Research Article

Impact of Irritable Bowel Syndrome (IBS) on Health-Related Quality of Life in South East Asia

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Abstract

Background: Irritable Bowel Syndrome (IBS) is a long-term GI condition marked by irregular bowel movements. According to studies, the prevalence of IBS worldwide is 11.5% (10–15%), and the majority of patients experience recurring episodes. To assess and contrast the symptoms and quality of life of Irritable bowel syndrome (IBS) patients in Southeast Asia, we conducted this systematic study. Articles comparing different populations and age groups on this topic are scarce, so we aim to fill that gap with this review.

Methodology: This systematic review is conducted in compliance with the PRISMA 2020 guidelines. PUBMED, Google Scholar, and PakMediNet were searched using combinations of keywords to retrieve from each database the studies published from inception up till 22nd October 2022. No language restrictions were put forth. All the relevant articles were transferred to Zotero and screened to remove duplicates.

Results: After conducting a thorough search via several databases, we found 9 papers that fit our inclusion criteria and examined the effects of IBS and its impact on patients' quality of life in Southeast Asia. Our data proposed that IBS constitutes a tremendous burden on the healthcare system of Southeast Asia and has deleterious effects on the Health-related quality of life (HrQoL) of patients in Southeast Asia. Our systematic review showed that Irritable bowel syndrome has a significant association with diminished quality of life. Studies showed that there is a strong association between psychosocial symptoms, generalized symptoms of menstrual pain, bloating, belching, and vomiting. Stress was established as a correlative of IBS, while a study also discovered the association of employment with IBS and found IBS to be significantly higher among employed personnel. These symptoms negatively impact the patient's daily life activities and thus contribute enormously towards the depreciation of their quality of life.

Conclusion: There is an unignorable research void related to QoL of dementia patients which presses on the need to explore various health aspects relevant to it. Moreover, more investment in dementia care provision, dementia-specific research fields, and dementia specialist training should be made.

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Keywords: Irritable bowel syndrome significantly affects the Health-related Quality of Life of people in Southeast Asia due to its psychosocial and gastrointestinal symptoms.

INTRODUCTION:

After conducting a thorough search via several databases, we found 9 papers that fit our inclusion criteria and examined the effects of IBS and its impact on patients' quality of life in Southeast Asia[1]. The most common symptoms associated with this debilitating disease are GI-related which involve abdominal pain, bloating, discomfort, diarrhea (IBS-D), and constipation (IBS-C) or both diarrhea and constipation, i.e., mixed (IBS-M)[2]. Non-gastrointestinal symptoms include fatigue, insomnia, anxiety, and depre-ssion[3][4]. Its etiology is still not completely understood. However, the following elements have been linked to the pathogenesis of IBS(5): altered gastrointestinal motility, hypersensitivity of the visceral organs, post-infectious reactivity and sensitivity to food, interactions between the brain and the gut, altered fecal microflora, bacterial overgrowth, carbohydrate malabsorption, and intestinal inflammation. The criteria used to classify IBS are Manning, Rome I, Rome II, and the most recent Rome III[6].

IBS constitutes a tremendous global burden on health as its global prevalence is 11.5 % (10-15%), and most people have a relapsing course. Existing epidemiological research concerning IBS has found its prevalence to be 10-20% in Asia and 7% in Southeast Asia [7]. Some studies associated this with stress and others with diet[8]. Early studies showed a high prevalence among women[9]. The disease was more common among younger age groups[10], but studies across Asia showed an equal predisposition for males and females. The disease prevalence is also associated with socioeconomic status[11].

IBS has numerous negative consequences on a person's physical and mental health as well as their quality of life in terms of their health. Research has shown that IBS may lead to other disorders, e.g., osteoporosis[12], Parkinson's disease[13], sexual dysfunctions[14], chronic pelvic pain, and fibro-myalgia[15].

Southeast Asia is a region stretching from Myanmar in the West to Indonesia in the East. The complete health status cannot be fully described without considering the area that extends to 2400 kilometers. Culture significantly influences how IBS is presented. hence plays a big part in the therapeutic aspects (16). In the management of IBS, psychological aspects like personality traits and cultural misconceptions are also crucial. The etiology of IBS is multifactorial, ranging from genetic predisposition to environmental pollution[17] and alteration in gut microbiota[18]. Such a large region is bound to vary significantly in its cultures, environment, and genetics.

