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Abstract

Irritable Bowel Syndrome (IBS) is a chronic gastrointestinal disorder with various subtypes (IBS-C, IBS-D, IBS-M, IBS-U), affecting both Western and non-Western populations. Prevalence varies globally, influenced by diagnostic criteria, survey methods, and cultural factors. Women are more commonly affected, especially by IBS-C, but regional and ethnic differences exist. Psychological comorbidities, including anxiety and depression, worsen symptoms and quality of life. Dietary interventions, such as gluten elimination and low FODMAP diets, help manage symptoms, but challenges remain, particularly in non-Western countries due to limited knowledge. This essay critiques the Western-centric Rome IV diagnostic criteria, advocating for a broader approach that includes psychological and gastrointestinal factors in IBS diagnosis and management.

Keywords: Irritable Bowel Syndrome, Prevalence, Psychological Comorbidities, FODMAP Diet, Rome IV Criteria

Authors:

Aroob Aslam: (Coprrespondant author)

MS Scholar, Institute of Administrative Sciences, University of the Punjab, Lahore, Punjab, Pakistan.

Email: (aslamaroob90@gmail.com) .

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Title

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Abstract

Irritable Bowel Syndrome (IBS) is a chronic gastrointestinal disorder with various subtypes (IBS-C, IBS-D, IBS-M, IBS-U), affecting both Western and non-Western populations. Prevalence varies globally, influenced by diagnostic criteria, survey methods, and cultural factors. Women are more commonly affected, especially by IBS-C, but regional and ethnic differences exist. Psychological comorbidities, including anxiety and depression, worsen symptoms and quality of life. Dietary interventions, such as gluten elimination and low FODMAP diets, help manage symptoms, but challenges remain, particularly in non-Western countries due to limited knowledge. This essay critiques the Western-centric Rome IV diagnostic criteria, advocating for a broader approach that includes psychological and gastrointestinal factors in IBS diagnosis and management.

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Authors:

Aroob Aslam: (Coprrespondant author)

MS Scholar, Institute of Administrative Sciences, University of the Punjab, Lahore, Punjab, Pakistan.

Email: (aslamaroob90@gmail.com)

Contents

Introduction:

Background

Irritable Bowel Syndrome, or IBS, is a chronic gastrointestinal disorder under the purview of Disorders of Gut-Brain Interactions (DGBI). According to Rome IV, it is primarily accompanied by abdominal pain and bowel movement dysfunction that must present at least once a week for six months or more. Based on other symptom clusters, it has been classified into the following categories: IBS-C (IBS with predominant constipation), IBS-D (IBS with predominant diarrhea), IBS-M (IBS with mixed bowel habits), and IBS-U (IBS unclassified). IBS is also referred to as a 'functional' gastrointestinal disorder (FGID) i.e. it is diagnosed according to the symptoms experienced and reported by the patient and not based on a biological diagnostic test. Furthermore, these subcategories are not mutually exclusive and may exist on a spectrum, i.e. with varying frequency, severity, and overlap that evolve over time (Drossman, 2016).

This essay will discuss the prevalence of IBS around the world, highlighting the discrepancies between patients in Western and non-Western countries a bias in diagnostic criteria, and the various reasons for the incongruity of the prevalence rates within and among regions. Furthermore, the psychological comorbidities of IBS and their impact will be discussed. The overall quality of life in patients with IBS will also be explored. Lastly, the effect of nutrition on IBS will be reviewed, including food triggers, dietary management, and food-related quality of life. The first diagnostic criteria for IBS were developed in 1978 by Manning (Card et al., 2014) These were further improved and restricted in the 1980s by Thompson et al. (1989). The experts behind this work later went on to form the Rome Foundation which focused on studying gastrointestinal disorders. The very first Rome criteria, i.e. Rome I was published in 1994. Later iterations were published in 2000, 2006, and most recently in 2016, called the Rome IV diagnostic criteria, whereas the next revision is set to be published in 2026 (Drossman, 2016). These criteria are based on clinical research and include guidelines for physicians, such as the assessment of psychological comorbidity in patients with IBS and following one's clinical judgment as opposed to rigid adherence to the diagnostic criteria. Nevertheless, it has received some criticism.

