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Efficiency of life style change in IBS in Alqunfudah governate and its villages

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ABSTRACT

Background: Irritable bowel syndrome (IBS) is the commonest functional gastrointestinal disorder with worldwide prevalence 11.2%, IBS characterized by recurrent colicky or cramping abdominal pain and altered bowel habit.

Methods: A cross sectional study was conducted among AL Qunfudah population with total 1003 of participants who were asked to complete questionnaires. Results: 28.9% were affected with IBS, this study shows higher predominance in females than males, The most common symptoms among our participants were bloating 37.1%, abdominal pain 26.8% and constipation 20.4%.24.4% were suffering from constipation or diarrhea in the morning and these symptoms affected by spicy food and fried food.

Conclusion: Based on our findings, the predominance of IBS among females was higher. Bloating and abdominal pain were the commonest symptoms. Anxiety and depression affect IBS symptoms significantly. Our study emphasizes the correlation between certain foods and IBS symptoms. High fiber diet and low carbohydrate diet will improve the IBS symptoms.

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INTRODUCTION

Irritable bowel syndrome is the commonest functional gastrointestinal disorder with worldwide prevalence around 11.2% (1). IBS has relapsing and remitting course that most commonly affects young adult women and people with psychological disorders (2). Irritable bowel syndrome characterized by recurrent colicky or cramping abdominal pain and altered bowel habit. IBS stratified by predominant bowel habit, those with mainly constipation (IBS-C), mainly diarrhea (IBS-D),mixed bowel habit (IBS-M) Or unsub-typed (IBS-U).Passage of mucus is common but rectal bleeding does not occur (3). The pathophysiology of IBS Is incompletely understood but is thought to be a disorder of brain gut axis that alter the visceral sensitivity and motility. Other possible mechanisms include alteration in intestinal microbiota, intolerance to poorly absorbed food (FODMAP), gut inflammation and immune function disturbance, psychiatric illnesses and there is some evidence that IBS may be a serotoninergic disorder. (3,4) Risk factors for the disease include female gender, family history of IBS, stress, anxiety, depression, infections, dietary factors and sleeping disorders (5). The diagnosis is clinical using Rome criteria in the absence of alarming symptoms and the patient is constitutionally well. Rome criteria for diagnosis of irritable bowel syndrome: Recurrent abdominal pain at least 1 day per week on average in the last 3 months (onset at least 6 months before diagnosis) associated with two or more of the following: Related to defecation Onset associated with a change in frequency of stool Onset associated with a change in stool appearance(6).

The initial management includes education and reassurance. Lifestyle and dietary changes are the first line treatment for all patients, including low FODMAP or gluten free diet. When these interventions fail to achieve symptoms relief, patients should be treated according to predominant symptoms. Laxatives or prokinetics and antidiarrheal for constipation and diarrhea, respectively. Also antispasmodics for pain (7). Since the food one of the most common triggers of the disease and in order to assess the effect of diet change on IBS patients, a study conducted in 2018 found that some diets especially onions, garlic and coffee worsens the IBS symptoms, whereas decreasing carbohydrates and increasing fiber diets decreases the symptoms [8]. Another study conducted in 2016 found a high prevalence of IBS among medical students 9.3% to 35.5% that may be attributed to stressful learning environment (5).

PARTICIPANTS AND METHODS

A cross-sectional study conducted on a sample size of 1003 during the period from November 2022 to January 2023 through a random sample selection. The data collection tool via a validated self-administered online questionnaire preceded by consent and insured to maintain the confidentiality of the data.

The required sample size for Al-qunfudah governate population who is estimated to be 300516 and calculated required sample size estimated to be 384 from AlQunfudah, Saudi Arabia based on raosoft calculator with 5% marginal error and 95% confidence interval.

All the Saudis who are above 18 years of age and live in Al-qunfudah governate who have fully completed all parts of the questionnaire and have given written informed consent will be included in the study.

In contrast, those who are below 18 years of age, live outside Al-qunfudah governate and have not fully completed the questionnaire or were found unwilling to participate will be excluded.

