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Comparison of Quality of Life and Psychiatric Symptoms Between Patients With Diarrhea-Predominant Irritable Bowel Syndrome and Those With Constipation-Predominant Irritable Bowel Syndrome

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Irritable bowel syndrome (IBS) affects up to 9% of the general population, and its etiology is multifactorial. Patients with IBS often have accompanying somatic, mood, and anxiety symptoms,¹ leading to high economic, social, and personal burden and decreased work productivity. The Life with IBS online survey of 3254 individuals with IBS reported that those with constipation-predominant IBS (IBS-C) were more likely than those with diarrhea-predominant IBS (IBS-D) to report avoiding sex, difficulty concentrating, and feeling self-conscious. Individuals with IBS-D reported more avoidance of places without bathrooms, difficulty making plans, avoiding leaving the house, and reluctance to travel.² A prior study with 56 patients with IBS-D and 54 patients with IBS-C (both Rome III) revealed that patients with IBS-D had increased food avoidance and interference with activity based on the same IBS-specific quality-of-life (QOL) instruments used in our study.³

The aim of this study was to assess bowel dysfunction, affect, and QOL in a cohort of patients with IBS-D compared to those of patients with IBS-C evaluated at a medical center.

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Supplementary materials

Material associated with this article can be found in the online version at <https://doi.org/10.1016/j.gastha.2023.02.009>.

Conflicts of Interest:

The authors disclose no conflicts.

Ethical Statement:

The corresponding author, on behalf of all authors, jointly and severally, certifies that their institution has approved the protocol for any investigation involving humans or animals and that all experimentation was conducted in conformity with ethical and humane principles of research.

Reporting Guidelines:

Not applicable.

Data were obtained as part of an institutional review board–approved study (IRB #16–001445) of participants with ROME III positive criteria (standard at the time of study initiation) for IBS-D and IBS-C. Patients, who had been identified in the clinical practice, were included in a database of more than 1000 patients with IBS and were invited to participate in other mechanistic studies^{4,5} where they completed the following validated questionnaires: Bowel Disease Questionnaire, IBS-QOL, Hospital Anxiety and Depression Scale (HADS), and Symptom Checklist-90 (SCL-90). In the Bowel Disease Questionnaire, the focus was the frequency and consistency of bowel movements (BMs) and prevalence and severity of abdominal pain. In the IBS-QOL, a transformation formula⁶ was used to compute the total score obtained on 34 questions (scale 1–5) and subscores obtained on 8 subscales. A higher score indicates a worse QOL. In the HADS, participants answered 14 questions (each question scored 0–3); 7 questions were anxiety-related and 7 depression-related. In the SCL-90, the Global Severity Index represents the mean score of the 90 questions (each question scored 0–4, with a higher score indicating worse symptoms), and the positive symptoms total represents the number of questions where the score was >0. The mean score on each of the 9 dimensions was also calculated. More details about participant selection, recruitment, and questionnaire components are described elsewhere.^{4,5,7} We used two-sample t-test, Wilcoxon rank sum test, and Pearson chi-squared to compare the results between the 2 groups.

The study included 219 patients with IBS-D and 33 with IBS-C (Table). Participants' bowel functions are reported in Table A1, which also shows that patients with IBS-D had a higher prevalence of abdominal pain (86.5%) than those with IBS-C (68%).

Patients with IBS-D had higher anxiety, depression, and total anxiety-depression scores on the HADS than patients with IBS-C and higher scores on the somatization, obsessive compulsive, depression, anxiety, and psychoticism dimensions as measured by the SCL-90. Patients with IBS-D also had higher IBS-QOL total and subscale scores on 7 out of the 8 subscales (Table). In fact, 5 of 8 domains on IBS-QOL were also significant with Bonferroni correction. Notably, 54.7% of patients with IBS-D felt like they were losing control of their lives slightly, moderately, quite a bit, or a great deal because of their bowel symptoms, compared to 7.4% of patients with IBS-C. Similarly, 79.6% of patients with IBS-D felt like their life was less enjoyable slightly, moderately, quite a bit, or a great deal because of their BMs, in comparison to 44.4% of patients with IBS-C. While only 3.7% of patients with IBS-C felt that their life revolved around their BMs at least slightly, the corresponding impact was reported by 71.6% of patients with IBS-D (Figure A1). Patients with IBS-D felt it was more difficult to take long trips and more important to be near a toilet than patients with IBS-C.

In this study, we showed that patients with IBS-D have a worse general and IBS-specific QOL compared to patients with IBS-C, as was demonstrated by higher scores on the HADS, SCL-90, and IBS-QOL questionnaires. Therefore, patients with IBS-D seem to have more severe psychological and somatic symptoms including anxiety and depression. The bowel symptoms of patients with IBS-D were also more likely to interfere with their daily activities, social interactions, food tolerance, and personal relationships.

