

The General Public's Perceptions, Attitudes and Treatment Intentions of Irritable Bowel Syndrome: A Questionnaire Survey

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Received: 19 Jun 2022

Accepted: 30 Jun 2022

Published: 06 Jul 2022

J Short Name: JJGH

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Keywords:

Irritable bowel syndrome; Questionnaire survey; Perceptions; Attitudes; Treatment intentions

Citation:

Bang-Qi Wu. The General Public's Perceptions, Attitudes and Treatment Intentions of Irritable Bowel Syndrome: A Questionnaire Survey. *J Gastro Hepato.* V8(22): 1-8

1. Abstract

1.1. Objective:

Irritable bowel syndrome (IBS) is a common chronic functional gastrointestinal disorder with a high prevalence rate, which affects the quality of life (QOL) and psychological health of patients to varying degrees. To understand the perceptions, attitudes, and treatment intentions of IBS among the general public, we conducted a questionnaire survey on IBS.

1.2. Methods

The study was conducted by the First Affiliated Hospital of Tianjin University of Traditional Chinese Medicine from April 2021 to June 2021. 400 respondents entered this cross-sectional survey, and each respondent received a valid electronic questionnaire.

1.3. Results

A total of 400 respondents received and completed the questionnaire survey (100%). 40% of the interviewees are men, and participants are between 21 and 54 years old (average 26.96 years old). In terms of perceptions, 42.25% of respondents said they had never heard of IBS, and 45% said they "Know a little bit" about IBS. The top five life factors that were considered by respondents to be related to IBS were dietary habits (85.75%), emotional stress (79.75%), gastrointestinal infections (71.75%), sudden or negative life events (62.5%), and sleep (60%). In addition, respondents are more familiar with the

current treatment regimens as pharmacotherapy (78.75%), followed by Chinese herbal medicine or proprietary Chinese medicine (67%), acupuncture (52.5%), external treatments of traditional Chinese medicine (TCM) (42.25%) and other non-pharmacological therapies (41.5%). In terms of attitudes, the interviewees had a positive attitude towards treatment (89.25%) and auxiliary examinations (81%). Behaviorally, respondents had different degrees of preference for modern medicine and TCM. Among them, the respondents choose Chinese herbal medicine or proprietary Chinese medicine treatment the most (90.75%), pharmacotherapy (17.55%) was the least selected, and the participants who held indifferent views on pharmacotherapy (10.75%) and acupuncture (10.75%) were the most.

1.4. Conclusions

This study shows that (i) many respondents have insufficient perception about IBS; (ii) in the related behavioral survey, most respondents prefer TCM such as Chinese herbal medicine or proprietary Chinese medicine; (iii) in the future clinical diagnosis and treatment process, it is necessary to strengthen the popularization and education of IBS to the public.

2. Introduction

Irritable bowel syndrome (IBS) is a common functional gastrointestinal disease in the gastroenterology department, mainly characterized by recurrent abdominal pain, abdominal discomfort, and

changes in defecation habits (diarrhea, constipation, or both), with a lack of morphological changes and biochemical abnormalities that can explain the symptoms [1]. In addition to abdominal symptoms, IBS patients are often accompanied by sleep disorders, psychological and psychiatric comorbidities, etc [2]. Meta-analysis showed that IBS patients had significantly higher levels of depression and anxiety than healthy people [3]. As a common clinical chronic disease, IBS has a relatively large number of patients, and the incidence has been increasing year by year in recent years. According to a study by Lovell and Ford in 2012, the global average incidence of IBS is about 11.2%, which varies from 1.1% to 45% between countries, depending on the geographical location of the region investigated [4]. A study initiated by the Rome Foundation working group in 2017 showed a prevalence of 17.5% in Latin America, 9.6% in Asia, 7.1% in North America/Europe/Australia/New Zealand, and 5.8% in the Middle East and Africa based on the Rome IV diagnostic criteria[5]. In addition to being associated with different disease diagnostic criteria, different prevalence rates also involve cross-cultural differences, screening criteria for research, and other influencing factors. An epidemiological study from China showed the total prevalence of IBS in the Chinese population is 6.5%, and the peak age of onset is 30-59 years old. The prevalence of females is higher than that of males [6]. The high prevalence and complex clinical manifestations make IBS a serious burden on society and public health. Compared with other chronic diseases, the health resource utilization rate of IBS patients is relatively high. According to statistics from three aspects of personal, international medical system, and society, Canavan et al. found that 48% of patients bear IBS-related expenses every year. Each patient suffered an estimated annual loss between £400 and £900 per year internationally due to IBS-related absences and performance [7]. Although the prevalence of IBS in China is relatively lower than in Western countries, the economic burden it brings to the country and individuals still cannot be underestimated. A domestic economic survey showed that IBS-related diagnosis and treatment costs account for about 3.3% of the total domestic medical budget and 0.18% of GDP, and the total cost per capita can be 35% of GDP per capita [8]. To abate clinical symptoms, improve QOL, and reduce the related medical costs of IBS patients, many studies on the prevalence and related influencing factors of IBS as well as doctor-patient communication have been conducted in domestic and international. However, with the aim of strengthening knowledge of gastrointestinal diseases and popular science, there are relatively few observational studies of IBS for the general population. To understand the perceptions, attitudes, and treatment intentions of IBS among the general public, we conducted a questionnaire survey on IBS and analyzed it statisti-

