

# Knowledge, Attitudes, and Practices of Primary Care Physicians About Irritable Bowel Syndrome in Northern Saudi Arabia

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## ABSTRACT

**Background/Aim:** Primary health care (PHC) physicians manage most patients with irritable bowel syndrome (IBS). In Saudi Arabia, there are limited data on their knowledge, attitudes, and practices about this disorder. This study aimed to assess knowledge, attitudes, and practices of primary care physicians about IBS. **Patients and Methods:** A cross-sectional survey of 70 practitioners aged  $36 \pm 10.25$  years was carried out in primary care centers in AlJouf Province of Saudi Arabia. The physicians were asked to fill a valid questionnaire containing their sociodemographic data, and well-modified questions regarding their knowledge, attitudes, and practices about IBS. Data was processed and analyzed using SPSS (version 15) program, and the level of significance was set at  $P < 0.05$ . **Results:** A response rate of 92.9% yielded 65 questionnaires for analysis. Majority of physicians surveyed (83.1%) considered IBS as a common health problem in Saudi Arabia, and (55.4%) believed it is underestimated. There was a significant association between physicians' qualifications and using diagnostic tools to facilitate IBS diagnosis (14.3% vs 35.5%;  $P < 0.05$ ), while utilization of "Rome or Manning criteria" was more frequent by physicians with master's degree (35.5%) compared to residents (14.3%). Also, 35.4% of physicians (15 males and 8 females) were not sure how to diagnose IBS. **Conclusions:** This study suggested that PHC physicians had a suitable attitude toward IBS, but they lacked knowledge, and their practices toward this condition were inappropriate.

**Key Words:** Attitudes, irritable bowel syndrome, knowledge, practices, primary care

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Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder, characterized by chronic abdominal pain or discomfort and altered bowel habits in the absence of detectable organic pathology.<sup>[1,2]</sup> The condition is an important health problem throughout the world,<sup>[1-3]</sup> despite many years of research the disorder still has an uncertain etiology, often associated with noncolonic symptoms.<sup>[3-5]</sup> The disorder is one of the most common conditions encountered by both primary health care (PHC) physicians and specialists, and accounts for approximately 12% of visits to PHC physicians and 28% of the referrals to gastroenterologists.<sup>[4,6]</sup> The condition is expensive, troublesome, and should not be underestimated because

it is associated with a great economic burden owing to substantial direct health care costs and indirect costs. The patients with IBS have higher healthcare resource utilization than non-IBS patients in terms of more frequent physician visits, more tests, greater medication use, and increased rates of unnecessary surgery.<sup>[7,8]</sup>

The burden of IBS is significant enough to contribute to a considerable impairment in quality of life. It especially affects social and emotional functioning leading to depression, and increase in absence rates from schools and work stations is also observed. The disorder also effects physical functions, which may be worse than both diabetes and hypertension.<sup>[8-13]</sup> The prognosis of IBS is benign, but its symptoms may mimic those of more serious conditions, such as inflammatory bowel disease (IBD) or colon cancer.<sup>[14,15]</sup> IBS affects 10–30% of population in Western countries. Females are more prone to this disease, wherein two-thirds of the IBS individuals in the United States and western Europe are females.<sup>[8-10,16]</sup> Despite the high prevalence of this condition, only about 30% of patients with IBS seek the advice of a physician for evaluation and treatment.<sup>[9,11,13,16,17]</sup>

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The diagnosis of this syndrome is symptom-based because the diagnostic biomarkers for IBS are not yet available.<sup>[8,11,12]</sup> However, When the patients fulfill the symptom-based criteria for IBS, the probability to find organic conditions, such as IBD, cancer of colon or infectious diarrhea was less than 1%.<sup>[8,18]</sup> Accurate and timely diagnosis, together with the appropriate intervention, are critical for optimal management of IBS.<sup>[12,13]</sup> In the absence of warning symptoms, PHC physicians can confidently diagnose IBS during the first or second patient visit without extensive testing or specialist advice. Surgical procedures can be avoided and treatment can be initiated as early as possible, and only a minority may need to be referred to the gastroenterologists.<sup>[10,11,13]</sup> After diagnosis, the patients should be reassured and educated about their condition, and the appropriate symptomatic treatment should be offered.<sup>[16-20]</sup>

It is assumed that physicians practicing in our community are lacking the important knowledge about and the appropriate attitude toward IBS. Although many studies in different countries have been conducted, there have been very few attempts to evaluate the knowledge about the condition, and symptoms of IBS among physicians practicing in Saudi Arabia. Therefore, this study aimed to assess the primary care physicians' knowledge and attitudes about IBS, and to evaluate their practices and care for patients with IBS.

