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Original Research Article

Association of Junk Food Consumption with Symptoms of Irritable Bowel Syndrome (IBS)

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Abstract:

Background: Irritable bowel syndrome (IBS) is a common gastrointestinal disorder that adversely affects daily life. Dietary habits, particularly the intake of high-fat and processed foods, are known to influence symptom severity. Junk food consumption, being high in fat, sugar, and additives, may play a significant role in triggering or worsening IBS symptoms.

Methods: A case–control study taking place over one year was performed at the Department of Gastroenterology at a tertiary care hospital in rural India. A total of 168 participants (84 IBS patients diagnosed by Rome III criteria and 84 healthy controls) were chosen for this study. Data on sociodemographic details, lifestyle factors, and junk food consumption were gathered using a structured questionnaire.

Results: IBS patients and controls were comparable in baseline demographics. Physical inactivity and poor sleep quality were significantly associated with IBS. Frequent consumption of fried snacks, fast food, and sugary beverages showed strong associations with IBS, increasing risk by more than twofold. Irregular eating patterns also significantly raised the likelihood of IBS symptoms.

Conclusion: Unhealthy lifestyle habits and frequent junk food consumption are strongly linked with IBS symptoms.

Keywords: Irritable bowel syndrome, junk food, lifestyle, India, case–control study.

Introduction

Irritable bowel syndrome (IBS) is a long-term gastrointestinal (GI) condition that occurs without identifiable structural, physiological, or biochemical abnormalities in the digestive tract. Functional GI disorders are frequently encountered in high-income countries, with IBS being the most predominant among them. The global prevalence of IBS differs widely depending on geography, diagnostic criteria, and methodological approach, ranging between 1.1% and 22% [1–3]. Individuals with IBS experience a marked decline in quality of life [4–6], comparable to that observed in other major chronic illnesses such as cirrhosis of the liver, heart failure, chronic kidney disease, and diabetes [4,7,8].

The underlying causes of IBS remain unclear, although multiple elements have been implicated, including hereditary factors, visceral hypersensitivity, microbial imbalances, low-grade intestinal inflammation, altered bowel motility, previous gastrointestinal infections, and irregularities in the gut neuroendocrine system (NES) [6,9,10]. Many patients associate their symptoms with food consumption, where certain dietary items can provoke or intensify discomfort [11–16]. Lifestyle influences such as sleep quality, dietary behavior, physical activity, and daily habits also play an important role in symptom manifestation [11]. While low FODMAP regimens demonstrate effectiveness in reducing symptoms [17,18], diets rich in fatty and spicy items have been linked to worsening GI complaints [11]. Considering that processed and junk foods typically contain high fat, additives, and low nutritional value, they may exacerbate IBS-related symptoms in a manner similar to unhealthy dietary patterns. However, prior investigations have primarily addressed diet or lifestyle separately, with limited attention to their combined impact [11]. Moreover, much of the existing research originates from Western contexts, leaving gaps in understanding across diverse populations. Against this background, the current work intends to evaluate the relationship between junk food consumption and IBS manifestations.

Methods

Study Setting and Duration: The investigation was conducted in the Department of Gastroenterology at a tertiary care hospital located in rural India. Data collection was carried out over a period of one year. A total of 168 participants were recruited, comprising patients with irritable bowel syndrome (IBS) and healthy controls.

Study Subjects: Patients were diagnosed with IBS based on the Rome III Diagnostic Criteria, which include recurrent abdominal pain or discomfort associated with altered bowel habits for at least 6 months. Individuals with a history of abdominal surgery, gastrointestinal malignancy, or chronic pharmacological therapy were excluded. Healthy adults visiting the hospital for routine checkups or accompanying patients were selected as controls.

Data Collection: Data were collected using a structured interviewer-administered questionnaire, designed to be simple and feasible in a resource-constrained setting. Information on age, sex, occupation, and education was recorded along with lifestyle habits. Dietary patterns were assessed with a focus on the frequency of junk food consumption, including fried snacks, fast food, packaged processed foods, and sugar-sweetened beverages. Recall was limited to the previous six months to minimize memory bias. Each interview lasted 15–20 minutes to ensure practicality in the outpatient and inpatient settings.

