Original Article

Health related quality of life in irritable bowel syndrome patients, Kashan, Iran: A case control study

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Abstract

Background: Irritable bowel syndrome has significant impacts on the quality of life (QOL) but IBS subtypes may be different in QOL. This study aimed to assess QOL in IBS subtypes and also two prevalent questionnaires applied to evaluate the QOL in IBS.

Materials and Methods: In this case-control study conducted in Kashan in 2010-2013. One hundred and eighty- eight patients with IBS with 215 of non-IBS patients were included in the baseline. Subjects divided into three subtypes based on symptoms of diarrhea-predominant (IBS-D), constipation-predominant (IBS-C) and IBS with mixed bowel habits (IBS-M) and in each subtype were 42, 62 and 84 patients, respectively. All IBS subjects completed questionnaires containing the disease-specific QOL for IBS (IBSQOL), World Health Organization QOL Assessment-BREF (WHOQOL-BREF) and IBS severity scores (IBSSS). The non-IBS subjects completed the WHOQOL-BREF only.

Results: Mean scores of IBSQOL in person with subtypes of IBS-D, IBS-C and IBS-M were 74.34 ± 19.01, 76.77 ± 22.91 and 73.15 ± 26.51, respectively which was not significantly different (*P* value = 0.507). As well as mean scores of WHOQOL-BREF in person with subtypes of IBS-D, IBS-C and IBS-M were 81.01 ± 16.23, 88.32 ± 15.66, and 82.65 ± 16.67, respectively, which were not significantly different (*P* value = 0.412) but mean scores of WHOQOL-BREF in non-IBS subjects was 89.53 ± 11.71 which was significantly different from IBS subjects (*P* value = 0.022). Strong positive relationship between two instruments was shown (r = 0.826 when $P < 0.05$).

Conclusions: The WHOQOL-BREF instrument showed poorer QOL in IBS patients. The QOL was not different significantly among IBS-M, IBS-C, and IBS-D subtypes. We found that WHOQOL-BREF instrument strongly correlate with QOLIBS instrument.

Key Words: Irritable bowel syndrome, irritable bowel syndrome subtypes, QOL for IBS questionnaire, quality of life, World Health Organization quality of life Assessment-BREF questionnaire

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INTRODUCTION

Irritable bowel syndrome (IBS) is one of the most common intestinal functional disorders[1] which

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prevalence ranges from 5% to 23% in the general population and reach up to 70% in patients referred to gastroenterology clinics.[2,3] In the United States, the prevalence of IBS is 15-20% and its incidence estimated 1-2% per year.[4,5] Worldwide prevalence of the disease is variable. Epidemiologic studies show an incidence of approximately 6% in a sample of Iranian population.[6,7] The economic burden of IBS has also been found to be considerable too.[8]

IBS is clinically a very heterogeneous syndrome. Although abdominal pain is mandatory for diagnosis, but bowel movement changes are often also present. Though diarrhea along with constipation may be part of IBS, each of them may be the main pattern that makes three separate subtypes of IBS: Diarrhea predominant (IBS-D), constipation predominant (IBS-C) and intermittent diarrhea and constipation (IBS-M).[9,10]

Numerous psychological factors influence people's lives. Gastrointestinal system is frequently affected by these psychological factors.[11] IBS may affect quality of life (QOL). Many previous studies have shown that QOL inpatients with IBS may be lower than the general population.[12] Some studies found QOL in the patients suffered from IBS is like patients with moderate to severe gastro esophageal reflux disease (GERD), end-stage kidney disease (ESRD), and inflammatory bowel disease (IBD) and liver disease.[13] But IBS subtypes may show different profiles of somatic and psychological symptoms[14] and may have different QOL.[15]

This study was designed to assess whether QOL is different in these subtypes and general population. The hypothesis was that these subtypes present with dissimilar QOL.