## PATIENTS AND METHODS

During April 2009 a cross-sectional study was carried out among physicians practicing in PHC centers in AlJouf Province (population  $3 \times 10^5$ ) that contains many towns and cities, such as Domat alJandal, Sowair, Qarah, and Sakaka. There are 120 physicians practicing in a total of 13 PHC centers distributed in this province. After taking permission from the health care authorities, a self-administered anonymous confidential questionnaire with explanatory letter was sent to 70 physicians practicing in 8 centers.

A well-structured questionnaire comprising 28 close-ended questions was designed. The first part covered demographic characteristics of physicians, and the second part of the questionnaire contained 21 closed-ended questions with variable items. For example, 2–7 were pertaining to physicians' attitudes, knowledge, and their practices with regard to IBS (5 about attitudes, 7 about knowledge, and 9 questions about their practices). The questionnaire covered the most important points in approaching IBS patients.

In March, 2009, a pilot study that was initially carried out in two PHC centers in Sakaka city yielded 7 questionnaires to look for questionnaire clarity, relevance, and time needed to answer all items. The questionnaires were evaluated critically and some modifications were accordingly made (Appendix).

The average time needed to fill the questionnaire was about 10–15 mins. The results of this pilot study were not included in the final analysis.

The proposal was discussed and approved by the research and ethical committee in the College of Medicine of AlJouf University.

## Statistical analysis

Data were analyzed using SPSS (version 15) program using Chi-square test.  $P < 0.05$  was considered significant. The description of continuous data as the mean  $\pm$  SD and dichotomous data as proportions.

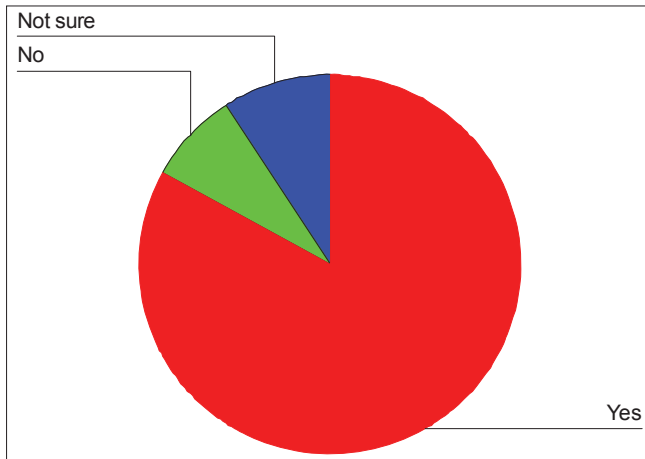
## RESULTS

Out of the 70 questionnaires distributed, 65 (response rate: 92.9%) were collected and analyzed. The general characteristics of physicians are presented in Table 1. A majority of the physicians in the study were males ( $n=47$ ; 72.3%), and the number of female physicians was only 18 (27.7%). The male to female ratio was found to be 2.6:1 with mean age  $36 \pm 10.25$  years, range 27–60 years. Almost half of the physicians surveyed had a masters degree ( $n=32$ ; 50.8%).