Statistical Analysis: Data were entered and analyzed using SPSS software. Descriptive statistics, chi-square tests, and logistic regression was applied to determine the association between junk food consumption and IBS symptoms.

Results

The sociodemographic characteristics of the participants demonstrated broad similarity between the two groups. The mean age of IBS patients was 45.9 years, while that of controls was 43.8 years, and this difference was not statistically significant. The male-to-female ratio showed no major variation, with both groups nearly equally distributed by sex. Similarly, height and weight did not differ significantly, suggesting comparable physical build. Educational attainment was also evenly distributed across low, middle, and high categories. These findings confirm that the two groups were well matched at baseline without major demographic differences (Table 1).

Table 1: Sociodemographic Characteristics of Participants

Characteristic	IBS patients (n=84)	Controls (n=84)	p-value
Age, years (mean ± SD)	45.9 ± 13.4	43.8 ± 12.9	0.212
Sex, male/female	39 / 45	41 / 43	0.735
Height, m (mean ± SD)	1.64 ± 0.08	1.65 ± 0.07	0.410
Weight, kg (mean ± SD)	61.2 ± 10.7	62.1 ± 11.2	0.521
Education (low/middle/high)	30 / 22 / 32	28 / 25 / 31	0.689

Analysis of lifestyle and health-related factors revealed significant contrasts between the 2 groups. Physical inactivity was observed in 42.9% of IBS patients in contrast to 17.9% of controls, which increased the risk of IBS by more than threefold. Sleep quality also differed substantially, with good quality sleep reported by 61.9% of IBS patients versus 91.7% of controls. Smoking and alcohol intake were similar between groups, suggesting no association with IBS in this cohort. The distribution of BMI categories, including underweight, normal, overweight, and obese, showed no significant differences. These results indicate that lifestyle habits, particularly inactivity and poor sleep, are strongly linked with IBS (Table 2).

Table 2: Lifestyle and Health-Related Habits

Variable	IBS patients (n=84)	Controls (n=84)	p-value	Odds Ratio (95% CI)
Smoker	18 (21.4)	16 (19.0)	0.692	–
Drinker	27 (32.1)	30 (35.7)	0.622	–
Physically inactive	36 (42.9)	15 (17.9)	0.001	3.44 (1.69–7.00)
Good quality sleep	52 (61.9)	77 (91.7)	<0.001	0.15 (0.06–0.36)
BMI (%)			0.601	–
– Underweight	6 (7.1)	5 (6.0)		–
– Normal	61 (72.6)	55 (65.5)		–
– Overweight	15 (17.9)	21 (25.0)		–
– Obese	2 (2.4)	3 (3.6)		–

