Development and Validation of the Irritable Bowel Syndrome Satisfaction With Care Scale

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BACKGROUND & AIMS: Satisfaction with care is an important measure of quality, from the patients' perspective, and could also affect outcomes. However, there is no standard measure of patient satisfaction for irritable bowel syndrome (IBS) care; a multi-item, condition-specific instrument is needed. **METHODS:** Using standard qualitative methods, we conducted focus groups to identify items that patients associated with satisfaction in their care for IBS. These and additional items identified by experts were placed into a preliminary questionnaire, which was refined through pilot testing and cognitive debriefing by additional patients, as well as standard statistical methods. The resulting instrument and several external validation measures were administered to 300 adult US patients with IBS. Factor analysis was performed to identify clinically relevant subscales and then psychometric properties were assessed. **RESULTS:** We developed an IBS satisfaction with care scale (IBS-SAT) that has 38 items from 5 clinically relevant subscales (connection with provider, education, benefits of visit, office attributes, and access to care). This IBS-SAT had a high level of internal consistency (Crohnbach's $\alpha = .96$). Convergent validity was established by correlations between the IBS-SAT and a single, global satisfaction with care question ($r = 0.68$; $P < .001$), and a generic, multi-item satisfaction scale (physician satisfaction questionnaire-18) ($r = 0.75$, $P < .001$). Discriminant validity (among known groups) was established across groups that were stratified based on IBS-quality of life ($r = 0.34$; $P < .0001$), IBS severity (functional bowel disorders severity index) ($r = -0.21$; $P < .001$), and number of unmet expectations ($r = -0.38$; $P < .0001$). **CONCLUSIONS: The IBS-SAT is a validated measure of patient satisfaction with IBS care. As a new, condition-specific instrument, it is likely to be a useful tool for quality measurement, health services research, and clinical trials.**

Keywords: Quality of Care; Bloating; Abdominal Pain; Treatment.

Irritable bowel syndrome (IBS) is a leading reason for both primary care and gastroenterologist office visits at an annual direct cost that exceeds one billion U.S. dollars.[1,2] Still, despite these exorbitant expenditures, the quality of care provided is likely variable and often suboptimal. However, this remains largely unknown, in part because metrics for assessing quality of IBS care are not readily available.[3]

One potentially relevant and valuable measure of the quality of IBS care is patient satisfaction,[4] which can be conceptualized as how, relative to a subjective standard, a patient cognitively and affectively evaluates his or her health care experience.[5] Although this may seem to be a relatively minor assessment measure, satisfaction is quite important because satisfied patients are better able to recall medical information and physician advice,[6] are more involved in their care, and more adherent to therapy.[7] Satisfied patients are also more likely to maintain a relationship with their provider and less likely to "doctor-shop."[8] These factors have sometimes been linked to improved health outcomes and lower health care costs.[7]

Thus, patient satisfaction is significant both as a measure of quality from the patient's perspective and, by extension, as a potential determinant of outcomes. One approach to measuring satisfaction is to use global assessment measures consisting of 1 or 2 simple questions.[7,9] We used this approach in a recent large survey and found that patients with IBS are often dissatisfied with the care they receive.[10] However, because satisfaction is a multidimensional construct, global measures may be nonspecific, insensitive, and, at times, unreliable.[9] Furthermore, single-item measures may be overly inflated,[6] possibly invalid,[11] and difficult to interpret in terms of their content. Notably, they do not allow the investigator to access the dimensions that contribute to the patient's overall satisfaction. Conversely, multi-item measures that are tailored to specific patient populations appear to be more sensitive, specific, and reliable and consequently yield more meaningful results.[12] Along these lines, multi-item, condition-specific satisfaction with treatment scales have been developed for a wide range of medical services, including diabetes care and physical rehabilitation. Considering the high prevalence, morbidity, and costs associated with IBS, as well as the rather specific needs of patients with this condition, a specific scale to measure IBS satisfaction with care is strongly necessary.