Questionnaire comprising of a total of 23 closed ended questions developed by the study researchers with reference to (8) and translated into the Arabic language divided into two sections. The first section will include the demographic data, while the second section questions about the efficiency of lifestyle and diet modification in improving IBS symptoms in Alqunfudah governate population.

The collected Data analyzed via Statical Package for the Social Science (SPSS) for windows 10 pro.

The proposal of the study was discussed and approved by the research and ethical committee in College of Medicine, Umm Al-Qura University.

RESULTS

The total participant in our study is 1003. Of these, 581 (57.9%) were female and 422 (42%) were male. Approximately half of the participants aged from 15 to 25. 642 lives in AlQunfudah governate and 361 in the surrounding villages' mean weight is 67% and the mean height is 160. 5.7% of our participants had diabetes, 2.5% hypertension, 1% cardiovascular diseases and 10.9% had other chronic diseases (Table 1).

Table 1: Sociodemographic data

			n	%
1	Sex	Female	581	57.93%
		Male	422	42.07%
2	Age	15-25	473	47.16%
		26-40	278	27.72%
		41-60	239	23.83%
		More than 60	13	1.30%
3	Residence	Qunfudhah	642	64.01%
		Others	361	35.99%
4	Weight (mean±SD)	67.08 ± 19.22		
5	Height (mean±SD)	160.64 ± 17.38		
6	chronic diseases	Diabetes	58	5.78%
		Hypertension	26	2.59%
		high blood pressure	26	2.59%
		Cardiovascular disease	11	1.10%
		other	110	10.97%
		I do not have chronic diseases	818	81.56%

Regarding manifestation of the disease, 28.8% were affected with IBS. 14.8% of them were diagnosed with IBS from more than 5 years, 13% from 1 year to 5 year, 9.7% from 1 month to 1 year and 8.9% were recently diagnosed (<1 month). The most common symptoms among our participants were bloating 36.7%, abdominal pain 26.7% and constipation 20.3%. 24.4% were suffering from constipation or diarrhea in the morning, 32.5% had symptoms in three successive days in three successive months. Only 6.3% received treatment. 35% were affected by anxiety or depression and 25.9% thought that anxiety or depression affect IBS symptoms. The symptoms disappear or improve in 58.6% of the patients when they avoid stress or anxiety while 41% documented no difference. 52.8% recognize that certain foods exacerbate the symptoms in comparison with 47% that denied any relation between symptoms and food. 47.6% stated that they avoid certain foods and 45% notice improvement. 10.4% notice mild improvement after changing their diets, 17% and 13.4% noticed moderate and significant improvement respectively (Table 2).

Table 2: Manifestation of disease

			n	%
1	having IBS	no	714	71.19%
		yes	289	28.81%
2	Symptoms of disease	Abdominal pain	268	26.72%
		bloating	369	36.79%
		Constipation	204	20.34%
		diarrhea	94	9.37%
		I do not have these symptoms	510	50.85%
3	suffering of constipation or diarrhea in the morning	no	758	75.57%
		yes	245	24.43%
4	duration of these symptoms	I have no symptoms	534	53.24%
		< 1 months	90	8.97%
		Month to 1 year	98	9.77%
		1-5 years	132	13.16%
		> 5 years	149	14.86%
5	Having symptoms for 3 successive days in 3 successive months	no	677	67.50%
		yes	326	32.50%
6	Suffering depression or anxiety	no	652	65.00%
		yes	351	35.00%
7	Depression Or Anxiety affect IBS symptoms	I have no depression or anxiety	576	57.43%
		no	167	16.65%
		yes	260	25.92%
8	Do you use medications to treat irritable colon?	no	939	93.62%
		yes	64	6.38%
9	Do the symptoms disappear or decrease their unity when they avoid stress and anger?	no	415	41.38%
		yes	588	58.62%
10	Do some foods affect your symptoms of IBS?	no	473	47.16%
		yes	530	52.84%
11	Have you avoided eating some foods?	no	525	52.34%
		yes	478	47.66%
12	Have the symptoms improved after you avoid some foods?	I did not avoid it	476	47.46%
		no	75	7.48%
		yes	452	45.06%
13	To what extent the symptoms have improved after changing your diet	I did not change my dietary system	580	57.83%
		I didn't improve	12	1.20%
		Simple improvement	105	10.47%
		Average	171	17.05%
		Significant improvement	135	13.46%

The most reported food types thought to affect IBS symptoms were spicy food 40%, fried food 34%, milk products 19% and tea-coffee 14.9%. 42% revealed that food doesn't affect their symptoms (Table 3).