MATERIALS AND METHODS

This cross-sectional study was conducted in Kashan University of Medical Science Clinics in April 2010 until September 2013. This study continues previous authors' research about IBS in Kashan city and was part of a larger research project about the IBS. We evaluated consecutive patients aged between 18 and 45 years with Rome III-positive IBS (including IBS-C, IBS-D, and IBS-M) enrolled by investigators, and they completed the questionnaires. Patients who did not meet Rome III criteria at the time of survey were excluded from the study.

The study was approved by the Kashan University of medical science and its ethical committee (proposal No. 90100) and was directed in accordance with the guidelines for human subject experimentation research. The aims of the study were explained for patients and a written informed consent was obtained.

Data collection

Subject groups

Subjects (IBS group) were recruited from patients attending Beheshti Hospital outpatient clinics and non-IBS subjects selected from age and sex matched normal population accompanied other patients of these clinics. Patients with any sign or symptom of structural gastrointestinal diseases excluded from study. IBS and its subtypes were diagnosed according to Rome-III criteria. IBS subtyping was made based on the form of stool, which can be assisted by the Bristol Stool Form Scale.[16]

Instruments

IBS subjects who were diagnosed by gastroenterologist were invited to complete questionnaires containing the disease-specific QOL for IBS (IBSQOL),[17] World Health Organization QOL Assessment-BREF (WHOQOL-BREF)[18] The non-IBS subjects completed the WHOQOL-BREF only.

Diagnosis validation

The primary diagnosis initiating referral was established on routine clinical grounds, i.e. the presenting symptoms, clinical examination, and proper further investigation by a gastroenterologist. Rome criteria[19] were used to establish the diagnosis of IBS and alternative or concurrent gastroenterological diagnoses were confirmed by the results of further investigations.

Instruments

IBSQOL: Is a 34-item self-report questionnaire. This instrument is especially designed to assess QOL in IBS patients.[17] The Persian version of IBSQOL instrument is reliable and valid and may have high reproducibility (ICC, 0.93, $P < 0.001$) and internal consistency (Cronbach›s alpha, 0.94).[20] A five-point Likert response scale (0 to 4) was used to measure sufferers' feelings. All item scores were summed to calculate total scores. Higher scores showed better QOL.

World Health Organization Quality of Life Assessment-BREF

WHOQOL-BREF is a 26-item questionnaire derived from the longer WHOQOL-100, a multilingual, multicultural, generic QoL instrument.[21,22] We used the Persian version of it that has acceptable validity and reliability.[18] The measure has four domains (physical, psychological, social relations, environment) and two items relating to general health. The items are valued on a 5-point Likert scale. A higher score indicated better QOL.

Data analysis

Questionnaires that were incompetently filled were omitted from analysis. Non-parametric tests of significance were used throughout and included Kruskal-Wallis, Friedman, ANOVA and Mann-Whitney tests. Significance levels were set at 5% (all tests two-tailed). All data analyses were performed using SPSS-13.

RESULTS

In this study, 188 patients were studied in group of IBS and 215 in non-IBS subjects. The mean ages of IBS and non-IBS subjects were not different significantly. There was a female preponderance in the IBS group (56.9% vs. 43.0%) but this was not significantly different from the non-IBS group on multivariate analysis (*P* value: 0.12). These data and other information describing the marital status, education level and place of residence (urban and rural) are provided in Table 1. There were no significant differences between two groups of subjects and IBS subtypes in none of these categories. (*P* values > 0.05).