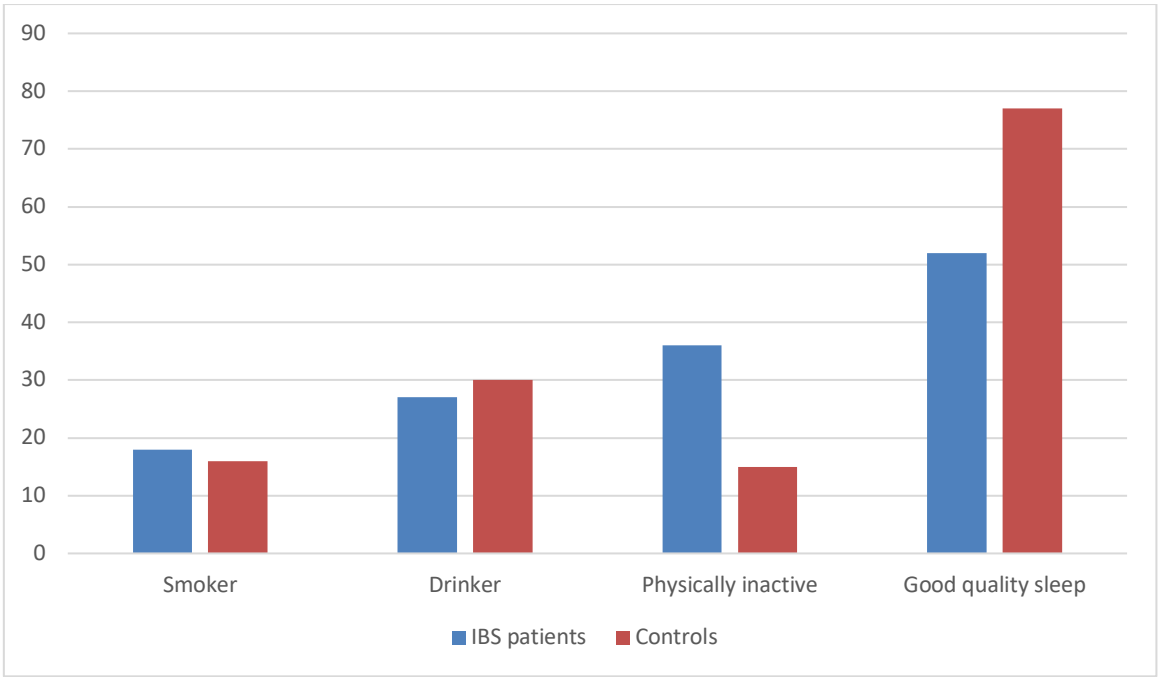

Figure 1: Lifestyle and Health-Related Habits

Dietary analysis showed a clear relationship between junk food intake and IBS symptoms. Frequent consumption of fried snacks (66.7% vs. 38.1%), fast food (57.1% vs. 34.5%), and sugary beverages (52.4% vs. 33.3%) was significantly higher among IBS patients, with odds ratios ranging from 2.2 to 3.3. Irregular eating patterns were also much more frequent in IBS patients, tripling the risk in contrast to controls. In contrast, the intake of packaged sweets, carbonated drinks, and late-night snacks did not differ significantly between groups. These results suggest that specific junk food categories and irregular eating habits may play a substantial role in aggravating IBS symptoms (Table 3).

Table 3: Junk Food Consumption and IBS Association

Junk food category & frequency	IBS patients (n=84)	Controls (n=84)	p-value	Odds Ratio (95% CI)
Fried snacks ≥ once/week	56 (66.7)	32 (38.1)	<0.001	3.33 (1.74–6.38)
Fast food (burgers/pizzas) ≥ weekly	48 (57.1)	29 (34.5)	0.004	2.52 (1.33–4.77)
Sugary beverages ≥ weekly	44 (52.4)	28 (33.3)	0.016	2.21 (1.16–4.21)
Packaged sweets ≥ weekly	30 (35.7)	22 (26.2)	0.198	1.55 (0.78–3.07)
Carbonated drinks ≥ weekly	19 (22.6)	16 (19.0)	0.570	1.24 (0.58–2.67)
Irregular meal timing	55 (65.5)	30 (35.7)	<0.001	3.29 (1.74–6.22)
Late-night snacking	24 (28.6)	18 (21.4)	0.289	1.46 (0.72–2.94)