For instance, Mayer et al. (2023) have criticized a diagnostic criterion limited to gut-based symptoms. They argue that reducing psychological symptoms like anxiety and depression to mere 'comorbidity' is detrimental to patients' health and overlooks the vast amount of genetic studies that have been conducted. For instance, the genes implicated in IBS as identified by Genome-Wide Association Studies e.g., *CADM2, NCAM1,* and others produce molecules that are necessary for the functioning of the central nervous system and are involved in mood disorders. Further, traumatic or stressful events in childhood are linked with an increased risk of developing IBS, with stress in adulthood associated with the initial flare-up and disease severity. Indeed, a 12-year prospective study in Australia has demonstrated that individuals who showed no symptoms of IBS at the beginning of the study but had high levels of anxiety and depression were more likely to have developed IBS symptoms over the years (Koloski et al., 2012). It was estimated that about one-third of this cohort developed a mood disorder prior to developing IBS symptoms (Koloski et al., 2016). So, Mayer et al. have posited that a revised disease model is necessary to understand and convey the full scope of gastrointestinal disorders.

Furthermore, Black & Ford (2020) have critiqued the roots that form the basis of diagnostic criteria i.e. clinical studies conducted in Western countries that do not capture the disease experience of non-Western IBS patients. Efforts have been made to address these critiques. Indeed, FGIDs have been renamed as Disorders of Gut-Brain Interactions to better reflect the latest research on IBS and other gastrointestinal disorders. The Rome IV criteria were revised in light of evidence from non-Western countries e.g., the removal of the word 'discomfort' to reduce ambiguity. Rome Foundation has published studies highlighting the cultural differences in IBS around the world and has translated the Rome criteria into many languages to facilitate diagnosis. In addition, a 24 country-wide prevalence study was conducted by the foundation in an attempt to fill research gaps (Sperber et al., 2020).

Prevalence of IBS

Globally, reports on the prevalence of IBS have varied, with estimates between 1-45% (Black & Ford, 2020). However, a wide range of variance exists in estimates within and among countries. So, some of the reported prevalence rates are 5.3% in the USA, 4% in the UK and Sweden, 4.2% in Canada, 1.1% - 4.2% in France, 3.5% in Australia, 0.2% - 12.26% in India, 1.1%-2.1% in Iran, 30% in Palestine, 7.6% in Egypt, 30.5% in Saudi Arabia, 4.4% - 35.5% in Mexico, 4.3 - 5.5% in China, 14.9 % in Japan, 15.6% in South Korea, 11.5%-17.5% in Vietnam, 8.6%-35.9% in Pakistan, 7.2% in Bangladesh, 20% in Bulgaria, 0.3% in Ghana and 2.7% in Nigeria (Takeoka et al., 2023; Abid et al., 2022; Ghosh et al., 2022; Nakov et al., 2020; Quach et al., 2021; Sperber et al., 2020; Aljammaz et al., 2020; Latif et al., 2020; Singh et al., 2018). Data from African countries is significantly underrepresented.

Role of Diagnostic Criteria in Regional Differences in Prevalence

According to the earlier Rome criteria, pooled estimates provided a prevalence of 11.2% of IBS worldwide (Lovell & Ford, 2012). Oka et al. (2020) performed a systematic review and meta-analysis of population-based cross-sectional surveys of the prevalence of IBS. Using the ROME III diagnostic criteria, they reported a prevalence of 9.2%. On the other hand, using the ROME IV diagnostic criteria drastically reduced the prevalence of IBS to 3.8%. A large cross-sectional study spanning 24 countries also

reported a similar trend with prevalence levels decreasing from 10.1% to 4.1% in Western countries assessed via self-completed internet surveys and 3.5% to 1.5% in developing countries assessed via household interviews (Sperber et al., 2020). However, this is merely a global pooled estimate. Even with stricter ROME IV criteria, a high level of prevalence of IBS up to 21.2% has been reported in the United States (Oka et al., 2020).