Accordingly, we used standard scale development methods to develop the IBS Satisfaction With Care Scale (IBS-SAT). In this article we report the results of a study to develop and assess

Abbreviations used in this paper: FBDSI, Functional Bowel Disorders Severity Index; IBS, irritable bowel syndrome; IBS-C, irritable bowel syndrome with constipation; IBS-M, mixed irritable bowel syndrome; IBS-QOL, Irritable Bowel Syndrome Quality of Life Scale; IBS-SAT, Irritable Bowel Syndrome Satisfaction With Care Scale; SDRS, Social Desirability Response Scale; UNC, University of North Carolina.

1542-3565/$36.00
doi:10.1016/j.cgh.2011.08.009

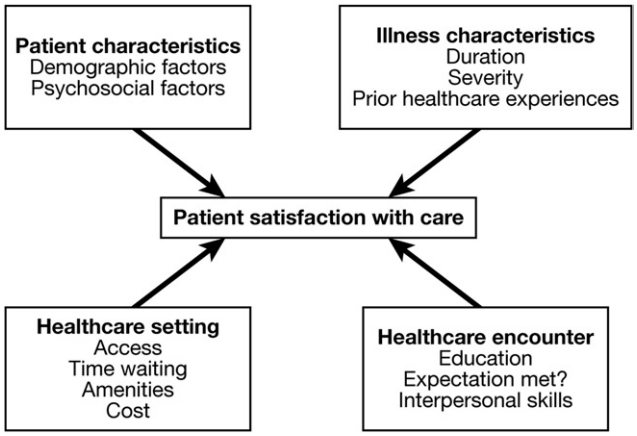

Figure 1. Conceptualization of satisfaction with IBS care as a multidimensional construct related to patient characteristics (demographic and psychosocial factors), illness characteristics (duration, severity, prior health care experiences), the health care setting (access, amenities, and cost), and the health care encounter.

the psychometric properties of the IBS-SAT, including conceptual and measurement model (subscale structure), reliability (internal consistency), and validity (content, convergent and discriminant construct validity, and known-groups validity).

Methods

Conceptual Framework

Based on prior work on patient satisfaction[11,13–16] and our experience providing IBS care, a priori we conceptualized satisfaction with IBS care as a multidimensional construct related to patient characteristics (demographic and psychosocial factors), illness characteristics (duration, severity, prior health care experiences), the health care setting (access, amenities, and cost), and the health care encounter (Figure 1).

Item Generation

Factors that are important for determining patient satisfaction were identified using a qualitative research approach.[4] First, through the University of North Carolina (UNC) general and functional gastroenterology clinics, as well as campus-wide e-mails and flyers, we recruited a total of 19 patients with physician-diagnosed IBS to participate in 1 of 3 focus groups. Subjects were screened to verify the diagnosis of IBS by Rome III criteria[17] and to obtain demographic information and clinical features, including IBS subtype and severity. When possible, subjects were allocated across the focus groups to allow for adequate distribution by IBS subtype, and severity.[18] Characteristics of the total group of subjects who participated are shown in Table 1.

The focus groups, which were conducted in June and July 2010, employed standardized methods previously used by the investigators to develop quality-of-life instruments. A facilitated discussion was conducted in a specific order guided by a standard, written protocol, which was used to guide a discussion focused on the specific aspects of care that are important to patient satisfaction. The following questions were used to prompt focus group discussions: "How satisfied are you with the health care that you are receiving for your IBS?" "What are the areas of dissatisfaction?" "What kinds of factors allow you to feel satisfied with your health care for IBS?" "Are there other factors that you would like to occur to make you feel satisfied with your IBS care?"

After each focus group the study investigators discussed the proceedings and reviewed notes to identify individual items and content groups (ie, domains). Likewise, 2 investigators who were not involved with the focus groups reviewed focus group transcripts and jointly identified their own set of items and content groups. Investigators from both groups then met and reconciled any discrepancies between their lists of individual items and content groups. Ultimately, 38 items were identified. These were grouped into 1 of the following content areas: health care system, health care provider (competence, interpersonal and communication skills, resources, and trivializing), and IBS (condition and outcome).

Next, 6 nonpatient experts (5 gastroenterologists and 1 patient advocate) on IBS care were interviewed to identify additional features that may affect patient satisfaction. This process generated 9 additional items. Finally, 6 items from a generic satisfaction instrument (Patient Satisfaction Questionnaire III[19]) that measure factors hypothesized to be important for satisfaction with care (Figure 1) were added.[4] In total, the preliminary scale included 53 items.