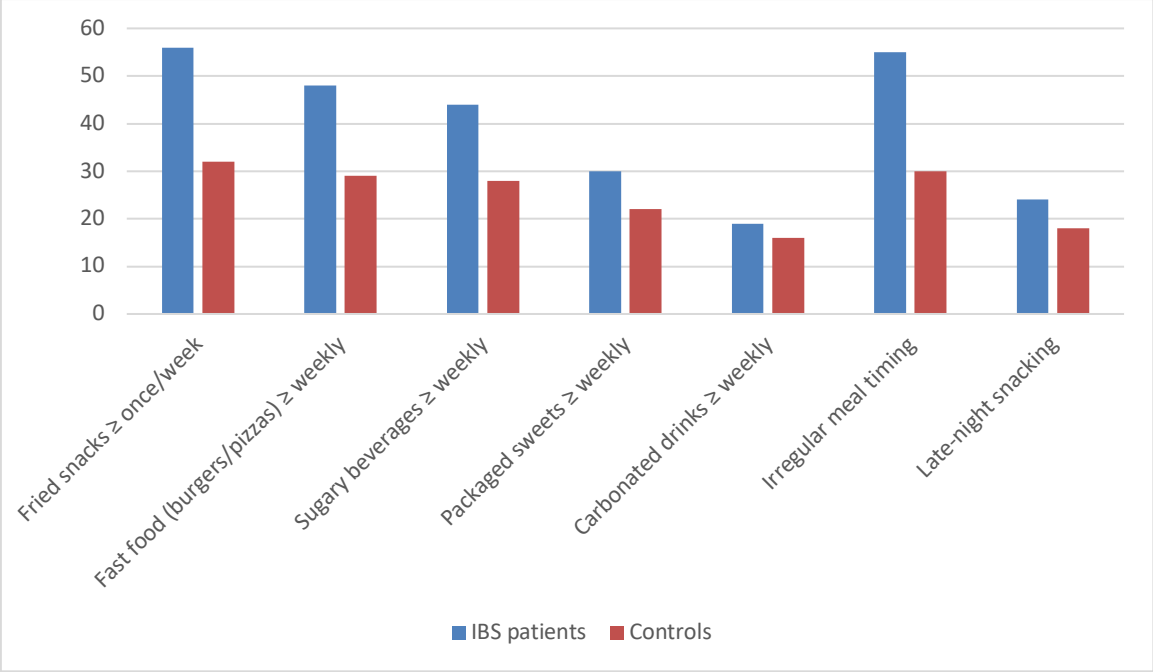

Figure 2: Junk Food Consumption and IBS Association.

Discussion

IBS has been linked to a range of contributory factors [6,9,10]. The present study is among the first from a developing country context, specifically China, to simultaneously evaluate lifestyle and dietary influences on IBS. Our findings indicate that poor lifestyle behaviors—such as lack of physical activity, sleep disturbances, and irregular meal timings—substantially elevate the risk of IBS. Interestingly, certain food groups like fruits, vegetables, and tea also appeared to provoke IBS symptoms in some individuals, underscoring the complex role of diet in symptom generation.

In the current study, the incidence rates of IBS was greater among women, which is consistent with earlier reports [18,19], although this sex-related difference was not statistically significant. Age, however, showed a notable trend, with IBS being more frequent in participants above 30 years. While some studies have suggested that IBS prevalence decreases with advancing age [20], our results aligned with others showing that older populations continue to exhibit high IBS prevalence [21,22]. The higher mean age of our sample, coupled with greater consultation rates among older individuals, may partly explain these findings, though volunteer bias cannot be ruled out.

Sleep quality emerged as an important determinant, consistent with prior evidence linking poor sleep with IBS risk [23–25]. Our study demonstrated that individuals reporting good sleep were significantly less likely to develop IBS symptoms. A possible explanation is that IBS patients may have prolonged rapid eye movement (REM) sleep, which has been associated with enhanced colonic motility, potentially triggering gastrointestinal discomfort [26]. However, this mechanistic link remains speculative and requires further validation. Similarly, lifestyle factors such as physical inactivity were strongly associated with IBS in our cohort, reinforcing earlier findings that physical activity can alleviate symptoms and prevent progression [27]. In contrast, smoking, alcohol use, and educational attainment showed no significant effect on IBS prevalence, though it is plausible that indirect links exist via their association with physical activity, diet, or anxiety levels [28-30]

Dietary patterns, particularly irregular eating habits, were strongly related to the syndrome in this investigation, echoing earlier findings [19]. Disordered eating schedules may disrupt colonic motility, thereby precipitating symptoms. We employed a food frequency questionnaire (FFQ) to assess habitual diet, which is reliable for pattern identification though not for precise nutrient quantification [31,32]. Certain foods such as vegetables, legumes, fruit, and tea were significantly associated with IBS symptoms, likely through mechanisms such as intolerance, altered gut microbiota, or hypersensitivity to food-borne triggers [33]. While milk consumption has been linked to IBS in Western cohorts [34], no such association was observed here, possibly reflecting lower dairy consumption in the study cohort. Importantly, previous research has shown that structured dietary counseling can improve symptoms and quality of life in IBS patients [35]. Hence, individualized diet modification may represent a cost-effective, practical intervention.