Interestingly, the prevalence of IBS nearly halved using ROME IV, decreasing from 9% to 4.6%, in a population survey in the USA, UK, and Canada (Palsson et al., 2020). On the other hand, in India, the prevalence was reported to be 0.4% and 0.2% according to ROME III and ROME IV respectively (Sperber et al., 2020). Not only were the prevalence levels low, they did not vary much between the two criteria. However, it must be noted that this study used interviews to assess the prevalence level of IBS in India. While the authors contend that survey strategy did not affect their results, it has been demonstrated that interview-based surveys consistently report lower levels of IBS compared to self-completed questionnaires (Lovell & Ford, 2012). Sperber et al. (2016) opine that in light of vast differences in IBS prevalence amongst countries, global prevalence estimates are practically insignificant. Even regions thought to be culturally and socially exchangeable e.g. South Asia must be studied separately. While India has had some of the lowest prevalence rates (Sperber et al., 2020), Pakistan has reported some of the highest at 45% (Lovell & Ford, 2012) – both these countries are in South Asia.

Black & Ford (2020) have provided some explanation for the variance of IBS prevalence globally, arguing that this criterion relies on clinical studies conducted primarily in the Western world and may not be generalized to non-Western populations. While efforts have been made by the Rome Foundation to construct a more holistic and generalized diagnostic criterion, region-specific problems are still aplenty, so much so that the symptom clusters identified by the Rome Foundation are inconsistent with those observed in Asian and Australian populations (Holtmann & Talley (2018) as cited in Black & Ford, 2020). Patients in Asia also experience symptoms differently than those in Western countries e.g., they tend to report upper abdominal pain, as opposed to lower abdominal pain, and the majority of the patients also report a diagnosis of Functional Dyspepsia (Gwee et al., 2017). Furthermore, a cross-sectional study in China reported that 64% of the patients with IBS reported abdominal bloating along with abdominal pain when diagnosed according to the ROME IV criteria. These patients had pain localized near the umbilicus, upper abdomen, and lower abdomen with the foremost being the most common (Bai et al., 2016). In an Iranian sample, 60% of the IBS patients experienced bloating and described it as the symptom that troubled them the most (Safaee et al., 2011). Similar findings were reported in Japan in a sample of IBS-C patients (Kanazawa et al., 2016). Additionally, the frequency of bowel movements and colonic transit times in Asian countries differs from those in Western countries. So, the terms diarrhea and constipation are perceived differently by Asian populations (Hewawasam et al., 2018).

So, diagnostic criteria involving the frequency of bowel movements must take the regional variances into consideration to accommodate IBS patients with supposedly atypical symptoms. This is important as variance in symptoms leads to inaccurate diagnosis in IBS patients e.g., patients experiencing upper abdominal pain are incorrectly diagnosed with functional dyspepsia (Gwee et al., 2019).

Female Sex as a Risk Factor

Western studies have consistently reported that the likelihood of IBS in women is greater than in men with a ratio of 2:1 (Sperber et al., 2020; Lovell & Ford, 2012). However, sex difference in prevalence rate is rarely reported in non-Western countries. A cross-sectional study conducted in Japan, China, and Korea found no significant sex difference in the prevalence of IBS (Takeoka et al., 2023). A meta-analysis of studies from the US, UK, and Taiwan revealed that while female gender was a risk factor for IBS in Western countries, reports from Taiwan tended to have no sex difference in IBS prevalence (Creed, 2019). Contradictory findings are reported from Pakistan where some studies found no gender differences in prevalence (Latif et al., 2020) while others show that women are significantly more likely to experience IBS (Abid et al., 2022). Only a slightly higher

prevalence in women has been reported in Vietnam (Quach et al., 2021). In Bangladesh, a higher prevalence has been reported in men compared to women (Ghosh et al., 2022).