cally to provide an evidence base for clinical patient communication and disease education, etc. We also hope that the general public will recognize the disease as early as possible and actively participate in medical treatment to improve symptoms and QOL, and to reduce the economic burden on individuals and society to some extent.

3. Materials and Methods

3.1. Questionnaire

The questionnaire used in this study was developed independently according to the purpose of the study. The questionnaire is divided into the following parts. The first part elicited demographic information (age, gender, educational background, and occupation). The second part is cognitive-related content (11 questions), including the general understanding of IBS, perception of related influencing factors and common treatment methods. The third part (2 questions) is the respondents' attitude towards auxiliary examination and treatment modalities. Within the domain of patient's treatment intentions the survey addressed two specific areas (6 questions): the tendentious choice of ancillary examinations and treatment modalities.

3.2. Statistical Analysis

The completeness of the questionnaire was reviewed by professionals. A database was created and the data were statistically described using SPSS 25.0 (IBM Inc., Armonk, NY, USA). Assessment of demographic characteristics and corresponding questions using descriptive methods. Continuous data are presented as mean \pm standard deviation, and categorical data as absolute numbers and percentages. Missing responses were excluded from all subsequent data analyses.

3.3. Ethics

This study strictly adhered to the principles of research ethics and was approved by the Ethics Committee of the First Affiliated Hospital of Tianjin University of Traditional Chinese Medicine. All participants completed it voluntarily under the condition of anonymity and no compensation.

4. Results

4.1 General Demographic Characteristics

400 respondents participated in the online electronic questionnaire survey, a total of 400 questionnaires were returned and 400 valid questionnaires were returned. Among them, 40% of the male respondents were male, and the participants' ages ranged from 21 to 54 years old (average 26.96 years old), including 239 students and 161 non-students. The overall educational background of the interviewees is divided into 70 persons with a college degree or below, 242 persons with a bachelor's degree, and 88 persons with a graduate degree or above (Table 1).

Table 1. Demographic characteristics of the respondents.

	N(=400)
Mean Age±s.d.	26.96±9.02
Sex	
Men	160(40%)
Women	240(60%)
Occupation	
Students	239(59.75%)
Medical Industry practitioners	40(10%)
State-owned enterprises or institutions	25(6.25%)
Enterprise management personnel	20(5%)
Individual operators	15(3.75%)
Administrative Officers	8(2%)
farmers	5(1.25%)
Others	48(12%)
Education	
Specialized and below undergraduate	70(17.5%)
Postgraduate and above	242(60.5%)
	88(22%)

Note: Among them, there is 1 missing value for age.