Conclusion

This investigation highlights a significant association between lifestyle factors and irritable bowel syndrome, with physical inactivity and poor sleep quality emerging as key contributors. While smoking, alcohol use, and BMI showed no prominent variations between cohorts, patients with IBS were more likely to be physically inactive and reported lower sleep quality, underscoring the importance of modifiable behavioral factors in symptom manifestation. These findings suggest that simple, non-invasive lifestyle interventions targeting regular physical activity and improved sleep may play a pivotal role in managing IBS in resource-limited rural healthcare settings.

References

1. Sorouri M, Pourhoseingholi MA, Vahedi M, et al. Functional bowel disorders in Iranian population using Rome III criteria. Saudi J Gastroenterol. 2010; 16:154-60.
2. Khoshkrood-Mansoori B, Pourhoseingholi MA, Safaee A, et al. irritable bowel syndrome: a population-based study. J Gastrointestin Liver Dis. 2009; 18:413-8.
3. Rey E, Talley NJ. Irritable bowel syndrome: novel views on the epidemiology and potential risk factors. Dig Liver Dis. 2009; 41:772-80.
4. Li FX, Patten SB, Hilsden RJ, Sutherland LR. Irritable bowel syndrome and health-related quality of life: a population-based study in Calgary, Alberta. Can J Gastroenterol. 2003; 17:259-63.
5. Whitehead WE, Burnett CK, Cook EW 3rd, Taub E. Impact of irritable bowel syndrome on quality of life. Dig Dis Sci. 1996; 41:2248-53.
6. El-Salhy M. Irritable bowel syndrome: diagnosis and pathogenesis. World J Gastroenterol. 2012; 18:5151-63.
7. Luscombe FA. Health-related quality of life and associated psychosocial factors in irritable bowel syndrome: a review. Qual Life Res. 2000; 9:161-76.
8. Frank L, Kleinman L, Rentz A, Ciesla G, Kim JJ, Zacker C. Health-related quality of life associated with irritable bowel syndrome: comparison with other chronic diseases. Clin Ther. 2002; 24:675-89.
9. Parry S, Forgacs I. Intestinal infection and irritable bowel syndrome. Eur J Gastroenterol Hepatol. 2005; 17:5-9.
10. Drossman DA, Camilleri M, Mayer EA, Whitehead WE. AGA technical review on irritable bowel syndrome. Gastroenterology. 2002; 123:2108-31.
11. Simrén M, Månsson A, Langkilde AM, et al. Food-related gastrointestinal symptoms in the irritable bowel syndrome. Digestion. 2001; 63:108-15.
12. Monsbakken KW, Vandvik PO, Farup PG. Perceived food intolerance in subjects with irritable bowel syndrome: etiology, prevalence and consequences. Eur J Clin Nutr. 2006; 60:667-72.
13. Halpert A, Dalton CB, Palsson O, et al. What patients know about irritable bowel syndrome (IBS) and what they would like to know. Am J Gastroenterol. 2007; 102:1972-82.
14. Dainese R, Galliani EA, De Lazzari F, Di Leo V, Naccarato R. Discrepancies between reported food intolerance and sensitization test findings in irritable bowel syndrome patients. Am J Gastroenterol. 1999; 94:1892-7.
15. Jarrett M, Visser R, Heitkemper M. Diet triggers symptoms in women with irritable bowel syndrome: the patient's perspective. Gastroenterol Nurs. 2001; 24:246-52.
16. Böhn L, Störsrud S, Törnblom H, Bengtsson U, Simrén M. Self-reported food-related gastrointestinal symptoms in IBS are common and associated with more severe symptoms and reduced quality of life. Am J Gastroenterol. 2013; 108:634-41.
17. Staudacher HM, Whelan K, Irving PM, Lomer MC. Comparison of symptom response following advice for a diet low in fermentable carbohydrates (FODMAPs) versus standard dietary advice in patients with irritable bowel syndrome. J Hum Nutr Diet. 2011; 24:487-95.
18. Staudacher HM, Lomer MC, Anderson JL, et al. Fermentable carbohydrate restriction reduces luminal bifidobacteria and gastrointestinal symptoms in patients with irritable bowel syndrome. J Nutr. 2012; 142:1510-8.
19. Chang L, Toner BB, Fukudo S, et al. Gender, age, society, culture, and the patient's perspective in the functional gastrointestinal disorders. Gastroenterology. 2006; 130:1435-46.
20. Spiller RC. Irritable bowel syndrome. Br Med Bull. 2005; 72:15-29.
21. Hillilä MT, Färkkilä MA. Prevalence of irritable bowel syndrome according to different diagnostic criteria in a non-selected adult population. Aliment Pharmacol Ther. 2004; 20:339-45.
22. Grundmann O, Yoon SL. Irritable bowel syndrome: epidemiology, diagnosis and treatment: an update for health-care practitioners. J Gastroenterol Hepatol. 2010; 25:691-9.
23. Agrawal A, Khan MH, Whorwell PJ. Irritable bowel syndrome in the elderly: an overlooked problem? Dig Liver Dis. 2009; 41:721-4.
24. Vege SS, Locke GR 3rd, Weaver AL, Farmer SA, Melton LJ 3rd, Talley NJ. Functional gastrointestinal disorders among people with sleep disturbances: a population-based study. Mayo Clin Proc. 2004; 79:1501-6.