**Table 1: Distribution of PHC physicians according to their general characteristics (n=65)**

Characteristics <sup>††</sup>	Male (n=47) n (%)	Female (n=18) n (%)	Total (n=65) n (%)	$\chi^2$	P value
Age (years)					
<30	5 (7.7)	3 (4.6)	8 (12.3)	0.97	0.986
30–40	25 (38.5)	8 (12.3)	33 (50.8)		
41–50	15 (23.1)	6 (9.2)	21 (32.3)		
>50	2 (3.1)	1 (1.5)	3 (4.6)		
Nationality <sup>**</sup>					
Saudi	6 (9.4)	0 (0.0)	6 (9.4)	24.262	0.019
Non-Saudi	41 (64.1)	17 (26.6)	58 (90.6)		
Marital status <sup>***</sup>					
Single (never married)	2 (3.1)	3 (4.7)	5 (7.8)	3.258	0.245
Married	43 (67.2)	13 (20.3)	56 (87.5)		
Divorced	2 (3.1)	1 (1.6)	4.7 (4.7)		
Qualification <sup>****</sup>					
MBBS	22 (34.9)	9 (14.3)	31 (49.2)	1.020	0.889
Masters degree	24 (38.1)	8 (12.7)	32 (50.8)		
Years in practice <sup>*</sup>					
<5	4 (6.3)	2 (3.1)	6 (9.4)	0.701	0.756
$\geq 5-10$	22 (34.4)	6 (9.4)	28 (43.8)		
>10 to $\leq 20$	14 (21.9)	6 (9.4)	20 (31.3)		
>20	7 (10.9)	3 (4.7)	10 (15.6)		

<sup>††</sup>The total number of the study sample was 65 (47 males and 18 females); <sup>\*\*</sup>1 Male and 1 female physician did not mention their nationality; <sup>\*\*\*</sup>1 Physician did not mention his/her marital status; <sup>\*\*\*\*</sup>2 Physicians did not mention their qualifications; <sup>\*</sup>1 Physician did not mention his/her duration in primary health care centers; PHC: Primary health care



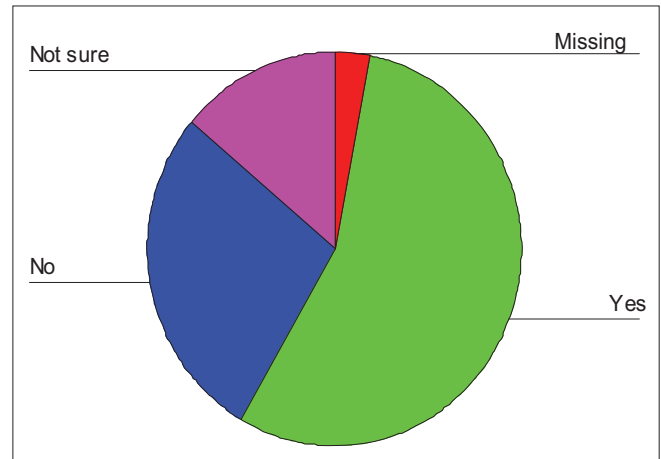
**Figure 1:** The vast majority of physicians (83.1%) in this study considered IBS as a common health problem in Saudi Arabia

Physicians with less than 10 years of practice constituted more than half of the sample (53.2%), and only 6 physicians were Saudi nationals (9.2%). A majority of physicians in this study (83.1%) considered IBS as a common health problem in Saudi Arabia [Figure 1]. More than half of the physicians (55.4%) believe that the condition is an underestimated health problem in Saudi Arabia [Figure 2].

The knowledge of physicians regarding IBS symptoms gender wise is shown in Table 2. Abdominal pain or discomfort was recognized as the major symptom by the majority of the physicians (96.9%), followed by altered bowel habits (83.1%), bloating (76.9%), painless diarrhea or constipation (61.5%), urgency or feeling of incomplete rectal evacuation (50.8%), defecation straining (36.9%). Of all the physicians surveyed, 23 (35.4%) recognized mucus mixed stool as the usual presentation of IBS.

When asked about using the diagnostic tools for IBS diagnosis, 35.5% of the physicians with masters degrees use "Rome or Manning criteria" to facilitate IBS diagnosis, whereas only 14.3% of the residents (physicians with MBBS) use these tools to facilitate IBS diagnosis ( $P < 0.05$ , CI 1.95–2.97). The difference is due to lack of training of MBBS doctors regarding IBS.

Physicians' knowledge about IBS diagnosis is shown in Table 3. By the findings it is revealed that 9 physicians (13.9%) diagnose IBS by history taking, 14 (21.5%) by history taking and physical examination of the patients, and 43 physicians diagnose IBS by history taking along with physical examination and laboratory works. In the present study, it was found that 35.4% (15 males and 8 females) were not sure about how to diagnose IBS. Also, 46.2% of physicians requested for tests including complete blood count with erythrocyte sedimentation rate (ESR), stool examination,



**Figure 2:** More than half of physicians (55.4%) in this study considered IBS as an underestimated health problem in Saudi Arabia

colonoscopy, and abdominal radiologic imaging. Two physicians (3.1%) considered complete blood count with ESR only. Fifteen (23.1%) considered complete blood count with ESR and stool examination. Three physicians (4.6%) considered colonoscopy only. It was noted that the ages, gender, nationalities, marital status, qualifications, and years in practices of the physicians do not affect their approach towards the diagnosis of IBS ( $P > 0.05$ ; data not shown).