Stress and other psychological factors have also been demonstrated to cause IBS symptoms in adults and may indirectly affect the onset and progression of IBS(19). It is important to take into account that stress connected to altering dietary habits can also cause IBS.

To assess and contrast the symptoms and quality of life that IBS patients in Southeast Asia experience, this systematic review was conducted. Articles comparing different populations and age groups on this topic are scarce, so this review aims to fill that

gap. Literature has shown that IBS affects more than 90% of adults aged 18 "more[20], and the predominant symptom in the older age group is constipation[21]. Our systematic review aims to compare existing studies and research articles on Inflammatory Bowel Syndrome and review the effect it has on the diverse populations of Southeast Asia. It will correlate the intensity of the symptoms that appear according to a scale and attempt to point out similarities and differences that can hopefully give us a better understanding of the presentation of IBS in different populations.

METHODS AND METHOD:

Data Sources and Search Strategy:

The PRISMA 2020 guidelines were followed in conducting this systematic review. To find studies that had been published in each database from its establishment until October 22, 2022, we searched PUBMED, Google Scholar, and PakMediNet. There were no limits on languages. Without using any filters, all Irritable Bowel Syndrome-related papers in South East Asia were examined. The search strategy used is provided in Supplementary Table S1.

The studies comprising the general population on which the diagnostic criterion of IBS could be applied were included. The outcome was considered to be the effect of IBS on Health-related Quality of Life in Southeast Asia.

Studies selection;

Two reviewers (U.N and A.A) used keyword combinations to search the database. Based on the inclusion criteria listed in Table 1, they separately screened the titles and abstracts. Any research without comprehensive data and those lacking an easily accessible full-length publication were removed.

Table 1: Inclusion criteria:

01	Observational studies (e.g., cohort studies, case-control studies, cross-sectional studies, and longitudinal studies) involving only human participants with no limit on age, gender, and ethnicity.
02	Studies involving the general population on which either Rome or Manning diagnostic criteria of IBS could be applied.
03	Studies report at least one subjective or objective effect of IBS on quality of life.

Data Extraction:

All pertinent articles were imported into Zotero and double-checked for accuracy. To decide which full-text articles were appropriate for inclusion in the review, the reviewers independently evaluated each one of them. To eliminate any potential differences, two reviewers (U.N. and A.A.) independently extracted and synthesized data, while a third reviewer (F.Q.) cross-checked the correctness and completeness of the entries.