25. Gulewitsch MD, Enck P, Hautzinger M, Schlarb AA. Irritable bowel syndrome symptoms among German students: prevalence, characteristics, and associations to somatic complaints, sleep, quality of life, and childhood abdominal pain. Eur J Gastroenterol Hepatol. 2011; 23:311-6.
26. Zhou HQ, Yao M, Chen GY, et al. Functional gastrointestinal disorders among adolescents with poor sleep: a school-based study in Shanghai, China. Sleep Breath. 2012; 16:1211-8.
27. Roehrs T, Hyde M, Blaisdell B, Greenwald M, Roth T. Sleep loss and REM sleep loss are hyperalgesic. Sleep. 2006; 29:145-51.
28. Omagari K, Murayama T, Tanaka Y, et al. Mental, physical, dietary, and nutritional effects on irritable bowel syndrome in young Japanese women. Intern Med. 2013; 52:1295-301.
29. Dowler E. Inequalities in diet and physical activity in Europe. Public Health Nutr. 2001;4(2B):701-9.
30. Johansson L, Thelle DS, Solvoll K, Bjørneboe GE, Drevon CA. Healthy dietary habits in relation to social determinants and lifestyle factors. Br J Nutr. 1999; 81:211-20.
31. Oellingrath I, Svendsen MV, Brantsaeter AL. Tracking of eating patterns and overweight: a follow-up study of Norwegian school children from middle childhood to early adolescence. Nutr J. 2011; 10:106.
32. McNeill G, Masson L, Macdonald H, et al. Food frequency questionnaires vs diet diaries. Int J Epidemiol. 2009; 38:884.
33. Morcos A, Dinan T, Quigley EM. Irritable bowel syndrome: role of food in pathogenesis and management. J Dig Dis. 2009; 10:237-46.
34. Nanda R, James R, Smith H, Dudley CR, Jewell DP. Food intolerance and the irritable bowel syndrome. Gut. 1989; 30:1099-104.
35. Ostgaard H, Hausken T, Gundersen D, El-Salhy M. Diet and effects of diet management on quality of life and symptoms in patients with irritable bowel syndrome. Mol Med Rep. 2012;5:1382-90.