Scale Refinement

These 53 items were used to draft a preliminary satisfaction scale. Scale items were formed as evaluative questions

Table 1. Focus Group Participant Characteristics (n = 19)

Age, median (range), *y*	42.5 (25–87)
Source of recruitment	
GI Clinic	11
E-mail advertisement	5
Flyer	2
Friend	1
Gender	
Female	18
Male	1
Race	
Caucasian	16
African American	3
Employment	
Employed	12
Student	3
Retired	2
Unemployed	2
Time since diagnosis	7 mo–40 y
IBS subtype	
IBS-C	7
IBS-D	8
IBS-M/U	4
IBS severity (FBDSI)	
Mild	8
Moderate	6
Severe	5
Provider seen for IBS	
Academic gastroenterologist	12
Community gastroenterologist	4
Primary care physician	3

GI, gastrointestinal; IBS-D, irritable bowel syndrome with diarrhea; IBS-M/U, mixed/unspecified irritable bowel syndrome.

with a 5-category response format.[20] In order to minimize "response acquiescence" (ie, the tendency to agree irrespective of the content), both positively and negatively worded items were used.[21]

The preliminary satisfaction scale was pilot tested on 5 clinicians who reviewed the clarity of the wording and the completeness of the scale. Confusing items were reworded and the refined scale was then administered to an additional 16 patients in the UNC gastroenterology clinic. After these patients completed the scale they underwent cognitive debriefing interviews in order to assess the measure's clarity, content validity, and responder burden. Using these interviews and a review of responses, items that were unclear were further revised. No items had high missing response rate or extremely low variance. Thus, the second version of the scale still contained 53 items.

Scale Administration

Subjects who had previously completed the International Foundation for Functional Gastrointestinal Disorders (IFFGD)-UNC Patient Needs Survey[10] were recruited by e-mail to participate in the study. The e-mail included a hyperlink to a secure Web site where subjects provided informed consent and the following inclusion criteria were assessed: aged >18 years old; physician-diagnosed IBS; Rome III IBS criteria; and at least 1 health care visit for IBS during the prior year. Subjects who met inclusion criteria completed the preliminary IBS-SAT, a demographic and gastrointestinal symptom questionnaire, and several validating measures. The study was approved by the UNC Institutional Review Board.

Factor Analysis

Item reduction. Preliminary to the factor analysis we eliminated items that performed poorly, because their retention in the instrument would adversely affect the scale's ability to discriminate between different groups, and diminish chances of detecting important changes that result from treatment. Items were eliminated using the following criteria: (1) ceiling effect of an item in which >60% of participants responded "not at all" and thus could not improve on the item; (2) any items that correlated poorly with the total scale (ie, item-to-total correlation <0.25) and thus measured a different construct; and (3) pairs of redundant items (ie, an item-item correlation >0.75).

Identification of subscales. Next, exploratory factor analysis was performed to identify subscale structure. The number of factors suggested was based on eigenvalues, which reflect the amount of variance in all variables explained by a single factor. By convention we only included factors with eigenvalues greater than 1. Oblique or orthogonal (including varimax and parsimax) rotations were tested in order to identify the method that defined the clearest loading pattern. SAS version 9.1 (SAS Institute, Carey, NC) was used to perform the factor analysis.

Internal consistency reliability. Cronbach's alpha was used as a measure of internal consistency reliability. A high internal consistency suggests that the scale or subscales are measuring a single construct. Alpha values should exceed .7 and preferably .9.