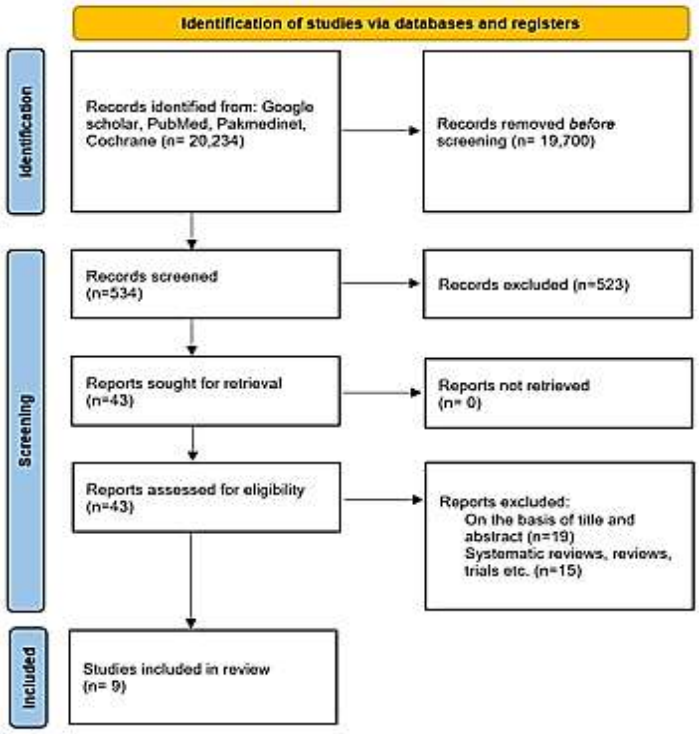

Fig 1: PRISMA 2020 Flowchart

Table 2: Summary of studies included

Author	Location	Design	Sample	Age(mean ± SD)	Education (no. of years)	Primary outcome	Secondary outcome
Juanda Leo Hartono[26]	University of Malaya	Cross-sectional study	248 patients	18-75 years	10-2008 to 3-2010	Anxiety is more common in patients with IBS than those in FD, NERD	No significant difference in depression rates
Ardhi Rahman Ahani[27]	Indonesia	Cross-sectional study	350 students	-	Nov-Dec 2016	Anxiety and female gender is related to IBS	IBS prevalence was 14%
Hanifah Oswari[28]	Indonesia	Cross-sectional study	1813 questionnaires	10-17 years	July- Dec 2016	Female gender and home stressors predispose to FAPD	FAPD is an important health problem in Indonesian adolescents
Yudianita Kesuma[22]	Indonesia	Cross-sectional study	454 adolescents	14-18 years	April - Sept 2017	The prevalence of IBS was 30.2	Involvement of intestinal mucosa
Sarvesh Seger[29]	Malaysian university	Cross-sectional study	190 students	21-27 years	Aug-dec 2018	IBS is common among Malaysian medical students	The significant association between IBS and depression
Yan-Mei Tan[10]	Malaysia	Cross-sectional study	533 questionnaires	22 +/- 1.8 years (43.0% men, 57.0% women)	-	The prevalence rate of 15.8% recorded in young Malaysians	significantly higher prevalence of psychological and psychosomatic symptoms in individuals with IBS
Yeong Yeh Lee[30]	Northeastern Peninsular Malaysia	Cross-sectional study	221 Malay subjects	37.7+/-15.7 years	-	IBS was present in 10.9%, red flags in 22.2%, psychosocial alarm features in 9% of subjects	IBS associated with tertiary education, individual income above RM1000, married status, ex-smoker
Yu Tien Wang[23]	Singapore	Cross-sectional study	449 questionnaires	64 years in the unemployed group, 49 in the employed group	31 Oct 2010 - 3 Jan 2012	IBS has a significant negative impact on the quality of life	IBS significantly associated with younger age and high education level
Kok-Ann Gwee[24]	Singapore	Cross-sectional study	2,276 responses (1,143 males and 1,133 females		-	Prevalence of IBS was 11.0%, 10.4%, and 8.6% by Manning, Rome I, and Rome II criteria.	IBS-C more common than IBS-D

RESULTS

The final screening of articles led to the selection of nine studies that met the inclusion criteria. The summary of included articles is given in **Table 2**.

Studies using the QoL scale:

Three (22–24) out of nine of our studies used the Quality of life index scale, the results of which are as follows:

Irritable bowel syndrome in Indonesian adolescents:

454 Indonesian adolescents aged between 14−18 years from six high schools were approached for a survey employing a comparative cross-sectional approach, using Rome III diagnostic criteria and questionnaires for risk factors and quality of life. 30.2% of the participants were diagnosed with IBS, with the diarrhea subtype being the most frequent (36.5%), followed by unclassified IBS (22.6%), mixed IBS (21.9%), and constipation IBS (18.9%). 14-16 years of age, female gender (p = 0.001), bullying (p = 0.034), existing history of diarrhea (p = 0.020) and constipation (p = 0.023), sexual abuse (p = 0.008), consuming tea, coffee, soft drinks (p = 0.003) and nuts (p = 0.002) were all found to be among the major risk factors for IBS. Intestinal inflammation and a severely reduced quality of life were also found to be significantly associated with IBS, according to the study. Fecal calprotectin (CP) levels, which were shown to be increased in the IBS group compared to the non-IBS participants (p = 0.013), were used to evaluate intestinal inflammation. The Patrick et al. questionnaire was used to assess the quality of life, and the results revealed that IBS patients had a significantly lower quality of life than those without the condition (p 0.001) due to significant interference with activity (p 0.001), sexual (p = 0.001), health worry (p 0.001), food avoidance (p 0.001), social reaction (p 0.001), relationships (p = 0.001), and body image (p = 0.00).