Safaee et al (2011) reported no significant differences between men and women in abdominal bloating in an Iranian sample, however, a Japanese study reported that females with IBS-C experience more bloating than males (Kanazawa et al., 2016). In an internet-based survey in Japan, IBS was found to be

slightly more common in females (53%) than in males (49.4%), with IBS-C being significantly more prevalent in females (72.2%) than in males (Kanazawa et al., 2016). A community survey also found similar results(Satake et al., 2015). It is likely that trends may be changing globally. Sperber et al. (2017) compared the prevalence of IBS in Latin America, Asia, the Middle East, and the USA/Europe/Australia/New Zealand and found a sex difference in all regions, with a higher prevalence rate for women. However, the difference was much smaller for Asia and the Middle East compared to other regions.

Role of Ethnicity

Some studies have indicated that different ethnicities living within the same region show varying risks for IBS. White individuals in the US are more likely to report IBS than African Americans, Hispanics, and Asians (Parker et al., 2020; Black & Ford, 2020). A Scottish study showed that white British individuals had a higher risk for IBS than Scottish, Irish, Indian, Pakistani, or Mixed Race individuals. Interestingly, Indian and Pakistani males had a higher risk for IBS than women of the same ethnicity (Bhopal et al., 2014)

IBS and Area of Residence

Area of residence i.e. urban or rural also influences the risk of developing IBS. Gwee et al. (2017) suggest that a vegetarian diet high in FODMAPS may be associated with a higher prevalence of IBS in rural India. In China, urban communities have been reported to have a higher IBS prevalence than rural communities (Chuah & Mahadewa, 2018). In a study conducted in the West Bank in Palestine, individuals living in rural areas or refugee camps were more likely to have IBS compared to those living in urban centers (Qumseya et al., 2014). Contrary to this, Rahman et al. (2017) have reported that there are no significant differences in the prevalence of IBS between rural and urban communities in India, Bangladesh, and Malaysia.

Prevalence of IBS Subtypes

Different subtypes of IBS have been reported to be the most prevalent globally. Bai et al. (2016) reported that IBS-D was the most common in a cross-sectional Chinese sample, making up for more than half of the sample while IBS-M was the least common. Contrary to that, a study spanning China, Japan, and South Korea reported that IBS-M was the most common subtype in all three countries (Takeoka et al., 2023). IBS-D was most common in Brazil, Vietnam, and India (Quach et al., 2021; Singh et al., 2018; Nagasako et al., 2015),

IBS-U was common in Pakistan (Abid et al., 2022), while IBS-M was the most common in the USA, Bangladesh, Palestine, and Bulgaria (Ghosh et al., 2022; Nakov et al., 2020; Parker et al., 2020; Qumseya et al., 2014). In Iran and Colombia, IBS-C was found to be the most prevalent (Cañón et al., 2016; Keshteli et al., 2015).

Interestingly, Ghoshal and Singh (2016) have demonstrated that while IBS-M tends to be the most common in rural communities in India according to the Rome criteria, applying the Asian criteria drastically reduces the IBS-M prevalence with IBS-D being the most common. This, again, highlights the cultural differences in the perceptions of symptoms and the need for the development of culturally sound diagnostic criteria.

Psychological Comorbidities and Quality of Life in IBS Patients

Psychological comorbidities especially anxiety and depression are frequently seen in patients with IBS, so much so that they are three times more likely to have these conditions compared to healthy controls. Apart from the increased likelihood, IBS patients have more severe anxiety and depression levels as well. This trend is observed not only in Western countries but also in non-Western countries. Women with IBS tend to have higher levels of anxiety and depression (Zamani et al., 2019).