4.2. Perceptions

Regarding the question of "Have you heard of irritable bowel syndrome", up to 42.25% of the respondents said they had never heard of IBS. When it comes to "Knowledge of IBS", the above-mentioned respondents said they "Do not know" about IBS-related situations, 45% said they "Know a little bit" about IBS, while 9.5% said they "Know more" and 3.25% said "Know a lot", only 0.25% of the respondents said "Fully understand" (Figure 1). The question about "Life factors associated with the development of IBS" is a multiple-choice question that contains 9 options. The respondent can make one or more choices. A total of 1972 valid answers were received from 400 respondents. The survey found that the top five life factors that the interviewees considered to be highly related to IBS were as follows: dietary habits (85.75%), emotional stress (79.75%), gastrointestinal infections (71.75%), sudden or negative life events (such as career failure, physical illness, etc.) (62.5%), sleep (60%) (Figure 2). For the question of "Other factors related to the development of IBS", 31.5% of the participants thought that the development of IBS was related to gender, 29.5% thought it was not related to gender, and 39% said they did not know. Nearly half of the participants (48.75%) believed that the incidence of IBS was affected by regional factors, 18.25% held the opposite view, and the rest said they did not know. 46.25% of the respondents thought that the incidence of IBS was related to the urban or rural living environment, while 22.75% disagreed with this view and the rest did not know. 46.25% of the participants thought that there was a correlation between the incidence of IBS and occupation, 11.75% held the opposite view, while the rest said they did not know. 37% of the respondents believed that

IBS was hereditary, 24.25% thought it was unrelated, and 38.75% said they did not know (Table 2). "Common treatment methods for IBS" is a multiple-choice question with six options, and respondents can make one or more choices: pharmacotherapy (antidiarrheals, antispasmodics, intestinal antibiotics, probiotics, antidepressants, etc.), Chinese herbal medicine or proprietary Chinese medicine, acupuncture, external treatments of Traditional Chinese medicine (TCM) (massage, medicine bath, acupoint injection, acupoint catgut embedding, etc.), other non-pharmacological therapies (diet therapy, psychotherapy, exercise therapy, etc.), and do not know. Among them, a total of 1,186 effective answers were received from 400 respondents. The highest awareness rate of respondents is pharmacotherapy (78.75%), followed by Chinese herbal medicine or proprietary Chinese medicine (67%). Acupuncture ranked third (52.5%), followed by external treatments of TCM (42.25%), and other non-pharmacological therapies (41.5%). 4.89% of respondents said did not know (Figure 3). Finally, when it comes to "whether IBS is currently curable", 51% of the respondents believed that it is currently completely curable, 11.75% were negative, and 37.25% did not know.

4.3. Attitude

The survey on attitudes related to IBS included the necessity of receiving treatment and ancillary tests. 89.25% of the respondents thought it was necessary to receive treatment for irritable bowel syndrome, while 10.75% had a negative attitude; 81% thought it was necessary to receive ancillary tests related to the diagnosis and treatment of the disease (e.g. colonoscopy, blood tests, etc.), while the rest thought it was not necessary (Table 3).

Table 2. Respondents' cognitions of other factors associated with the development of IBS(n,%).

Questions	Respondents (n),%		
	Yes	No	Don't know
Do you think the incidence of irritable bowel syndrome is related to gender?	126(31.5)	118(29.5)	156(39)
Do you think the incidence of irritable bowel syndrome is related to regional factors (e.g., north and south)?	195 (48.75)	73(18.25)	132(33)
Do you think that the incidence of irritable bowel syndrome is related to living in urban or rural areas?	185 (46.25)	91 (22.75)	124 (31)
Do you think the incidence of irritable bowel syndrome is related to occupation?	250 (62.5)	47(11.75)	103(25.75)
Do you think that the development of irritable bowel syndrome is genetically related?	148(37)	97(24.25)	155(38.75)

Table 3. Attitudes of respondents towards IBS.

Questions	Respondents (n),%	
	Yes	No
Do you think it is necessary to receive treatment for irritable bowel syndrome?	357(89.25)	43(10.75)
Do you think it is necessary to receive auxiliary tests (e.g. colonoscopy, blood tests, etc.) related to the diagnosis and treatment of this disease?	324(81)	76(19)

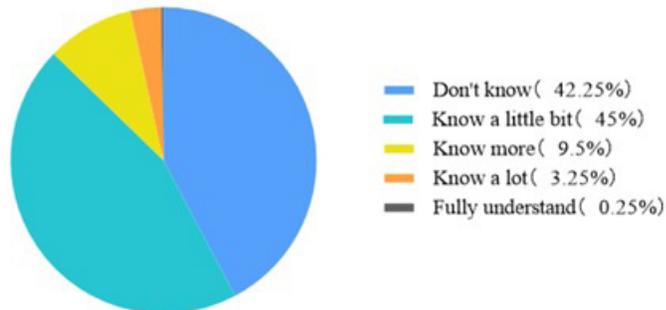
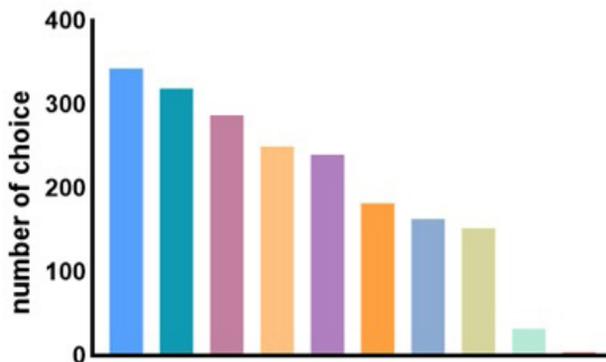