Table 3: Food types exacerbates IBS symptoms

			n	%
1	Which foods affects your symptoms of IBS?	spicy food	403	40.18%
		fried food	343	34.20%
		tea and coffee	150	14.96%
		milk products	191	19.04%
		fruits and vegetables	24	2.39%
		others	496	49.45%
		food has no effect on symptoms	425	42.37%

Management wise, 22.9% their physicians advised them to increase fibers in their meals, while 19.3% advised them to decrease carbohydrates in their diets. 87.8% agreed that changing diet will improve IBS symptoms (Table 4). The statistical analysis reported that the correlation between having IBS for three successive days for 3 months regarding age

and gender is not significant (P value 0.150 and 0.265 respectively) where most of participants who were having IBS for three successive days for 3 months are females and had the age range (15-25 years), and a significant correlation with

duration of IBS (P value < 0.00001) Where most of the affected participants diagnosed with IBS for than 5 years (Table 5).

Table 4: The management of study group

			n	%
1	Did the doctor advise you to increase fiber intake?	I did not visit the doctor	685	68.30%
		no	88	8.77%
		yes	230	22.93%
2	Did the doctor advise you to reduce the intake of starches?	I did not visit the doctor	694	69.19%
		no	115	11.47%
		yes	194	19.34%
3	Do you think that changing the diet improves the symptoms of IBS?	no	122	12.16%
		yes	881	87.84%

Table 5: Relation of irritable bowel syndrome symptoms to demographic

		Having IBS for 3 successive days for 3 months		
		No (677)	Yes (326)	
Age	15-25	336	137	p > 0.05
	26-40	177	101	
	41-60	156	83	The chi-square statistic is 5.3068.
	More than 60	8	5	The p-value is 0.150662. The result is not significant at α = 0.05.
Sex	Female	384	197	p > 0.05
	Male	293	129	The chi-square statistic is 1.2418. The p-value is 0.265129. The result is not significant at α = 0.05.
duration of these symptoms	I have no symptoms	501	33	p < 0.05
	< 1 months	49	41	The chi-square statistic is 379.7662.
	Month to 1 year	41	57	The p-value is < 0.00001. The result is significant at α = 0.05.
	1-5 years	38	94	
	> 5 years	48	101	

Table 6 shows the relation of irritable bowel syndrome symptoms to depression factors and both correlations are significant (P value < 0.00001).

Table 7 shows significant correlation between having IBS for three successive days for 3 months regarding advising to increase fibers, decreasing starches intake, and thinking about

changing diet will improve IBS symptoms (P value < 0.00001, < 0.00001 and 0.00005 respectively).

Table 8 demonstrates significant correlation between having IBS for three successive days for 3 months regarding to having treatment (P value < 0.00001).

Table 6: Relation of irritable bowel syndrome symptoms to depression factors

		Having IBS for 3 successive days for 3 months		
		No (677)	Yes (326)	
Having depression or anxiety before	No	504	148	p < 0.05
	Yes	173	178	The chi-square statistic is 81.614. The p-value is < 0.00001.

				The result is significant at α = 0.05.
Depression Or Anxiety affect IBS symptoms	I have no depression or anxiety	459	117	p < 0.05
	no	113	54	The chi-square statistic is 126.1371.
	yes	105	155	The p-value is < 0.00001. The result is significant at α = 0.05.