Self-reported severity of symptoms of IBS is often associated with poor quality of life as well as psychological comorbidities (Gwee et al., 2017). In a UK-based longitudinal cohort study of IBS patients diagnosed using Rome IV, those who had higher psychological comorbidity (depression, anxiety, somatic symptom disorder, perceived stress, and GI-specific anxiety) at the beginning of the study reported higher symptom severity, number of hospital visits and treatments tried, and a higher impact of symptoms in their daily lives at the time of follow up. Higher psychological comorbidity at the beginning of the study also predicted the development of severe symptoms when not reported initially (Goodoory et al., 2021). In Vietnam, patients with moderate to severe anxiety, but not mild anxiety, had a higher risk of IBS (Quach et al., 2021). It has been reported that certain cognitive dysfunctions such as a tendency toward catastrophizing, hypervigilance, and somatization are

independent risk factors for poor quality of life and symptom severity in IBS patients. Apart from generalized anxiety, GI-specific anxiety is often observed and mediates IBS symptom severity and psychological symptoms (Person & Keefer, 2020).

On the other hand, in a longitudinal study conducted in the Netherlands, a betterment in IBS symptoms over the years was associated with a decrease in GI-specific anxiety. Still, it did not improve overall quality of life and life satisfaction. Furthermore, the patients with improved symptoms reported similar levels of anxiety, depression, and work-related problems such as absenteeism and lack of productivity as those whose symptoms had not improved

(Weerts et al., 2019). So while psychological comorbidities increase the risk of IBS flare-ups and symptom severity, they are not resolved upon amelioration of symptoms.

The extent of challenges that IBS patients face can be illustrated by the studies showing that up to 10.4% of the IBS patients diagnosed using the Rome IV criteria were willing to take a medication with a risk of sudden death for a 99% chance of complete cure of their symptoms. Additionally, 25% of the IBS-D patients with severe patients were willing to take a 20-60% risk of death if it meant that there was a chance of a cure (Shah et al., 2020).

Previously, Lacy et al. (2012) reported similar findings from the same community, albeit diagnosed using Rome III. However, subtypes did not differ in their risk-taking behavior. In a predominantly Western sample, patients were willing to give on average 25% of their lives to be symptom-free (Drossman et al., 2009). In a UK sample of IBS patients, men were willing to take a 5% chance of death while women accepted a 2% chance of death. Again, patients with IBS-D overall were more willing to risk death for a chance at cure. This medication-related risk-taking was higher in patients with high depression scores (Goodoory et al., 2022). No such data is available from non-Western countries so far.

The hurdles faced by patients with IBS are not limited to their physical and psychological symptoms. A mere diagnosis of IBS can take on average four and up to years, with IBS patients often reporting that their symptoms are not taken seriously by physicians, and experience stigma in healthcare settings (Corsetti et al., 2018). Data from Asian countries show that up to 49.2% of IBS patients report dissatisfaction with healthcare professionals, explaining that their complaints are ignored, they are not given an adequate explanation of their symptoms, and their symptoms are not thoroughly investigated (Xiong et al., 2017).

Inadequate sleep is often reported, with IBS patients reporting getting fewer hours of sleep compared to non-IBS patients in a Japanese sample (Okami et al., 2011). Insomnia was also reported in a US sample of IBS patients (Grover et al., 2021). Consequently, IBS patients frequently complain of fatigue and lack of productivity, especially at work which in turn affects their quality of life (Frändemark et al., 2018).

Role of Nutrition in IBS

It has been suggested that changes in diet may also influence the prevalence of IBS, especially in developing countries. With a less than 5% prevalence of IBS in Thailand in 1988, there have been consistent increases in its prevalence as the region has been adopting a more Westernized diet, characterized by high intake of fat and sugars (Black & Ford, 2020). This rise in IBS prevalence is more striking in Japan and Singapore, countries that are more developed than other Asian countries (Rahman et al., 2017). This is also supported by another interesting pattern seen in Asian countries: individuals belonging to wealthier backgrounds tend to have higher rates of IBS (Gwee et al., 2017). It may not be unreasonable to assume that these individuals are more likely to have adopted a Westernised lifestyle.