Figure 1. Respondents' knowledge of IBS (%).



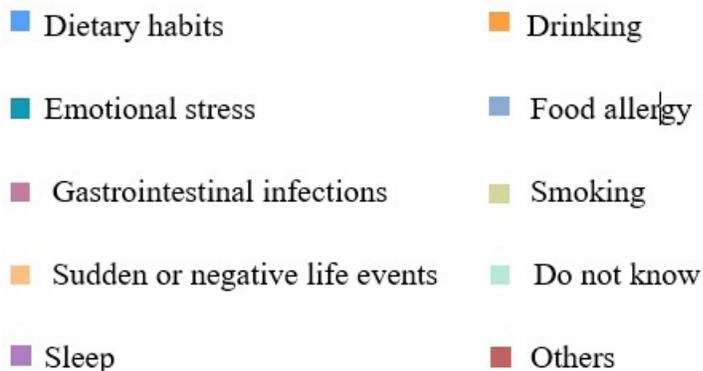


Figure 2. Respondents' cognitions of life factors associated with the development of IBS (n).

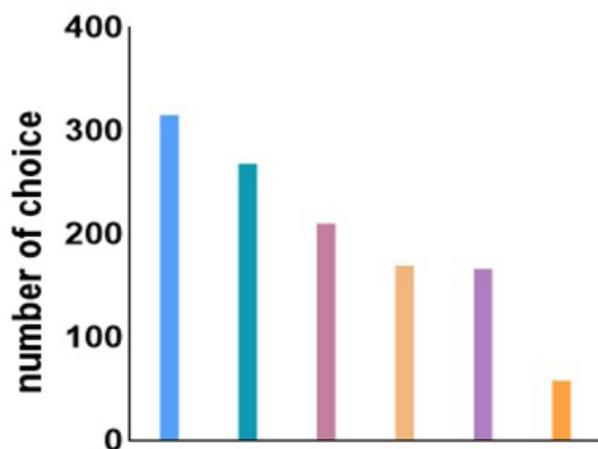


Figure 3. Respondents' knowledge of common treatments for IBS (n).

4.4. Behavior

The survey on the respondents' behavior was divided into two aspects: auxiliary examinations and choice of treatment. For auxiliary examinations, 78.5% of the respondents indicated that they would accept auxiliary examinations related to the diagnosis and treatment of the disease (e.g. colonoscopy, blood tests, etc.) if they had the disease, while 9% of the respondents indicated that they were not willing to receive them, and 12.5% of the respondents hold an indifferent attitude. Among the respondents' preferences for treatment options, the descending order of "willingness" attitudes are: Chinese herbal medicine or proprietary Chinese medicine (90.75%) > other

non-pharmacological therapies (89%) > external treatments of TCM (81.25%) > acupuncture (78.25%) > pharmacotherapy (71.75%). The descending order of "unwilling" is: pharmacotherapy (17.55%) > acupuncture (11%) > external treatments of TCM (9.25%) > Chinese herbal medicine or proprietary Chinese medicine (2.75%) = other non-pharmacological therapies (2.75%). The number of "indifferent" to each treatment method is as follows: pharmacotherapy (10.75%) = acupuncture (10.75%) > external treatments of TCM (9.5%) > other non-pharmacological therapies (8.25%) > Chinese herbal medicine or proprietary Chinese medicine (6.5%) (Table 4, Figure 4).