Psychometric Validation

Psychometric validation measures. To achieve construct validation, several questionnaires were administered:

1. Brief Symptom Inventory (BSI)[22]: this 18-item questionnaire commonly used in research of patients with gastrointestinal disorders was used to quantify overall psychological distress.
2. Irritable Bowel Syndrome Quality of Life Scale (IBS-QOL)[23]: a 34-item item validated, condition specific measure of health-related quality of life for IBS.
3. Socially Desirability Response Scale (SDRS)[24]: a 5-item measure of response acquiescence bias, or the degree to which subjects tend to agree with a question irrespective of its content.
4. Patient Satisfaction Questionnaire (PSQ-18)[25]: the short-form version of a 50-item Patient Satisfaction Questionnaire III, a generic (ie, not condition-specific) measure of satisfaction with health care.
5. Expectations questionnaire: to assess the degree to which patients' expectations were met during the medical visit, 2 questions were asked: "Before you came to your last or most recent visit for IBS, did you expect to receive any of the following?" "Did you actually receive any of the following?" Responses included: explanation of symptoms, prognosis, physician test, physician prescription, and work excuse.
6. Communication Assessment Tool (CAT)[26]: a 15-item reliable and valid instrument that measures patients' perceptions of their providers' interpersonal and communication skills.
7. Single-item satisfaction with care question: each subject was asked, "Overall, how satisfied are you with the care you most recently received for your IBS?" This was scored as 1 = not at all, 2 = a little bit, 3 = a fair amount, 4 = great deal, and 5 = completely.

Psychometric validation process. The final step involved psychometric testing of the IBS-SAT following standardized procedures for construct validity.[27] Scores on the single-item satisfaction with care question as well as the patient satisfaction questionnaire (PSQ) were used to assess convergent validity. Strengths of association were tested by calculating correlation coefficients between the IBS-SAT and these measures at baseline.

Known groups validity was used to test the ability of the IBS-SAT to discriminate between groups varying on known characteristics independent of satisfaction with care. For each measure subjects were categorized based on the distribution of the scores on each measure into high, medium, and low tertiles, after which the average IBS-SAT for each group was compared. We also performed additional analyses leaving these variables in their original, continuous form. We predicted that poorer patient-provider communication (Communication Assessment Tool), a greater number of unmet expectations, worse quality of life (IBS-QOL), and more severe IBS (based on the Functional Bowel Disorders Severity Index; FBDSI[18]) would be associated with lower satisfaction scores.

Additional Analyses

Finally, correlation coefficients were calculated between the IBS-SAT and Social Desirability Response Scale (SDRS), demographic factors (age, gender, race, and level of education), psychological distress (Brief Symptom Inventory Global Severity Index), illness duration (years with symptoms, years since diagnosis).

Table 2. Testing Group Participant Characteristics (n = 300)

Age, *y*	46.0 ± 13.6
Female (%)	88
Caucasian (%)	92
Education, *y*	16.0 ± 2.5
Years with IBS symptoms	20.3 ± 14.0
Years since IBS diagnosis	13.0 ± 11.6
IBS severity (FBDSI) (%)	
Mild	32
Moderate	35
Severe	29
IBS subtype (%)	
IBS-C	6
IBS-D	31
IBS-M/U	51
Number of visits for IBS over past year	3.0 ± 4.4
Psychological distress (BSI global severity index)	57.0 ± 10.7
IBS-QOL	57.5 ± 22.6

BSI, Brief Symptom Inventory; IBS-D, irritable bowel syndrome with diarrhea; IBS-M/U, mixed/unspecified irritable bowel syndrome.

Results

Validation Study Population

Recruitment e-mails were sent to 4015 addresses, of which 364 e-mails failed (ie, bad addresses) and 1173 were opened. Of those, 494 (44.4%) subjects agreed to participate in the study. However, 134 subjects had not seen a physician for IBS within the past year and 59 subjects lived outside of the U.S. These subjects were excluded. The remaining 300 subjects who met inclusion and exclusion criteria completed the study. This sample size is consistent with recommendations to include at least 5 subjects for each item on the scale.[28] Characteristics of this population are shown in Table 2. The Rome Foundation IBS Module Questionnaire was used to ascertain Rome III IBS criteria and subtype (http://www.romecriteria.org/pdfs/IBSMode.pdf).

Factor Analysis Results

Prior to factor analysis, 11 of the initial 53 items met criteria for elimination: 3 correlated poorly with the total scale (ie, item-to-total correlation <0.25) and 8 items were considered redundant (item-item correlation >0.75).