Table 4 shows physicians' correct answer rates on knowledge about IBS distributed by their qualifications. It is obvious that in each area, the mean proportion of correct answers varied; 41 (63.1%) physicians surveyed knew that IBS is multifactorial, 36 (55.4%) regarded nervousness (anxiety) as being related to IBS, whereas 3 (4.6%) answered that the cause of IBS is related to infection. Female gender is not included in alarming features of IBS, and more than 1/3<sup>rd</sup> of physicians (36.9%) knew that. Around half of the physicians knew that blood per rectum is not included in Manning criteria, the condition is benign and does not carry a poor prognosis. There were no statistically significant differences noted between the responses of male and female physicians in all items ( $P > 0.05$ ).

Table 5 shows physicians' attitudes toward IBS. There was a statistically significant association between physicians' qualifications and their attitudes toward PHC setting in their response to IBS patients (34.4% vs 6.5%;  $P < 0.05$ ). Eleven physicians with a master's degree (11/32=34.4%), and two residents (2/31=6.5%) suggested limitations in PHC setting as a contributing factor to the lack of management of IBS. There were statistically significant associations between physicians' qualifications and their recommendations for a "Saudi guidelines for the diagnosis and management of irritable bowel syndrome" ( $P < 0.05$ ) - 23/31 residents (74.2%) and 12/32 physicians with a masters degree (37.5%) strongly

**Table 2: Physicians knowledge about clinical features of IBS distributed by their gender (M and F)**

The patient with IBS usually presents with <sup>‡</sup>	Physicians' gender		Total (%) n=65	$\chi^2$	P value
	Males (%) n=47	Females (%) n=18			
1 Abdominal pain or discomfort	95.7	100	96.9	0.790	0.674
2 Altered bowel habits	85.1	77.8	83.1	0.827	0.661
3 Urgency or feeling of incomplete rectal evacuation	55.3	38.9	50.8	1.428	0.490
4 Painless diarrhea or constipation	68.1	44.4	61.5	3.906	0.142
5 Defecation straining	42.6	22.2	36.9	2.739	0.254
6 Mucus in the stool	40.4	22.2	35.4	2.513	0.285
7 Bloating	78.7	72.2	76.9	0.459	0.795

<sup>‡</sup>Some physicians did not respond to some items in this question; IBS: Irritable bowel syndrome

**Table 3: Physicians (M and F) approach towards the IBS diagnosis**

How would you diagnose IBS? <sup>†</sup>	Physicians' gender		Total (%) n=65	$\chi^2$	P value
	Male (%) n=47	Female (%) n=18			
By history taking from the patient	14.9	11.1	13.9	0.790	0.674
By history and physical examination	21.3	22.2	21.5	0.007	0.935
By history, physical examination, and clinical investigations	68.1	61.1	66.2	0.812	0.666
Not sure, how to diagnose IBS	31.9	44.4	35.4	0.465	0.503

<sup>†</sup> Some physicians did not respond to some items in this question. IBS: Irritable bowel syndrome

**Table 4: Physicians' correct answer rates on knowledge about IBS distributed by their qualifications**

Question item (correct answer) <sup>‡</sup>	Correct, n=65 (%)	Physicians' qualifications		$\chi^2$	P value
		MBBS, (n=31; %)	Masters degree, (n=32; %)		
The cause of "IBS"; (multifactorial in origin)	41 (63.1)	22 (71)	19 (59.4)	1.347	0.246
One of the following is not included in Manning criteria for IBS diagnosis; (blood per rectum).	32 (49.2)	13 (41.9)	19 (59.4)	0.152	0.697
One of the followings is not alarming feature of IBS; (female sex)	24 (36.9)	14 (45.2)	10 (31.3)	1.638	0.441
One the following is not true regarding IBS; (the condition usually carries a poor prognosis).	31 (47.7)	15 (48.4)	16 (50.0)	1.375	0.503
The patient with IBS usually presents with; (Abdominal pain or discomfort)	61 (93.9)	30 (96.8)	31 (96.9)	2.001	0.368

IBS: Irritable bowel syndrome. <sup>‡</sup>Some physicians did not respond to some items in this question.

recommended to establish such guidelines.