Table 1: The basic characteristics of irritable bowel syndrome and non-irritable bowel syndrome subjects

Characteristics	IBS subjects (*N*=188)			Non-IBS subjects (*N*=215)
	IBS-M (*N*=84)	IBS-C (*N*=62)	IBS-D (*N*=42)	
Age	27.42±8.88	26.45±9.42	28.53±9.72	28.22±8.05
Gender				
Female	46	35	26	114
Male	38	27	16	101
Marital status				
Married	61	50	31	178
Single	23	12	11	37
Education				
High	25	14	12	33
Low	59	48	30	182
Place of residence				
Urban	61	47	33	168
Rural	23	15	9	47

IBS: Irritable bowel syndrome, IBS-M: Intermittent diarrhea and constipation subtype of irritable bowel syndrome, IBS-C: Constipation predominant subtype of irritable bowel syndrome, IBS-D: Diarrhea predominant subtype of irritable bowel syndrome

IBS subjects placed in three distinct subtype based on the predominant symptom, IBS-D, IBS-C and IBS-M groups. Accordingly, the highest number of patients placed in the subtype of IBS with alternating diarrhea and constipation (44.6%) and then IBS-C and IBS-D subtypes of IBS were placed with 32.9% and 22.3%, respectively.

Comparison is on the QOL scores and duration of IBS between IBS subtypes and non-IBS subjects are demonstrated in Table 2.

The pair-wise comparison of QOL based on QOLBREF scores in IBS subtypes and non-IBS subjects is demonstrated in Table 3.

Spearman correlation coefficient between the scores of QOL in patients with IBS in the WHOQOL-BREF test and QOLIBS equal to r = 0.826 when considering the significance of the $P < 0.05$ there is a strong positive relationship between two tests.

DISCUSSION

This study was designed to assess whether QOL is different in IBS subtypes and general population and also we tried to compare two prevalent QOL instrument. Most IBS subjects in our study had alternating symptoms of constipation and diarrhea (IBS-M). QOL for all subtypes is significantly lower than non-IBS subjects but we did not find significant difference for QOL among IBS subtypes. We found that the WHOQOL-BREF questionnaire strongly correlates with QOLIBS too.

Clinically patients with IBS can be further divided into those who have either predominant constipation or diarrhea or an alternating bowel pattern. Some causes of the differences between these subtypes have been proposed,[23-27] but clinical significance of IBS subtypes by predominant bowel habits was not debated prudently in published data. Most IBS sufferers in this study had alternating symptoms of constipation and diarrhea (IBS-M). This finding is consistent with Hungin *et al*.[28] Some other literatures reported most IBS sufferers had other pattern of bowel habits (IBS-D

Table 2: Comparison the quality of life scores and duration of irritable bowel syndrome between irritable bowel syndrome subtypes and non-irritable bowel syndrome subjects

Index	Non-IBS	IBS-M	IBS-D	IBS-C	*P*	IBS-M	IBS-D	IBS-C	*P*	IBS-M	IBS-D	IBS-C	*P*
Mean	89.53	82.65	81.01	88.32	0.022	73.15	74.34	76.77		6.31	5.99	7.01	
SD	11.71	16.67	16.23	15.66		26.51	19.01	22.91		5.99	2.96	3.01	
Minimum	59	51	60	60		26	27	26	0.507	7.01	2	1	0.608
Maximum	119	122	118	128		134	127	130		12	14	12	
			P value: 0.41										

WHOQOL-Bref: World Health Organization quality of life Assessment-Bref, QOLIBS: Disease specific questionnaire for evaluating quality of life in irritable bowel syndrome, IBS: Irritable bowel syndrome, IBS-M: Intermittent diarrhea and constipation subtype of irritable bowel syndrome, IBS-C: Constipation predominant subtype of irritable bowel syndrome, IBS-D: Diarrhea predominant subtype of irritable bowel syndrome

Table 3: The pair-wise comparison of World Health Organization quality of life assessment-BREF (WHOQOL-BREF) scores in irritable bowel syndrome subtypes and non-irritable bowel syndrome subjects

Study group	Other groups	*P* value
Non-IBs subjects	IBS-M	0.017
	IBS-D	0.031
	IBS-C	0.662
IBS-D	Non-IBS subjects	0.031
	IBS-M	0.890
	IBS-C	0.052
IBS-C	Non-IBS subjects	0.624
	IBS-M	0.040
	IBS-D	0.059