A Singapore perspective on Irritable-Bowel-Syndrome:

In a Singaporean study, 44.1% of the 449 questionnaires that were suitable for analysis fulfilled the Rome 3 diagnostic criteria for IBS. IBS was significantly associated with males. Other correlations between IBS and age, education level, and employment status were discovered. Compared to the jobless or students, the odds of developing IBS were 1.68 times higher for those who were employed. It was discovered that the average EQ-5D index score was 0.739 for IBS and 0.584 for non-IBS. The impact of IBS on the EQ-5D scale remained discernible after controlling for gender, age, and the presence of illness (P 0.001).

Impact of irritable bowel syndrome in an Asian Urban Community:

2726 Singaporean population were evaluated for IBS with Manning, Rome 1, and Rome 2 criteria. The younger age group (<50 years) had more prevalence for IBS as compared to the old age group (>50 years), regardless of the criteria used. IBS was significantly associated with women according to the Manning criteria. The younger age group has a significant risk of IBS and those living in landed properties after multivariate analysis. Even after adjusting for sex, age, and anxiety using multiple

covariance analysis, IBS patients still exhibited significantly poorer QOL scores (P = 0.005) than non-IBS patients.

Studies without QoL scale:

Six (10,26–30) of our remaining studies evaluated the effect of IBS on quality of life without using the Quality of life index scale. The results of these studies are mentioned here.

Psychosocial disorders in various functional gastrointestinal disorders:

A significant association has been found to exist between IBS and psychosocial illnesses such as depression and anxiety. Using the Hospital Anxiety and Depression Scale, a Malaysian university study looked at the prevalence and severity of psychosocial illnesses in people with different functional gastrointestinal disorders, including IBS (HADS). IBS was shown to have a higher mean anxiety level than controls and other FGIDs (P0.001), and post hoc analysis confirmed this finding (P0.0001). Additionally, IBS patients had higher mean depression scores, which had statistically significant outcomes (P 0.001). The prevalence of anxiety among IBS subjects was 67.7%, while that of depression was 38.7% (P<0.0001). Concomitant anxiety and depression were found to be the highest in patients with IBS (32.3%) (P<0.0001).

Anxiety and female gender are related to IBS in medical students:

350 Indonesian medical students were recruited for a cross-sectional study that employed the Rome IV criterion for the diagnosis of IBS. IBS was found to be more prevalent among females (18.3%) as compared to males (9.7%), with the diarrhea subtype as the predominant one (53.1%). IBS was found to be related to anxiety (OR 2.89) and female gender (OR 2.14). The IBS group was shown to have higher student-life stress inventory scores than the non-IBS group in both the stressor (P = 0.001) and response to a stressor (P 0.0001) categories. Thus, a significant association has been found to exist between IBS and anxiety.

Functional abdominal pain disorders in adolescents in Indonesia

A study was conducted among adolescents from nine schools in Jakarta, Indonesia, which examined the various intestinal and extraintestinal manifestations of IBS using the Rome-III self-administered questionnaire. IBS was found to be present in 2% of the subjects, with a higher prevalence among girls ($p < 0.05$) and those who had faced family-related stressful life events ($p < 0.05$). The study found that belching ($p < 0.001$), vomiting ($p < 0.05$), and bloating ($p < 0.05$) were some significant intestinal symptoms related to IBS, and thus these symptoms contribute negatively to the disease severity and quality of life.

Irritable bowel syndrome prevalence and risk factors among medical students at a Malaysian university:

A study was conducted on medical students in a Malaysian university using the Hospital Anxiety and Depression Scale (HADS) and the Pittsburgh Sleep Quality Index (PSQI). 56.3% were females, while 14.7% of students were diagnosed with IBS. An association was found between IBS and Depression

(adjusted OR: 4.749). IBS was reported to be present in 34.2% with depression, as compared to the presence of IBS in 9.9% of students without depression. This link was determined to be statistically significant by both multivariate analyses (unadjusted OR = 4.749) and multivariable logistic regression calculations (adjusted OR = 4.749). Also, 20% of students were found to have possible depression. Anxiety was reported in 58.9% of students, while 51.6% had diminished quality of sleep.