Regarding the most useful way to help the PHC physicians to learn more about IBS, continuing medical education (CME) programs were ranked first among 67.7%, followed by contact with IBS educators 15.4%, and mailings suggested by only 13.9%.

When asked about what they would do if they were presented with a case of IBS, more than half of the physicians surveyed (n=37; 56.9%) responded that they will achieve continuity of care, and (n=26; 40%) will refer IBS immediately or later to the gastroenterologist. Only one male and one female physician were not sure what should be done for IBS.

In the area of patient education, 50% of physicians who practiced for 11–20 years responded that they always educate

their patients, whereas 35.7% of physicians who practiced for 5–10 years occasionally educate their patients. There were statistical significant differences noted between the physicians' years in practice and education of the patient about IBS (P<0.05).

Common drugs prescribed for IBS (percentage wise) by the PHC physicians are presented in Table 6. Antispasmodics (87.3%), and antifatulence (77.9%) drugs were ranked first among prescribed IBS drugs by PHC physicians, followed by antidepressants (55.6%), while less than half of the physicians (46%) prescribed bulking and antidiarrheal agents.

When asked about the main sources of their knowledge, textbooks were ranked first among 48 (73.8%) physicians surveyed, followed by internet for 26 (40%) physicians and only 14 (21.5%) read medical journals.

## DISCUSSION

This is the first comprehensive PHC setting-based study carried out in northern Saudi Arabia (AlJouf Province) to obtain data on knowledge, attitudes, and practices of physicians toward IBS. We believe that our sample was representative of the PHC physicians and accounted for approximately 54.2% of all the PHC physicians practicing in AlJouf Province. More than half the physicians under this study had a low to moderate experience in PHC setting ( $\leq 10$  years). IBS is a common health problem throughout the world, and is a challenging disorder for all of the health care professionals.<sup>[1-4]</sup> The majority of physicians in our study considered IBS as a common health problem in Saudi Arabia,

and more than half of them believed it is an underestimated health problem in our country.

Abdominal pain or discomfort is the hallmark and a key symptom for clinical diagnosis of IBS that improves after defecation and/or have its onset associated with change in the frequency or form of stool.<sup>[3-6]</sup> It is encouraging that the vast majority of physicians surveyed knew the clinical presentation of IBS Table 2.

Using diagnostic tools to facilitate IBS diagnosis is valid and have become the recommended method for making a diagnosis of IBS in both primary and secondary health care.<sup>[2,3,7,8]</sup> Unfortunately, we found that less than 1/4<sup>th</sup> of

**Table 5: PHC physicians' attitudes toward IBS distributed by their qualifications**

Attitude question item*:	Response to attitude question	Qualifications		Total N=65 (%)	$\chi^2$	P value
		MBBS: 31 (%)	Masters degree: 32 (%)			
Do you recommend the establishment of "Saudi guidelines for the diagnosis and management of IBS"?	Strongly recommended	23 (74.2)	12 (37.5)	35 (53.4)	10.333	0.035
	Recommended	13 (41.9)	18 (56.25)	5 (7.7)		
	Fairly recommended	1 (3.2)	2 (6.3)	3 (4.6)		
	Not recommended	0 (0.0)	3 (9.4)	3 (4.6)		
	Not sure	2 (6.5)	2 (6.3)	4 (6.2)		
Do you recommend the establishment of "Saudi Society of IBS"?	Strongly recommended	14 (45.2)	10 (31.3)	24 (36.9)	1.551	0.213
	Recommended	10 (32.3)	14 (43.8)	24 (36.9)		
	Fairly recommended	2/31 (6.5)	1(3.1)	3 (4.6)		
	Not recommended	1 (3.2)	4 (12.5)	5 (7.7)		
	Not sure	2 (6.5)	4 (12.5)	6 (9.2)		
How many times do you prefer conduction of IBS-workshops each year in Saudi Arabia?	Every 2 years	3 (9.7)	9 (28.1)	6 (9.2)	2.593	0.762
	Once a year	12 (38.7)	13 (40.6)	25 (38.5)		
	Twice a year	9 (29)	11 (34.4)	19 (29.2)		
	Three times a year	0 (0.0)	1 (3.1)	1 (1.5)		
	Not sure	5 (16.1)	3 (9.4)	8 (12.3)		
What is the most useful way to help you to learn more about IBS?	CME programs	20 (64.5)	24 (75)	44 (67.7)	0.822	0.365
	Mailings on IBS	4 (12.9)	5 (15.6)	9 (13.9)		
	Contact with IBS educator in my practice	4 (12.9)	6 (18.8)	10 (15.4)		
	No need for further education in the area of IBS	2 (6.5)	1 (3.1)	3 (4.6)		
What are the factors contribute for limitations of "IBS" management?	Factors related to the primary care setting	2 (6.5)	11 (34.4)	13 (20)	6.910	0.009
	Factors related to the availability laboratory facilities	6 (19.4)	4 (12.5)	10 (15.4)		
	Lack of workshops, symposia in regarding to the IBS	21 (67.7)	16 (50)	37 (56.9)		

