarrhea IBS-related symptoms found that females were affected more than males. This study also concluded that IBS can cause absenteeism from work and add misery to the lives of patients. Another study included anxiety and sex among the etiological factors for IBS[27]. However, it also noticed a different gender-related preponderance of IBS in rich and poor socioeconomic groups; males were affected more in the proletariat class, and females were affected more in the rich classes. Anxiety was also found in patients with variable frequency. A study assessing the sequelae of depression in medical students also noticed GI symptoms in a definite percentage of its subjects[28]. A study examining the etiology of stress among students also listed diarrhea as a physical symptom[29]. The less amount of research linking depression and anxiety in students, particularly medical students, with IBS, also provides a space worth exploring for medical researchers.

Our systematic review includes articles published between 2016 and 2022. The broad terminology of "quality of life" might have increased the involvement of subjective opinion, which is a bias. Although literature about this topic is available, the psychological implications of IBS haven't been researched in detail. We had to exclude some of the articles because of the close-access policy of some journals. We couldn't add multilingual articles because of the language barrier. Although we selected the articles meticulously after due consideration, there might be a publication bias in them.

Conclusion

This systematic review highlights the diverse impact of IBS on various aspects of individuals' lives, including their health-related quality of life, ability to work, daily activities, and mental well-being. It also indicates that there may be a gender-related susceptibility to IBS, especially among females, as they tend to be more emotionally vulnerable to stress, depression, and anxiety. These collective findings underscore the importance of providing comprehensive care and support to individuals with IBS to enhance their overall well-being. In summary, irritable bowel syndrome (IBS) appears to have multifaceted consequences on a person's quality of life, encompassing health-related quality of life (HRQOL), work productivity, daily activities, and mental health.

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Authors' Contribution

All the authors contributed equally in accordance with ICMJE guidelines.

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