Irritable bowel syndrome prevalence in young Malaysians:

The results of a survey conducted on medical students in Malaysia revealed the prevalence of IBS to be 15.4%. The most frequent symptom that was alleviated by defecation was abdominal pain, which was then followed by changed stool passage and abdominal pain related to a change in stool consistency. All the symptoms were significantly experienced by women. The prevalence of IBS was significantly associated with women (P = 0.04). Of the subjects falling upon diagnosis of IBS, 77.4% were associated with constipation-predominant and 7.1% with diarrhea-predominant IBS. 15.5% fell into the nonspecific IBS category. Constipation-predominant IBS was also significant in females. The associated symptoms reported were anxiety (P = 0.02), backache (P = 0.006), insomnia (P = 0.006), headache (P = 0.04), and depression (P = 0.002). These symptoms were significantly associated with IBS patients.

Irritable bowel syndrome survey conducted in Rome III:

221 Malay subjects were surveyed for IBS using Rome 3 criteria. IBS prevalence was 10.9%, and neither sex nor any other condition was shown to be substantially related to it. On the basis of multiple logistic regression analysis, it was discovered that red flag symptoms were significantly (P =.001) correlated with IBS symptoms. IBS mixed type was the most prevalent subtype, followed by IBS with constipation or diarrhea predominance, and then unsub-typed IBS. Among the female IBS sufferers, 30.8% reported menstruation pain.

#1	Irritable bowel syndrome
#2	IBS
#3	Irritable bowel
#4	#1 OR #2 OR #3
#5	Brunei
#6	Burma
#7	Myanmar
#8	Cambodia
#9	Timor-Leste
#10	Indonesia
#11	Laos
#12	Malaysia
#13	Philippines
#14	Singapore
#15	Thailand
#16	Vietnam
#17	#5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16
#18	#4 AND #17

Supplementary Table S1.

DISCUSSION:

Our systematic review is the first of its kind to assess how Irritable bowel syndrome (IBS) affects health-related quality of life (HrQoL) in Southeast Asia. After conducting a thorough search through various databases, we selected 9 studies in our systematic

review, which met our inclusion criteria and studied the repercussions of IBS and its impact on patients' quality of life in Southeast Asia. Our data proposed that IBS constitutes a tremendous burden on the healthcare system of Southeast Asia and has deleterious effects on the patient's Health-related quality of life (HrQoL). The findings of our studies have been discussed here.

Our systematic review showed that Irritable-Bowel-Syndrome significantly lowers the quality of life. Three of our studies directly used the quality of life index scale to investigate the relationship of IBS with quality of life, while four of our studies revealed the association between IBS and psychosocial symptoms, which ultimately impact the Health-related quality of life (HrQoL). Two of our studies showed a significant association of IBS with generalized symptoms of menstrual pain, bloating, belching, and vomiting. Six studies found a higher incidence among females, while one study found IBS to be significantly associated with males. According to three studies, the younger age group has been revealed to be significantly associated with IBS, and six of our studies were carried out on students. Stress was established as a correlative of IBS in two studies, while a study also discovered the association of employment with IBS and found IBS to be significantly higher among employed personnel. These symptoms negatively impact the patient's daily life activities and thus contribute enormously towards the depreciation of their quality of life.

Currently, there is no systematic review of how IBS impacts the quality of life of people in Southeast Asia. Numerous research has evaluated how IBS affects people's quality of life all across the world[31]. We could not assess the studies statistically because some studies did not use the quality of life assessment scale.

Furthermore, the studies evaluated how IBS affected the quality of life in countries such as Malaysia, Indonesia, and Vietnam, while other Southeast Asian countries, such as Laos, Cambodia, Brunei, etc., have not been the target of such studies. Since Southeast Asian countries are included among the lower-middle-income countries, it poses various challenges in maintaining proper hygiene due to a lack of resources. Their highly divergent healthcare system is not well equipped to face the increasing burden of newly emerging diseases, which have a tremendous burden on the healthcare system and are affecting the quality of life in individuals remarkably. The main barriers to improving this condition are lack of resources, lower economic conditions, and lack of research in the Southeast Asian population.