Previous studies have evaluated the impact of the predominant bowel symptom on QOL in IBS, but results have been inconclusive. A network meta-analysis with 7095 participants from 18 different studies did not identify any significant differences in the level of anxiety or depression among patients with different IBS subtypes although there was a minor numerical difference in the prevalence in IBS-C.⁸ However, a review of this analysis showed that 3 of 11 studies showed significant differences in depression between IBS-C and IBS-D, and there was a high level of heterogeneity ($I^2 > 70\%$) between studies; such findings question the overall conclusion that there is no difference in the prevalence of depression in the 2 conditions. In addition, among the 10 studies that assessed the difference in prevalence of anxiety in IBS-C and IBS-D, there was also a moderate level of heterogeneity ($I^2 > 60\%$).⁸ A study with 216 patients with IBS-D and 140 patients with IBS-C did not detect any score differences for psychological symptoms as measured by the SCL-90 and 36-Item Short Form Survey health status scale between the 2 groups.⁹ Similar to our findings, Singh et al also identified a significantly lower IBS-specific QOL in 56 patients with IBS-D compared to 54 patients with IBS-C and 121 patients with mixed IBS, with greater interference with activity, impact on relationships, and food avoidance noted in patients with IBS-D.³

While it is still unproven that certain bowel dysfunctions specifically impact QOL, it is reasonable to assume that the greater prevalence of severe or very severe abdominal pain, the increased frequency, urgency, or stool consistency in patients with IBS-D might significantly interfere with several daily activities, affect QOL, and trigger symptoms of anxiety and depression. This would be consistent with our prior observation that patients with bile acid diarrhea, who experience more frequent and more urgent BMs, had a lower QOL than IBS-D patients without bile acid diarrhea (same 219 patients included in this study).⁷

Despite the smaller sample size of the IBS-C cohort relative to IBS-D, 5 of 8 domains on IBS-QOL were significant with Bonferroni correction. Overall, the data suggest that screening patients with IBS for repercussions on mental health and QOL may guide management and, if necessary, prompt referral to the appropriate health care provider.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Data Transparency Statement:

All relevant data are included in the article and/or in the online Supplemental Materials. Only deidentified participant data are provided. Additional related documents will be

available, if deemed appropriate, by request to the senior author with investigator support, after approval of a proposal, with a signed data access agreement. Data will be available, consistent with data sharing NIH policy for studies supported by NIH (in this case, R01-DK115950).

Abbreviations used in this paper:

BMs	bowel movements
HADS	Hospital Anxiety and Depression Scale
IBS	irritable bowel syndrome
IBS-C	constipation-predominant IBS
IBS-D	diarrhea-predominant IBS
QOL	quality of life
SCL-90	Symptom Checklist-90

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Demographics, Anxiety, Depression, General Quality of Life, and IBS-Specific Quality of Life as Measured by the Hospital Anxiety and Depression Scale (HADS), the Symptom Checklist-90 (SCL-90), and the IBS-Quality of Life Questionnaire (IBS-QOL) in 219 Patients With IBS-D and 33 Patients With IBS-C

Table.

	IBS-D	IBS-C	P value
Demographics			
Age (y), mean (SD)	41 (14)	51 (12)	.0001
% Females	79	100	.004
BMI (kg/m ²), mean (SD)	30 (7)	28 (6)	.1878
White, n (%)	208 (94.98)	33 (100)	.188
Non-Hispanic, n (%)	231 (91.67)	32 (96.97)	.237
Hospital Anxiety and Depression Scale			
HADS total score, mean (SD)	8.5 (5.2)	3.4 (2.6)	<.0001
HADS anxiety score, mean (SD)	6 (3.6)	2.5 (1.9)	<.0001
HADS depression score, mean (SD)	2.5 (2.3)	0.97 (1.1)	.0006
Symptom Checklist-90			
Global Severity Index, mean (95% CI)	0.32 (0.27, 0.37)	0.134 (0.09, 0.18)	.0093
Positive symptom total, mean (95% CI)	17.9 (15.6, 20.2)	7.6 (4.7, 10.5)	.0009
Dimensions			
Somatization	0.45 (0.39, 0.51)	0.25 (0.16, 0.33)	.0201
Obsessive compulsive	0.43 (0.36, 0.50)	0.16 (0.06, 0.27)	.0118
Interpersonal sensitivity	0.33 (0.25, 0.40)	0.14 (0.07, 0.21)	.1168
Depression	0.43 (0.35, 0.50)	0.15 (0.06, 0.24)	.0166
Anxiety	0.25 (0.19, 0.30)	0.06 (0.13, 0.10)	.0169
Hostility	0.27 (0.22, 0.32)	0.16 (0.06, 0.26)	.1655
Phobic anxiety	0.16 (0.11, 0.21)	0.6 (0.00, 0.11)	.1628
Paranoid ideation	0.17 (0.11, 0.22)	0.11 (-0.00, 0.22)	.4873
Psychoticism	0.11 (0.08, 0.14)	0.13 (-0.00, 0.28)	.0228
IBS-Quality of Life			
Total score, mean (95% CI)	30.1 (27.6, 32.5)	9.1 (6.7, 11.5)	<.0001

	IBS-D	IBS-C	P value
Subscales, mean (95% CI)			
Dysphoria	28.1 (24.8, 31.5)	4.2 (1.9, 6.4)	<.0001
Interference with activity	37.2 (34.2, 40.2)	7.1 (4.3, 10.0)	<.0001
Body image	26.9 (24.2, 29.6)	18.3 (13.6, 23.0)	.0249
Food avoidance	52.7 (48.5, 56.9)	13.0 (8.0, 17.9)	<.0001
Social reaction	27.5 (24.5, 30.5)	8.1 (4.0, 12.2)	<.0001
Sexual	17.2 (14.1, 20.2)	8.3 (2.8, 13.8)	.0425
Relationship	20.1 (17.5, 22.8)	3.7 (1.4, 6.0)	<.0001
Health worry	22.9 (20.5, 25.3)	18.2 (12.9, 23.5)	.1777

Higher scores on HADS, SCL-90, and IBS-QOL indicate a worse anxiety/depression, psychological symptoms, and quality of life, respectively.

BMI, body mass index; CI, confidence interval; IBS-C, constipation-predominant irritable bowel syndrome; IBS-D, diarrhea-predominant irritable bowel syndrome; SD, standard deviation.