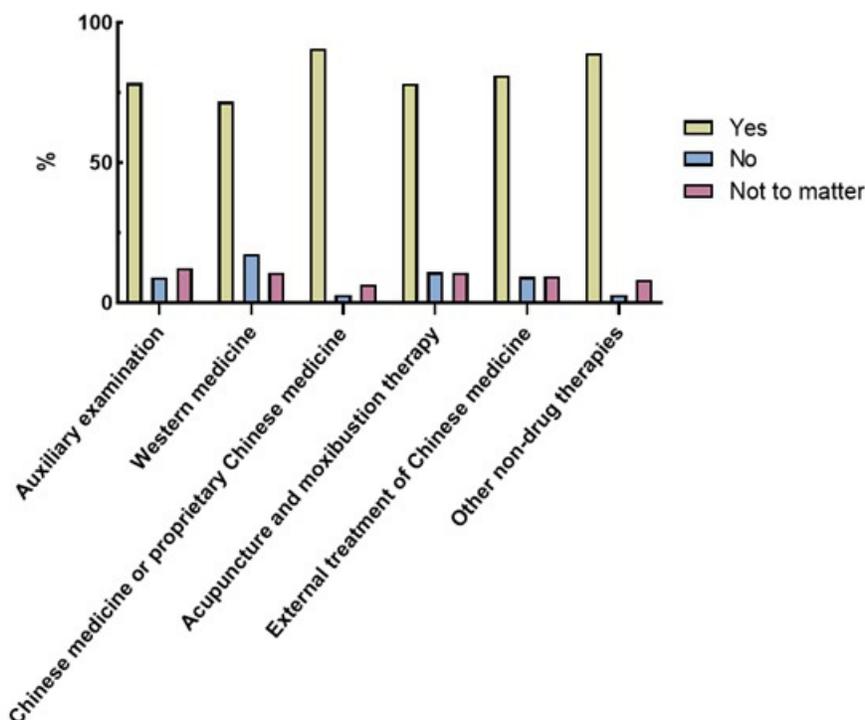


Figure 4. The treatment intentions of respondents towards IBS.

5. Discussion

The etiology and pathogenesis of IBS are not fully understood in modern medicine. At present, it is generally believed that IBS may be caused by a combination of multiple factors, related to visceral hypersensitivity, abnormal gastrointestinal dynamics, brain-gut axis dysfunction, immune activation, altered intestinal permeability, dysbiosis of intestinal flora, psychosocial factors, genetic factors, and other factors [9,10]. Modern medical treatment of IBS is mostly symptomatic, which can alleviate local symptoms, and commonly includes antidiarrheal drugs, antispasmodics, intestinal antibiotics, probiotic preparations, antidepressants and so on. TCM commonly includes Chinese herbal medicine, proprietary Chinese medicine, acupuncture, and other external treatments of TCM, such as massage, medicinal baths, acupoint injections, and acupoint burial; other non-pharmacological therapies include diet therapy, psychotherapy, exercise therapy, music therapy and so on. Although IBS itself is not life-threatening, its symptoms can significantly reduce health-related

quality of life compared with other diseases affecting gastrointestinal function (e.g. GERD) or chronic non-gastrointestinal diseases (e.g. asthma or migraine) [11,12]. In the process of clinical diagnosis and treatment, medical providers not only improve the symptoms for patients but also need to do a good job in doctor-patient communication and disease management to promote behavioral changes in patients to achieve individualized treatment or play a preventive role. The change of patients' behavior needs to be combined with their previous disease experience, current cognitive level, and attitude towards medical treatment. Previous studies have shown that many patients have a certain misunderstanding of IBS, express concern or fear about their disease, and then develop anxiety/depression to varying degrees. They believe that their symptoms may be related to cancer, inflammatory bowel disease, etc., and even have bad guesses such as incurable disease and shortened life expectancy [13,14].

5.1 Perceptions

This study found that the interviewees had certain deficiencies or

even a lack of perception of IBS. 42.25% of the respondents said they had never heard of IBS, and 45% said they "Know a little bit" about IBS. The incidence of IBS is closely related to life factors. Participants have a certain degree of understanding of life factors related to IBS. Among them, the top five factors were dietary habits (85.75%), emotional stress (79.75%), gastrointestinal infections (71.75%), sudden or negative life events (e.g., career failure, physical illness) (62.5%), and sleep (60%), which are the same as the IBS-related influencing factors found in previous studies [15,16]. 31.5% of the participants believed that the incidence of IBS was gender-related, and some epidemiological surveys found a higher prevalence in women than in men [17]. Some scholars believe that the difference in prevalence between men and women is small, while women are more likely to report symptoms related to constipation and abdominal pain and men are prone to diarrhea [18].