The major psychological symptoms seen in patients with IBS include anxiety, depression, and insomnia. Among these, anxiety was found to be a more prominent psychological symptom. Associated psychological symptoms include food avoidance, social reaction, and body image. A deteriorating mental health status contributes to social withdrawal and avoidance.

Moreover, these symptoms serve as a precursor to the emergence of psychological illnesses. A syste-

matic review investigated the presence of cognitive impairment among IBS subjects and found evidence of attentional bias in these patients. Their cognitive function is adopted so that they show bias toward pain words rather than neutral words[32].

Since our systematic review focused primarily on students, we were unable to determine how Irritable Bowel Syndrome affected people's quality of life.

Moreover, most of the studies were conducted on some prominent South Asian countries and not on some unprivileged and developing countries. Irritable bowel syndrome is a very prevalent gastrointestinal dysfunction in South Asian countries. The results of this review display that Irritable bowel syndrome significantly lowers the quality of life due to various associated symptoms of IBS. There should be more research on populations of older age groups and underrepresented nations.

Strengths and Limitations of this review:

To the best of our knowledge, the impact of irritable bowel syndrome (IBS) on the health-related quality of life (HrQoL) of people in Southeast Asia has never been assessed in a systematic review before, and ours is the first of its kind. We have summarized existing studies assessing the effect of Irritable Bowel Syndrome on the quality of life in various Southeast Asian regions with and without the QoL scale. We thoroughly searched various databases using a compendious and carefully composed list of keywords. The included studies employed Rome and Manning criteria for the diagnosis of IBS patients. Consequently, the results can be generalized to the IBS population of various Southeast Asian regions and people of different ages, gender, and ethnicity.

However, most of our studies were conducted on students, and there were a very small number of studies on the elderly population. Furthermore, the studies included assessed the effect of Irritable Bowel Syndrome on the quality of life in some South East Asian countries only, such as Vietnam, Indonesia, and Malaysia, while other Southeast Asian countries, such as Timor-Leste, Cambodia, and Laos, etc. did not have any study evaluating the impact of IBS on quality of life there, so we could assess the effect of IBS only on the population of some countries. Apart from these, the studies do not cover certain aspects of quality of life, such as work absenteeism, financial conditions, environment, social responsibilities, and freedom. Also, the included studies assessed the effect of IBS on quality of life with and without the QoL scale, so we could not perform a meta-regression analysis.

Future trials and cross-sectional studies should also explore the impact of IBS on the quality of life of populations of older age groups as well as under-represented countries of Southeast Asia. Conducting trials including people of different age groups and ethnicities might help in generalizing the findings to various Southeast Asian regions. Future research investigators evaluating the impact of IBS in Southeast Asia should also include other aspects of quality of life apart from the ones already explored.

CONCLUSION:

This review is the first systematic review assessing the effect of Irritable Bowel Syndrome on the quality of life in Southeast Asia. This evidence demonstrates

how the psychosocial and other gastrointestinal symptoms of Irritable Bowel Syndrome (IBS) have a significant negative impact on the overall quality of life. and thus constitutes a tremendous burden on the healthcare system of Southeast Asia. IBS affects certain aspects of quality of life more because it has deleterious effects on the patient's psychological and physical health and social life. IBS was found to have significant relationships with anxiety, depression, and psychosocial illnesses, thus providing evidence for the disastrous effects of IBS on mental health. Moreover, it was found to be more common among the female gender, students, and unemployed personnel, thus highlighting the strong relationship of IBS with stress.

ACKNOWLEDGMENTS:

We would like to express our sincere gratitude and appreciation to Prof. Dr. Umar Sadat, Prof. Dr. Saira Afzal and Ms. Faiza Aziz for their unwavering support and assistance in this research work. Their valuable guidance and input have been instrumental in ensuring the success of our publication. We are truly grateful for their contributions.

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