Indeed, a diet rich in short-chain carbohydrates referred to as FODMAPS (fermentable oligo, di, and monosaccharides and polyols) that are poorly absorbed in the small intestine has been implicated in IBS (Gwee et al., 2017). Further, in a Japanese medical student sample, females with IBS were more likely to have a diet consisting of processed foods (Okami et al., 2011).

On the other hand, a survey of a Japanese community sample did not report a significant difference in dietary habits between patients with IBS and those without IBS (Satake et al., 2015).

In a study comparing following a low FODMAP diet and a Specific Carbohydrate Diet (SCD) for the alleviation of GI symptoms in IBS patients in Italy diagnosed using Rome IV, patients in the low FODMAP group showed significant improvement in GI symptoms, especially bloating (Vincenzi et al., 2017). A meta-analysis of randomized control trial studies conducted mainly in Western countries and one in Iran concluded that following a low FODMAP diet helps in the reduction of IBS symptoms and improves bowel movements, especially in IBS-D patients, however, it does not have a statistically significant effect on psychological comorbidities or quality of life scores

(Wang et al., 2021).

Contrary to that, in a Swedish sample, analysis of dietary habits, especially concerning FODMAP foods, revealed that high fructose intake was associated with abdominal pain and symptom severity, particularly in IBS-U patients. However, the FODMAP diet was not related to bloating symptoms. The authors suggest that it is a possibility that the sample studied had reduced the consumption of problematic foods from their diets already as bloating is one of the primary symptoms targetted by low FODMAP diets (Nybacka et al., 2020).

The role of gluten elimination has been studied in IBS patients to understand non-celiac gluten sensitivity in these patients. In an Australian sample, a double-blind randomized placebo control trial revealed that IBS patients who followed a gluten-free diet reported improvements in GI symptoms like bloating, pain, bowel movement, and tiredness compared to the placebo group. However, nausea and gas did not improve. About 72% of the patients in the gluten-free group continued the regimen after the completion of the study and reported a sustained amelioration of symptoms at follow-up after 18 months (Biesiekierski et al., 2011). Similar findings have been reported in Asia. In India, after a four-week gluten-elimination diet, 36% of the IBS patients showed improvement in symptoms. These patients were then randomly assigned to placebo and gluten groups for four weeks. Patients in the gluten group showed significant worsening of symptoms like abdominal pain, bloating, and general tiredness (Zanwar et al., 2016). With the same research design followed in Iranian patients with a higher number of study participants, differences between the two groups were a lot more remarkable (Shahbazkhani et al., 2015)

Mohseni et al. (2021) sought to understand whether the gluten content of wheat and barley or the fructan content triggered IBS symptoms in patients. A placebo-controlled trial of 49 Iranian IBS patients revealed that when given gluten powder along with a low FODMAP diet, patients experienced a relief in symptom severity, pain, and frequency of symptoms along with an improvement in quality of life. It must be noted here that fructan is also avoided in low FODMAP diets and perhaps plays a role in the alleviation of IBS symptoms when this diet is followed. It was concluded that fructan intolerance is the likely culprit for IBS symptoms. Similar results were reported earlier in a double-blind cross-over study in Norway where participants reported higher GI symptoms following a fructan diet, but not on a gluten diet or placebo condition. However, these participants did not necessarily have IBS (Skodje et al., 2017).

In a Japanese medical and nursing students sample, females with IBS were more likely to have irregular and missed meals, as well as increased worry around food and mealtimes (Okami et al., 2011). Food avoidance by IBS patients has also been reported in studies from China, South Korea, and Vietnam (Quach et al., 2021). Dietary avoidances were also reported by IBS patients in a national health survey in the US, with IBS patients avoiding milk, fatty food, and others (Hujoel, 2020). Milk avoidance was also observed in women with IBS-D in a Swedish sample (Nybacka et al., 2020). This is in line with research showing that milk or lactose products are common triggers of IBS symptoms and that IBS patients tend to have lactose intolerance (Varjú et al., 2018). While dietary avoidance has often been observed, eating disorders are not common in IBS patients (Grover et al., 2021).