In addition, participants had some degree of knowledge of current treatment options for IBS, in descending order of knowledge of pharmacotherapy (antidiarrheals, antispasmodics, intestinal antibiotics, probiotics, antidepressants, etc.) (78.75%), Chinese herbal medicine or proprietary Chinese medicine (67%), acupuncture (52.5%), external treatments of TCM (42.25%), and other non-pharmacological therapies (14%).

5.2. Attitudes

A large proportion of respondents in this study (89.25%) were positive about take treatment measures and at the same time believed that it was very necessary (81%) to receive auxiliary examinations such as colonoscopy and blood tests related to the diagnosis and treatment of the disease.

5.3. Treatment Intentions

There were different degrees of preference choice between participants in modern medicine and traditional Chinese medicine. Overall, there was a positive trend in the respondents' choice of various behaviors. More respondents (90.75%) tended to choose Chinese herbal medicine or proprietary Chinese medicine, and their choice of acupuncture was slightly lower than the former. The reason may be that the respondents are afraid of the pain that acupuncture may produce. And Chinese herbal medicine or proprietary Chinese medicine as the traditional treatment method of TCM mainly focuses on "harmony". According to the main clinical manifestations of IBS, it is divided into the categories of "diarrhea", "constipation" or "abdominal pain", and then divided into different syndrome types according to the severity of symptoms. The combination of disease and syndrome differentiation and overall treatment is coordinated in appearance and spirit. Relatively speaking, although the respondents were more familiar with pharmacotherapy in the treatment of IBS, their preference choice (71.75%) was low. Two reasons are considered: one is that the respondents have insufficient perception and do not pay enough attention to diarrhea or constipation, and the other is that they may be worried about the side effects of pharmacotherapy. And Lekha Saha et al. had also found that many patients

with irritable bowel syndrome turn to herbal preparations, which are widely believed to be safe and effective for a variety of disorders [19]. Considering that the respondents of this survey are a popular group, their behavioral choices are still somewhat different from those of IBS patients. Previous studies have shown that although IBS affects most of the population to some extent, only 10% to 20% of patients seek attention [20]. The reasons are that, on the one hand, a certain lack of awareness and misunderstanding of the disease among patients themselves. Patients with mild symptoms think that they do not need treatment for the time being under the condition that their quality of life is not affected or has a low impact on their quality of life. While patients with severe symptoms feel that IBS affects their quality of life to a greater extent and urgently need to seek treatment. Previously, Fukudo S et al. found that the severity of IBS (especially abdominal pain or diarrhea) and psychological disorders determine the patient's healthcare-seeking behavior, which is similar to the results in the above study [21]. Although the treatment intention of the general population in this study is relatively high, the medical treatment behavior of IBS patients in clinical practice may be lower than the results shown in this study, which still needs further study. On the other hand, a significant disconnect in communication between doctors and patients regarding the etiology of IBS and treatment options. Studies have shown that effective communication between physicians and patients and the guidance and management of physicians to patients may be better than other chronic diseases in reducing the symptoms of IBS patients and improving QOL. At the same time, the importance of physician-patient communication in IBS is more important than other chronic diseases [22]. Therefore, clinical education and related knowledge popularization are particularly important in the long-term management of IBS. There are some limitations in this study including small sample size and limited representativeness. Lack of investigation on the way to understand IBS related knowledge. Whether there are differences between the behavioral choices of this study's respondents, who are a general population, and those with IBS still needs further validation. Moreover, although the self-report questionnaire is considered to be a typical method used by researchers in most cross-sectional epidemiological surveys of IBS with large sample size, there are still deficiencies such as information bias.

6. Conclusion

Through this questionnaire survey, we found the following conclusions. A large percentage of respondents have insufficient knowledge about IBS. In the related behavioral survey, the majority of respondents preferred TCM therapy--Chinese herbal medicine or proprietary Chinese medicine, followed by non-pharmaceutical treatments such as diet therapy, psychotherapy, exercise therapy, external Chinese medicine treatments such as massage, medicinal bath, acupuncture point injection, acupuncture point buried thread, acupuncture, and pharmacotherapy. In the future clinical treatment process, it is necessary to strengthen the popularization of science and education

on IBS for the general public.

7. Funding

National Key Research and Development Program of China (No. 2019YFC1712103).

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