CME: Continuing medical education, IBS: Irritable bowel syndrome, PHC: Primary health care. \*Some physicians did not respond to some items in this question

**Table 6: Common drug groups prescribed by PHC physicians for IBS**

Drug groups that are commonly used to treat IBS?*	Physicians' qualification		Total, n=63(%)	$\chi^2$	P value
	MBBS, n=31 (%)	Masters degree, n=32 (%)			
Stool-bulking agents	67.7	25	46.0	14.280	0.03
Antispasmodics	87.1	87.5	87.3	0.287	0.962
Antidiarrheal agents	54.8	12	46.0	2.639	0.451
Antidepressant drugs	64.5	46.9	55.6	6.244	0.100
Antiflatulence therapy	83.9	71.9	77.9	5.192	0.158
Serotonin receptor agonist and antagonists	22.6	21.9	22.2	5.482	0.140
Chloride channel activators	12.9	12.5	12.7	1.398	0.706

IBS: Irritable bowel syndrome, PHC: Primary health care. \*Some physicians did not respond to some items in this question

the physicians surveyed use “Rome or Manning criteria” to facilitate IBS diagnosis and physicians with a masters degree use these tools more than residents. The possible explanation could be that during an undergraduate study the functional disorders, such as IBS are given only a small share in comparison to other medical subjects. In addition, textbooks were the main source of knowledge among the physicians surveyed, and most textbooks are not updated and consequently all of this could contribute to a lack of knowledge about “Rome or Manning criteria.”

The path for IBS diagnosis is through the PHC physician and it can be achieved without additional testing beyond a careful history taking, general physical examination, and routine laboratory studies (not including colonoscopy) in patients who have symptoms that meet the standard criteria for its diagnosis, and who do not have the warning signs.<sup>[3-6,16]</sup> Unfortunately, we found that more than a third of the physicians (35.4%; 15 males, and 8 females) were not sure how to diagnose IBS and this could contribute to a lack of diagnostic confidence and may result in unnecessary investigations. It was surprising that when asked about investigations, nearly half of the physicians surveyed suggested a complete blood count and ESR with stool examination, colonoscopy, and abdominal radiologic imaging. Our findings, regarding extensive investigations to diagnose IBS, support the results of several studies that estimated that the annual total (direct and indirect) cost of IBS is comparable with or greater than that of other common chronic conditions, including asthma, hypertension, and congestive heart failure.<sup>[1,6-10]</sup>

The disorder is benign and not life threatening but usually associated with long-term symptoms.<sup>[2,14,15]</sup> However, it is discouraging to find that, when asked about prognosis and etiology of the condition, more than half of the physicians believed that IBS is associated with a poor prognosis, and regarded nervousness or anxiety as its cause. Our findings are consistent with the findings in many international studies that found many physicians have significant misconceptions regarding the etiology, diagnosis, pathogenesis, and prognosis of IBS.<sup>[6,17,15,21]</sup> Moreover, in spite of the fact that a majority of the physicians surveyed knew the clinical features of IBS, we found that only 36.9% of them knew its alarming features.<sup>[10,20]</sup> As such, misconceptions about IBS may interfere with its care, especially during education and reassurance about the benign nature of the condition. Education about benign nature of the disease is the cornerstone to remove the patients’ fears about developing colonic cancer and decrease the number of patients seeking consultation.<sup>[12,16-18]</sup> It was observed that half of the physicians who have practiced for 11–20 years always educate their patients, and a third of the physicians who have practiced for 5–10 years sometimes educate their patients. A possible

explanation is that physicians with more experience have better awareness about functional disorders, such as IBS, which need a multifactorial approach.