In a study analyzing the hematological and biochemical markers as well the dietary composition of IBS patients from the National Health and Nutritional Examination Survey in the US, those with IBS were observed to have higher copper-zinc ratios. A normal

copper-zinc ratio is 1:1, however, in this sample, IBS patients had copper-zinc ratios up to 1:8. The rest of the markers assessed were no different in the IBS group than in the non-IBS group (Hujoel, 2020). This study did not include the assessment of vitamin D levels. A placebo-control double-blind study from Iran demonstrated that vitamin D supplementation for 6 weeks significantly improved symptom severity and quality of life for at least four weeks after the treatment concluded, perhaps by modification in gut microbiota and regulation of T-cell function (Hekmatdoost et al., 2019).

While chili intake has been implicated in IBS for Asian patients via the 5-HT_3 receptors pathway, affecting serotonergic activity, El-Salhy et al (2017) have demonstrated that the density of enterochromaffin cells that produce most of the body's 5-HT is not significantly different in IBS patients than in non-IBS controls in a Thai sample. However, there was a significant difference between Norwegian IBS patients and healthy Thai controls. This demonstrates that while increased capsaicin intake may be a risk factor in the Western population, Asian populations develop a tolerance for it owing to their dietary habits. This is supported by a randomized, placebo-controlled study

in which IBS patients were given red pepper pills for six weeks. While GI symptoms, especially abdominal pain, worsened in the experimental group initially, the symptoms not only improved over time, but the IBS patients in the experimental group showed improvement compared to the control group, possibly because of desensitization of capsaicin receptors (Bortolotti & Porta, 2011).

Alcohol intake (in a UK cohort, there was a significantly higher alcohol intake in IBS patients (Goodoory et al., 2021). A Swedish sample showed higher alcohol intake for patients with IBS-D and IBS-M as compared to other subtypes (Nybacka et al., 2021). However, it is difficult to assess whether alcohol acted as a possible trigger in these subtypes or if patients with other subtypes eliminated alcohol to reduce their symptoms. Reding et al. (2013) have shown that while patterns of alcohol consumption do not differ between women with IBS and healthy controls, binge drinking was associated with the severity of IBS-related symptoms, especially in women with IBS-D, even after controlling for cigarette smoking and psychological symptoms. Light or moderate amounts of drinking did not have an effect on GI symptoms. Interestingly, this relationship was only observed in IBS patients, and binge drinking was not associated with GI symptoms in healthy controls.

A study on college students of Guangxi Han nationality reported regular alcohol consumption to be a risk factor for the occurrence of IBS symptoms compared to healthy controls (Liu et al., 2023). Further, in a Labenese sample, individuals who habitually consumed alcohol were twice as likely to have IBS than those who did not consume alcohol (Chatila et al., 2017). Nevertheless, no randomized control trial has been conducted to understand the relationship between alcohol consumption and IBS. More evidence is needed to ascertain what role alcohol plays in the development of IBS symptoms, if any.

A survey of IBS patients in the Netherlands, diagnosed according to the Rome III criteria, demonstrated that patients had a preference for dietary interventions for the treatment of IBS when compared to medication and psychotherapy (Sturkenboom et al., 2022).

Notwithstanding, patients with IBS report a poor food related quality of life, especially among those who follow multiple diets to manage their symptoms (Guadagnoli et al., 2019). Hewawasam et al. (2018) argue that while a low FODMAP diet may have its benefits, its applicability in non-Western countries, particularly in South Asia can be extremely challenging. There is limited knowledge of the FODMAP status of a majority of locally consumed foods, a wide range of culinary practices, and a scarcity of qualified dieticians.

Packaged foods are often inadequately labeled. So, a significant knowledge gap needs to be filled to better address the needs of IBS patients globally.