Table 7: Relation of irritable bowel syndrome symptoms to dietary regimen

		Having IBS for 3 successive days for 3 months		
		No (677)	Yes (326)	
Did the doctor advise you to increase fiber intake?	I did not visit the doctor	516	169	p < 0.05
	no	59	29	The chi-square statistic is 75.34. The p-value is < 0.00001.
	yes	102	128	The result is significant at α = 0.05.
Did the doctor advise you to reduce the intake of starches?	I did not visit the doctor	518	176	p < 0.05
	No	75	40	The chi-square statistic is 68.1913. The p-value is < 0.00001.
	yes	84	110	The result is significant at α = 0.05.
Do you think that changing the diet improves the symptoms of IBS?	No	102	20	p < 0.05
	Yes	575	306	The chi-square statistic is 16.4293. The p-value is 0.00005. The result is significant at α = 0.05.

Table 8: Relation of irritable bowel syndrome symptoms to treatment

		Having IBS for 3 successive days for 3 months		
		No (677)	Yes (326)	
Do you use medications to treat irritable colon?	No	657	282	p < 0.05
	Yes	20	44	The chi-square statistic is 40.9418. The p-value is < .00001. The result is significant at α = 0.05.

DISCUSSION

This cross-sectional study was conducted to assess the efficiency of lifestyle modification and diet change among IBS patents. This study revealed higher predominance in females than in males which was 57.9%. This finding shows a correlation with other studies conducted in Jazan, Jeddah and Riyadh that show higher predominance of IBS in females with a ratio 18.5%, 41.8% and 4.9% respectively (5,9,10).

In our study the most common symptoms were bloating 37.1% and abdominal pain 26.8%, and the commonly foods found affected the symptoms were spicy food 40.3% and fried food 38.3%. A study conducted in central region found the most common food consumed by the patients were fast food 50.7% and spicy food 47.2% [1]. This emphasize the fact that food is a

centeral and constant issue for IBS patients where up to 70% of IBS patients associate symptoms onset or exacerbation with certain foods and justify that avoidance of food triggers like spicy,fried foods,milk products and any gas producing foods (beans,cabbage,onions) resulting in reasonable symptoms relief (13).

Moreover, depression and anxiety distribution among IBS patients were 35% and show significant impaction on the disease 25.9%. This result has a correlation with a study conducted in Jazan which found 27.8% of patients suffered from anxiety. Another study conducted in Jeddah among medical students and interns showed higher prevalence of IBS in those who had morbid depression 41.9% and morbid anxiety 41.6% (5,9).

In this study we revealed 23.1% of patients advised to increase fiber in their diet. There are many types of fiber but the

recommended one to IBS patients is long-chain, intermediate viscous, soluble and moderately fermented such as psyllium (11,12).

We also reported 19.4% of patients advised to decrease carbohydrate in their diets. This result can be explained by the effect of high-FODMAP foods in IBS patients. The poorly absorbed fermentable oligo-,di-,monosaccharides and polyols (FODMAPs) are indigestible short chain carbohydrates that occurs in a wide range of foods including wheat,rye,vegetables,fruits and legumes. These carbohydrates increase osmotic pressure in the large intestine lumen, increasing its water content and providing a substrate for bacterial fermentation with consequent gas production. The produced gas causes abdominal distension and abdominal discomfort (14).

Several clinical trials have reported that reducing high-FODMAP foods achieves significant reduction in abdominal pain, bloating and diarrhea in approximately 70% of IBS patients (13).

CONCLUSION

Based on our findings, the predominance of IBS among females was higher. Bloating and abdominal pain were the commonest symptoms. Anxiety and depression affect IBS symptoms significantly. Our study emphasizes the correlation between certain foods and IBS symptoms. High fiber diet and low carbohydrate diet will improve the IBS symptoms.

Ethical approval

The study was approved by the Medical Ethics Committee of the Medical Research of Umm Al-Qura University, Makkah. (Ethical approval code: HAPO-02-K-012-2022-11-1224).

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Conflicts of interest

Work has no conflict of interest with any organization or person.

Informed consent

All authors contribute to the Realization of this work.

Author's contributions

All the authors contributed evenly with regards to data collecting, analysis, drafting and proofreading the final draft.

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