The factor analysis was performed using a parsimax rotation, which provided a solution with clear loading patterns for the items. The higher the factor loading the higher the degree of association of that particular item with the factor grouping. A 5-factor solution best fit the data, based on eigenvalues ≥ 1, indicating the amount of total variance explained by each item. Cronbach's alphas were then calculated for each factor, and for the items within each factor, to examine each item's contribution to the factor and to ensure that all items within each factor measured the same construct. We then eliminated 5 items due to low correlation with other items in that factor (<0.4). The end result was a 37-item scale (Supplementary Appendix 1). The overall IBS-SAT had extremely high internal consistency reliability (Crohnbach's $\alpha = .96$).

Notably 5 factors were identified. They were reviewed by the investigators and by consensus were labeled based on their clinical features: (1) Connection, containing items that relate to interpersonal engagement and affective communication (Crohnbach's $\alpha = .95$); (2) Education, with items relating to the provision of medical information and advice (Crohnbach's $\alpha = .87$); (3) Benefits, containing items that include symptom relief, meeting of expectations, making a diagnosis, and offering hope (Crohnbach's $\alpha = .89$); (4) Office, with items relating to efficiency of the office environment (Crohnbach's $\alpha = .73$); and (5) Access, which relates to the ability when needed to engage health care extenders and consultants (Crohnbach's $\alpha = .65$) (Table 3).

Psychometric Validation

Convergent validity. Correlations between the IBS-SAT with the single satisfaction with care question ($r = 0.68$; $P < .001$) and the multi-item generic satisfaction scale (Patient Satisfaction Questionnaire; 18-item version) ($r = 0.75$, $P < .001$) were both highly significant and in the expected direction.

Known groups discriminant validity. There was a modest, statistically significant correlation between the IBS-SAT and the IBS-QOL (as a continuous variable) ($r = 0.34$; $P < .0001$). Furthermore, satisfaction with care also closely discriminated between groups based on IBS related quality of life: those in the lowest IBS-QOL tertile (<45) had a lower IBS-SAT (mean score ± SD was 3.23 ± 0.74) than those in the mid IBS-QOL tertile (45−70) (3.47 ± 0.67), who had a lower IBS-SAT than those in the highest IBS-QOL tertile (>70) (3.74 ± 0.59) ($P < .0001$) (Figure 2). These relationships held true across each individual IBS-SAT factor (results not shown).

IBS-SAT scores were inversely correlated with IBS severity (FBDSI) ($r = -0.21$; $P = .0003$). Those with mild IBS were most satisfied (mean score 3.26 ± 0.68), those with moderate IBS were intermediate (3.55 ± 0.67), and those with severe IBS were least satisfied (3.27 ± 0.71) ($P = .004$).

Also as predicted, there was a statistically significant, inverse correlation between the number of unmet expectations and patients satisfied ($r = -0.38$; $P < .0001$). As the number of unmet expectations increased, patient satisfaction with care decreased.

Additional Analyses

There was a weak and nonsignificant correlation between IBS-SAT responses and the SDRS ($r = -0.07$; $P = .23$). This indicates that subjects' responses were not affected by acquiescence bias. IBS-SAT scores were not significantly correlated with age, gender, race, duration of symptoms, years with symptoms, or years since diagnosis. There were modest, statistically significant correlations between IBS-SAT scores and level of education ($r = 0.16$), and psychological distress ($r = -0.20$).

Discussion

IBS is 1 of the most common and costly reasons for health care visits.[2] Nonetheless, the quality of IBS care is largely unknown because metrics for assessing it are not readily available.[3] Efforts to develop such measures have been hampered by controversies over best practices and the absence of objective and reliable biological markers of disease.

Over the past 2 decades, satisfaction with care has emerged as a patient-centered measure of the quality of care.[4] Nationwide, health care systems now routinely assess patient satisfaction using standardized, generic patient experience questionnaires (eg, Consumer Assessment of Healthcare Providers and