The treatment of IBS is notoriously unsatisfactory,<sup>[20,22-24]</sup> but although many drugs are currently used for the treatment of IBS, these drugs are essentially used in an attempt to reduce the severity of the symptoms, and often, more than one drug is prescribed for the same patient.<sup>[12,22,24,25]</sup> Some international studies reported that only two drugs were given the highest recommendation (grade A rating): alosetron hydrochloride for the treatment of IBS with diarrhea and tegaserod for the treatment of IBS with constipation.<sup>[25]</sup> No other agents (including antispasmodics, bulking agents, antidiarrheals, and antidepressants) were found to have met the criteria for high-quality trials or to provide global relief of the IBS symptoms.<sup>[20,25]</sup> In this study, we found that antispasmodics and antifatulence drugs were prescribed by more than 3/4<sup>th</sup> of the physicians surveyed. Misconception about IBS therapy is discouraging because many patients with IBS are dissatisfied with the efficacy and safety of traditional treatment options, thus leading to numerous consultations, multiple drug therapy, and switching, that may lead to diminution of the physician–patient relationship.<sup>[7,20,23,24]</sup>

With low levels of satisfaction, both with the treatment they receive and their overall care, it is not surprising that almost 50% of IBS patients turn to complementary and alternative medicine therapies.<sup>[20,23]</sup> We found that around half of the physicians surveyed prescribe a herbal medicine for IBS patients; and this may be because several herbal therapies can be recommended as part of an evidence-based approach to the treatment of IBS. Moreover, herbal medicine might provide patients with satisfactory relief and improve the therapeutic alliance.<sup>[20,23]</sup>

In the area of continuity of care, we found more than half of the physicians surveyed will carry a continuity of care for IBS; but unfortunately 40% of the physicians will refer IBS patients either immediately or later. The most likely explanation for high rates of IBS referral could be due to community issues in this part of Saudi Arabia, and also since this condition is difficult to manage because of its major psychological and psychiatric components.<sup>[2,4,7,16]</sup> Moreover, lack of knowledge and lack of suitable approach or confidence all contribute to referral. This study shows more attitudes by PHC physicians toward IBS, and the while resident physicians showed more enthusiasm to establish “Saudi guidelines for diagnosis and management of irritable bowel syndrome”. However, about half of the residents 14 (45.2%), and less than a third (31.3%) of physicians with a master’s degree strongly recommended the need to establish “Saudi Society of IBS”.

CME is very important to keep knowledge up to date and it is encouraging that around two thirds of physicians surveyed (64.5%) reported that CME is the most useful way to help them to learn more about IBS.

## CONCLUSION

This study has shown inappropriate practices, and lack of knowledge among primary health care physicians toward IBS, that could interfere with patient care. These findings may be due to lack of proper training programs for physicians practicing in PHC settings. Well-planned CME programs in the form of seminars or group discussions

## APPENDIX

- I. Demographic characteristics of Physicians (the study volunteers)
  1. Name: (Optional)
  2. Gender: 1. Male, 2. Female
  3. Age:
    - a. < 30 years
    - b. 30–40 years
    - c. 41–50 years
    - d. >50 years
  4. Nationality:
    - a. Saudi
    - b. Egyptian
    - c. Sudanese
    - d. Syrian
    - e. Jordanian
    - f. Indian
    - g. Pakistanise
    - h. Bangladeshi
    - i. Other nationality, specify
  5. Marital status:
    - a. Single (Never married)
    - b. Married
    - c. Divorced
  6. Qualification:
    - a. MBBS
    - b. Master Degree
  7. Years in practice:
    - a. <5 years
    - b. ≥5–10 years
    - c. >10–20 years
    - d. >20 years

II. Kindly answer all the following questions:

1. Do you think IBS is a common health problem in Saudi Arabia?
  - a. Yes

with gastroenterologists are recommended. Further studies are also required to add more important points in the management of IBS in our PHC settings. The study also recommends the need to establish the “Saudi Society of IBS” to issue guidelines for diagnosis, management, and research about this disorder.