WHOQOL-Bref: World Health Organization Quality of Life Assessment-Bref, IBS: Irritable bowel syndrome, IBS-M: Intermittent diarrhea and constipation subtype of irritable bowel syndrome, IBS-C: Constipation predominant subtype of irritable bowel syndrome, IBS-D: Diarrhea predominant subtype of irritable bowel syndrome

or IBS-C). For example, Smith *et al*. found that IBS-D is the most common symptoms followed by IBS-M.[29] This difference may be due to the bias of sampling of study or diagnostic criteria for IBS.

We did not find significant difference for QOL among IBS subtypes but QOL of all subtypes significantly is lower than non-IBS Subjects. Although IBS is not a life-threatening illness, patients with this disorder seem to be indeed affected in their ordinary functions.[30] So, it is necessary to appreciate the impression of IBS on patients' life and well-being. Several previous studies that used various forms of general and disease-specific questionnaires for the assessment of health-related QOL have been found people who suffer from IBS have poorer QOL.[12,13,31] Poor QOL in IBS persons may attribute to numerous widespread aspects such as factor that may predispose persons to IBS, somatic pain and discomfort, cultural characteristics, food avoidance, trouble in relationships and sexual problems, psychological comorbidities and other functional complaints of unclear origin, such as dysuria, low back pain, headache, sleeping disorders, depression, anxiety, and fatigue.[32-35] Health-related QOL consists of all features of patients disorders and can assess the health status in detail.

IBS is associated with significant morbidity, cost and poor QOL.[8] Therefore, increasingly researchers were focused on evaluating the IBS subjects. Nowadays, the treatment of IBS persons focuses on symptomatic treatment however the value of different medical and dietary managements has not been establish.[36,37] This inadequacy explain some aspects of low QOL in patients suffering from IBS. There is no specific biomarker for measuring patient status. Consequently concentration growing with respect to non-pathological marker in assessing the impact of a chronic disease such as IBS on sense of well-being and daily functioning, the concept referred to as health-related QOL.[38,39]

One of the most important barriers which prevent widespread use of QOL measures is length, cost and complexity of existing QOL tools. For these reasons, the assessment of HRQOL is mainly limited to research settings, nonetheless, Medical and regulatory Food and Drug Administration (FDA) recommend routine assessment of HRQOL of more severely affected patients.[40] In the present study, patients with IBS filled both WHOQOL-BREF and IBSQOL. WHOQOL-BREF is a strong measure of QOL that has been well validated in patient populations.[18] Similarly, IBSQOL is the robust IBS-specific QOL questionnaire to find variations in health-related QOL.[41]

In our study, we found that WHOQOL-BREF instrument strongly correlate with QOLIBS instrument. To our knowledge, no prior QOL studies on IBS have compared the WHOQOL-BREF and QOLIBS tools. Therefore, considering good and strong correlation among these two widespread used instruments, our study support the use of these two questionnaires to assess the QOL appropriately.

Strengths and limitations of the study

There are some limitations in this study. The most important one is that the study population is from a limited region of Iran so it is may not be the representative of the general population of the country and these data cannot be extrapolated to the all nation. Patients in our study were included from tertiary outpatient clinics of gastroenterology too, which they are more likely to have greater symptom severity and may not be absolutely similar to entire IBS persons.

Adequate number of patients, standardized instruments and accurate patient selection may be the strength points of this study.

CONCLUSION

In our study, the QOLIBS and WHOQOL-BREF instruments showed poorer QOL in IBS patients. QOL was not different significantly among IBS-M, IBS-C, and IBS-D subtypes. We found that WHOQOL-BREF instrument strongly correlates with QOLIBS instrument. These findings may help researchers and even clinicians for better evaluation of QOL in IBS. Many diverse variables could modify the QOL in IBS but these results should be interpreted carefully and would need more investigation in the future.

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