Table 3. Factor Analysis Results

Rotated factor pattern	Factor 1, connection	Factor 2, education	Factor 3, benefits	Factor 4, office	Factor 5, access
My provider is caring and compassionate	0.68757	0.37935	—	—	—
My provider is a good listener	0.67793	0.38497	—	0.33974	—
I feel comfortable asking my provider questions	0.66205	—	—	—	—
I connect emotionally with my provider	0.64525	0.38172	—	0.30188	—
My provider takes me seriously	0.61995	—	0.40758	—	—
My provider is committed to treating me over time	0.57187	0.39998	0.30932	—	0.33747
My provider says my symptoms are in my head	0.56653	—	0.37823	—	—
My provider lets me participate in my care	0.55985	0.46667	—	—	—
My provider seems competent	0.53975	—	—	0.36272	0.37302
My provider helps me feel that I can take care of my health	0.51486	0.39923	0.45525	—	—
My provider explains things clearly	0.51156	0.39012	0.32513	0.34918	—
My provider spends enough time with me	0.45862	0.40502	0.3567	0.35862	—
My provider is knowledgeable	0.43995	—	0.42299	—	0.37697
My provider gives advice on improving my lifestyle	—	0.76902	—	—	—
My provider discusses diet with me	—	0.72346	—	—	—
My provider addresses psychological as well as medical	—	0.64897	—	—	—
My provider gives me educational information	—	0.54062	—	—	0.42378
My provider gives me many treatment options	—	0.53462	0.3788	—	0.4201
My provider explains what IBS is	—	0.46876	—	—	0.39932
My provider explains what I should expect	0.37981	0.46284	0.39916	—	0.3007
As a result of my health care I have gotten symptom relief	—	—	0.76376	—	—
Because of my health care, I have developed a better sense of control	—	—	0.67884	—	—
My provider treats me by trial and error	—	—	0.53994	—	—
The expectations I have for care are met	0.35008	0.36634	0.52895	0.34207	—
My provider gives me a diagnosis for my symptoms	0.3262	—	0.51184	—	0.32743
My provider gives me hope	0.43423	0.4093	0.48434	—	—
I left my providers office with a full understanding of my treatment plan	0.35395	0.37894	0.46834	0.33822	0.30856
The medical office is efficient	—	—	—	0.76468	—
I spend a lot of time waiting in the office	—	—	—	0.72149	—
The clinic staff is professional	—	—	—	0.68783	0.31473
The office is esthetically pleasing	—	—	—	0.6307	—
I have to wait a long time for an appointment	—	—	0.42467	0.55189	—
I have access to specialists, such as gastroenterologists or surgeons	—	—	—	—	0.71202
My provider has access to experts	—	—	—	—	0.5455
I have access to health care extenders, such as physician assistants	—	—	—	—	0.46223
My provider communicates with my other providers about my condition	0.35669	—	—	—	0.45019
My provider performs many tests	—	—	—	—	0.61599
Variance explained by each factor	5.58	4.92	4.61	5.06	3.72

NOTE. Numerical values represent *r* or factor loadings, or the degree of association between a given question item and the factors within which it is listed. Shaded areas designate items that primarily load onto a given factor.

Systems [CAHPS] surveys).[29] Others assess satisfaction with care by asking 1 or 2 simple questions.[7,9,12] Unfortunately, for specific medical conditions neither approach yields accurate, reliable, and meaningful results.[12]

Accordingly, we used standard scale development methods to develop the IBS-SAT. The resulting 37-item scale has extremely high internal consistency reliability, and superb face, content, and construct (convergent and discriminant) validity. Furthermore, the final scale closely fits within the conceptual framework we outlined a priori (Figure 1).

Of the 5 IBS-SAT subscales, connection with provider explained the most variance. This is not surprising given that a strong patient-provider relationship is the cornerstone of care.[30] These relationships are highly dependent on the practitioner's interpersonal skills. Across various conditions provider interpersonal skills strongly influence patient satisfaction.[31] Our findings confirm that the same holds true for IBS; as in other conditions, patients with IBS tend to be more satisfied when their providers employ a patient-centered approach, pay attention to psychosocial factors,[15] express empathy, possess a good "bedside manner,"[16] and communicate clearly.[15]