Conclusion

In summation, the diagnostic criteria for IBS have undergone several revisions to account for global variances, leading up to the development of the Rome IV criterion, even so, it has been met with criticism. This criticism has been directed at various aspects of the criteria, which include the limitation of the criteria to gut-based symptoms, regarding the accompanying psychological symptoms as mere comorbidities, and an overt emphasis on the symptoms experienced by patients within Western Countries. The prevalence of Irritable Bowel Syndrome (IBS) varies globally, with estimates ranging from 1.1% to 45% depending on the diagnostic criteria used and geographic region. The latest and stricter criteria ROME

IV tends to yield lower prevalence rates. However, at the same time, it is less sensitive to the variations in symptoms experienced by IBS patients and Rome guidelines have advised

healthcare workers to employ clinical judgment for diagnosis. For instance, Asian patients often present with upper abdominal pain and bloating, challenging traditional symptom clusters observed in Western populations. The variability of symptoms may also lead to incorrect diagnosis of IBS patients, furthering their challenges. Region-specific considerations have also been highlighted as the cause for variation between estimate levels, with some countries having lower prevalence for a plethora of reasons.

In Western studies, IBS is often more common in women, with women experiencing a twofold risk of IBS. But this pattern is less consistent globally. Some Asian countries show no gender difference, while others have conflicting findings, with some reporting no gender

difference and others reporting a higher female sex-associated risk. Recent comparisons across larger regions have suggested a changing trend: women are observed to have a higher IBS prevalence, including in Asia and the Middle East. Different ethnicities within the same region may also have varying risks for IBS, with white individuals being more prone to IBS than other ethnicities. Area of residence, whether urban or

rural, also influences IBS risk.

Regarding IBS subtypes, prevalence varies globally. IBS-D is common in China, Brazil, Vietnam, and India, while IBS-M is prevalent in the USA, Bangladesh, Palestine, and Bulgaria. Cultural differences also affect subtype prevalence, with rural communities in India showing different patterns according to diagnostic criteria.

Patients with IBS also experience psychological comorbidities, particularly anxiety and depression, at a significantly higher rate than healthy individuals. This trend persists across both Western and non-Western populations, with women with IBS showing elevated levels of anxiety and depression. Moreover, the severity of IBS symptoms is closely linked to psychological well-being and quality of life. Studies reveal that higher levels of psychological comorbidity predict more severe symptoms and poorer outcomes over time.

Cognitive dysfunctions such as catastrophizing and hypervigilance further exacerbate symptom severity and decrease quality of life. Interestingly, while improvements in IBS symptoms may lead to a reduction in gastrointestinal-specific anxiety, overall psychological well-being and quality of life may not improve. The challenges faced by IBS patients extend beyond their physical and psychological symptoms, encompassing barriers to diagnosis, dissatisfaction with healthcare professionals, and stigma in healthcare settings.

Changes in diet have been hypothesized to play a significant role in the prevalence of IBS, especially in developing countries. The adoption of a more Westernized diet, characterized by high fat and sugar intake, is thought to have led to an increase in IBS

prevalence in countries like Thailand, Japan, and Singapore. Foods rich in FODMAPs have been implicated in IBS, with studies showing improvements in symptoms on low FODMAP diets. Furthermore, gluten elimination has shown promise in reducing GI symptoms in IBS patients with non-celiac gluten sensitivity, perhaps by eliminating fructan content from diets. Dietary habits, such as irregular meal patterns and food avoidance, are common among IBS patients, with milk being the most commonly experienced trigger for symptoms. Alcohol intake has been associated with an increased risk of IBS symptoms, especially binge drinking in certain subtypes. However, implementing dietary interventions, such as the low FODMAP diet, in non-Western countries can be challenging due to limited knowledge and resources.

There exists a need to address these knowledge gaps in IBS symptoms, especially in non-Western countries, and to provide them with better healthcare and illness management strategies.

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