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- b. No
- c. Not sure
2. Do you feel IBS is underestimated in Saudi Arabia?
  - a. Yes
  - b. No
  - c. Not sure
3. The patient with irritable bowel syndrome usually presents with:
 

Symptom/sign	Yes	No
Abdominal pain or discomfort		
Altered bowel habits		
Urgency or a feeling of incomplete evacuation		
Painless diarrhea or constipation		
Defecation straining		
Mucus in the stool		
Bloating		
4. The cause of “IBS”:
  - a. Infectious in origin
  - b. Nervous causes
  - c. Multifactorial in origin
  - d. Autoimmune antibodies
  - e. Foods
5. Have you ever used the diagnostic tools such as “Rome or Manning criteria” to facilitate “IBS” diagnosis in your practice?
  - a. Yes
  - b. No
  - c. Not sure
6. Regarding the Manning criteria for diagnosis of IBS, which one of the following is not included?
  - a. Pain relief with defecation
  - b. Blood per rectum
  - c. Mucus per rectum
  - d. Feeling incomplete evacuation
  - e. Visible abdominal distension

7. How would you diagnose irritable bowel syndrome?
- By history taking from the patients only
  - By history, and physical examination only
  - By history, physical examination, and clinical investigations
  - Not sure
8. If the answer is (c), needs clinical investigations, what is/are these investigations?
- Blood tests, and ESR only
  - (A) + Stool examination only
  - Colonoscopy only
  - Abdominal radiological imaging only
  - All of the above
  - Not sure
9. Which one of the followings is not alarming feature of "IBS"?
- Document weight loss
  - Anemia
  - Nocturnal symptoms
  - Female sex
  - Family history of colonic cancer
10. What are the drug groups that are commonly used to treat irritable bowel syndrome?
- | Drug group                                 | Yes | No | Not sure |
|--|-----|----|----------|
| Stool-bulking agents                       |     |    |          |
| Antispasmodics                             |     |    |          |
| Antidiarrheal agents                       |     |    |          |
| Antidepressant drugs                       |     |    |          |
| Antiflatulence therapy                     |     |    |          |
| Serotonin receptor agonist and antagonists |     |    |          |
| Chloride channel activators                |     |    |          |
11. What should you do if a patient with IBS presents to your clinic?
- I will refer him to the gastroenterology
  - I will conduct a continuity of care for him in my clinic
  - Not sure
12. Have you ever used to prescribe any herbal medicine for "IBS"-patients?
- Yes
  - No
13. How often do you educate your patients about irritable bowel syndrome?
- Always
  - Often
  - Sometimes
  - Rarely
  - Never
  - Not sure
14. Which one the following is not true regarding irritable bowel syndrome?
- The condition is not associated with weight loss
  - The condition usually carries a poor prognosis
  - Patients are do not have abdominal symptoms while sleeping
  - The condition is not associated with intestinal bleeding
15. What are the factors contribute for limitation of your practice toward IBS?
- Factors related to the primary care setting
  - Factors related to the availability laboratory facilities
  - Lack of workshops, symposia in regarding to the IBS
16. Do you feel PHC centers are suitable places for management of IBS?
- Yes
  - No
  - Not sure
17. Do you recommend the establishment of "Saudi guidelines for the diagnosis and management of irritable bowel syndrome"?
- Strongly recommended
  - Recommended
  - Fairly recommended
  - Not recommended
  - Not sure
18. Do you recommend the establishment of "Saudi Society of IBS"?
- Strongly recommended
  - Recommended
  - Fairly recommended
  - Not recommended
  - Not sure
19. How many times do you prefer conduction of irritable bowel syndrome-workshops each year in Saudi Arabia?
- Every 2 years
  - Once a year
  - Twice a year
  - Thrice a year
  - Not sure
20. What is the most useful way to help you to learn more about IBS?
- Continuing medical education programs.....c
  - Mailings on "IBS"
  - Contact with IBS educator in my practice
  - No need for further education in the area of IBS
  - Not sure
21. What are the sources of your knowledge regarding "IBS"?
- Medical journals
  - Medical books
  - Internet
  - TV and radio
  - Colleague
  - Others



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