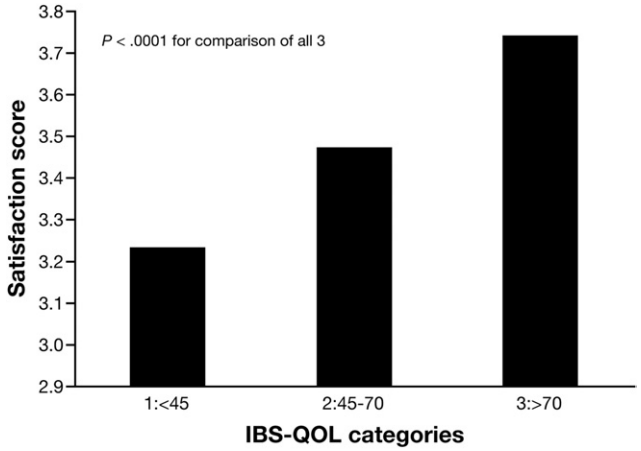

Figure 2. IBS-SAT scores stratified by IBS quality of life (IBS-QOL). Subjects who report better IBS related quality of life were more satisfied with their care.

Patient education was also closely linked with satisfaction. Patients with IBS often hold misconceptions about their illness and strongly desire explanations for their condition.[32] Thus, when ample health information such as a thorough explanation of health problems[33] and the likely cause and expected duration of symptoms[14] is provided, patients with IBS are more satisfied.

In addition, patients desire specific benefits from their visits. Perhaps counterintuitive to some, symptom relief is only 1 of the benefits patients desire. Particularly important is whether previsit expectations are met. When they are, patients may worry less and feel more satisfied.[34] In spite of this, physicians fail to recognize or address patient expectations up to 40% of the time.[35] Nearly 2 decades ago we suggested that health care providers ascertain and realistically respond to IBS patient expectations.[36] This suggestion remains especially relevant today.

The final 2 subscales relate to the efficiency of the office practice (office) and degree of access (access) to providers and tests. To our surprise, and counter to existing treatment guidelines,[30,37] which emphasize judicious use of testing, access to multiple tests was associated with greater satisfaction. Thus, perhaps 1 (of many) reason why IBS providers routinely order excessive and unnecessary tests[2] is to satisfy their patients. Importantly, IBS quality of care assessments may differ depending on whether provider efficiency and/or adherence measures or patient satisfaction measures are used.

Satisfaction scores also correlated with several patient and illness characteristics: more educated patients with less psychological distress, higher quality of life, and less severe IBS tend to be more satisfied. Although these relationships were modest, users of the IBS-SAT may wish to control for these factors to avoid biased results.

The IBS-SAT and other satisfaction with the care scales intend to measure how patients evaluate their health care experience. Accordingly, these scales mainly focus on processes. Conversely, satisfaction with treatment scales tend to focus more narrowly on how patients evaluate medications. Given these different purposes, the domains and items within the IBS-SAT differ considerably from those of extant gastrointestinal treatment satisfaction scales, such as the Chronic Constipation Treatment Satisfaction Questionnaire, whose domains include activities, expectations, value, effectiveness, and treatment satisfaction.[38]

There were a few limitations to this study. First, given the unique characteristics of the American health care system these results may not be generalizable to patients outside the U.S. Also, many of the focus group participants were recruited from a referral center. In theory, this may have resulted in a scale that does not meet the needs of a more general IBS patient population. We addressed this concern by including patients recruited by advertisement from the community and also then adding additional potentially relevant items suggested by experts. We then tested this resulting scale among a broad population recruited from a national database. And while those who participated in the Internet-based survey may somewhat differ from the overall IBS population (including an underrepresentation of male patients and no representation of subjects without Internet access) we still believe that the resultant scale captures the broad range of values from patients with IBS, including a larger proportion (one-third) of individuals with severe illness that represent a group that is often not satisfied with their care. Second, the study population included a relatively low proportion of patients with irritable bowel syndrome with constipation (IBS-C). Still, there is no reason to suspect that IBS subtype affects patient satisfaction and in this study IBS-SAT scores did not differ across IBS subtypes. Additionally, IBS-C and mixed irritable bowel syndrome (IBS-M) are clinically similar.[39] Along these lines, it should also be noted that the FBDSI is an illness severity measure that is more strongly affected by pain rather than bowel symptoms. Third, as these data were assessed at 1 point in time, we were not able to assess test-retest reliability, sensitivity to change in care, longitudinal construct validity, nor responsiveness. Fourth, the IBS-SAT's psychometric properties were assessed solely using Web-based administration. The scale may perform differently when administered using pencil and paper.

In summary, we used standardized scale development methods to develop the IBS-SAT, a reliable and valid IBS-specific measure of satisfaction with care. The scale may be used for health care quality measurement, health services research, and as an outcome measure in clinical intervention trials. It can also serve as a means to help clinicians understand factors that will enhance patient satisfaction.

Supplementary Material

Note: To access the supplementary material accompanying this article, visit the online version of *Clinical Gastroenterology and Hepatology* at www.cghjournal.org and doi:10.1016/j.cgh.2011.08.009.

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Acknowledgments

The authors appreciate the advice and input provided by Drs Albena Halpert, Kevin Olden, and Brennan Spiegel in creating the initial scale, and the numerous UNC GI fellows and attendings who provided feedback on preliminary versions of the scale.

Conflicts of interest

The authors disclose no conflicts.

Funding

This work was supported by R24DK067674. Spencer Dorn is supported by K12HS019468.

Supplementary Appendix 1. Irritable Bowel Syndrome Satisfaction Survey (IBS-SAT-37)

A. **Overall, how satisfied are you with the care you are currently receiving for your IBS**? *(Please choose 1 answer)*

□ Not at all □ A Little bit □ A Fair Amount □ A Great Deal □ Completely

B. *Please read each statement carefully, keeping in mind the care you are receiving **for your IBS now or most recently**. How strongly do you AGREE or DISAGREE with each statement below? Please circle just ONE number on each line as your best answer to each statement.*	**Strongly disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
1. My provider takes me seriously	①	②	③	④	⑤
2. My provider says my symptoms are in my head	①	②	③	④	⑤
3. My provider explains what IBS is	①	②	③	④	⑤
4. My provider performs many tests	①	②	③	④	⑤
5. My provider gives lifestyle advice	①	②	③	④	⑤
6. My provider gives me many treatment options	①	②	③	④	⑤
7. My provider lets me participate in my care	①	②	③	④	⑤
8. My provider treats me by trial and error	①	②	③	④	⑤
9. My provider is knowledgeable	①	②	③	④	⑤
10. My provider gives me a diagnosis for my symptoms	①	②	③	④	⑤
11. My provider discusses diet with me	①	②	③	④	⑤
12. My provider is caring and compassionate	①	②	③	④	⑤
13. My provider is a good listener	①	②	③	④	⑤
14. My provider spends enough time with me	①	②	③	④	⑤
15. My provider explains what I should expect	①	②	③	④	⑤
16. My provider gives me hope	①	②	③	④	⑤
17. My provider communicates with my other providers about my condition	①	②	③	④	⑤
18. My provider has access to experts	①	②	③	④	⑤
19. I have access to health care extenders, such as physician assistants or nurse practitioners	①	②	③	④	⑤
20. I have access to specialists, such as gastroenterologists or surgeons	①	②	③	④	⑤
21. My provider gives me educational information	①	②	③	④	⑤
22. Because of my health care, I have developed a better sense of control	①	②	③	④	⑤
23. As a result of my health care I have gotten symptom relief	①	②	③	④	⑤
24. My provider addresses psychological as well as medical issues	①	②	③	④	⑤
25. My provider is committed to treating me over time	①	②	③	④	⑤

Supplementary Appendix 1. Continued

26. My provider explains things clearly	①	②	③	④	⑤
27. The clinic staff is professional	①	②	③	④	⑤
28. The expectations I have for care are met	①	②	③	④	⑤
29. The medical office is efficient	①	②	③	④	⑤
30. My provider seems competent	①	②	③	④	⑤
31. I left my provider's office with a full understanding of my treatment plan	①	②	③	④	⑤
32. I have to wait a long time for an appointment	①	②	③	④	⑤
33. I spend a lot of time waiting in the office	①	②	③	④	⑤
34. I feel comfortable asking my provider questions	①	②	③	④	⑤
35. My provider helps me feel that I can take care of my health	①	②	③	④	⑤
36. I connect emotionally with my provider	①	②	③	④	⑤
37. The office is aesthetically pleasing	①	②	③	④	⑤