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Research Article

Proactive Screening for Psychosocial Risk Factors in Moderate to Severe Patients with Irritable Bowel Syndrome: The Predictive Validity of the Rome III Psychosocial Alarm Questionnaire

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Abstract *Introduction.* Because psychosocial factors are strongly related to IBS symptom severity, there is a need to identify high risk patients before their condition worsens. This study assessed the ability of seven "psychosocial alarm variables" to predict IBS symptom severity. *Methods.* Eighty two Rome-diagnosed IBS patients (Mean age = 46 yrs, Female = 84%) completed a psychological testing battery that assessed Rome alarm variables: anxiety, suicide ideation, depression, abuse, impaired coping, functional impairment, and pain severity. *Results.* Pain and functional impairment were highly correlated with IBS symptom severity (IBS symptom severity scale, IBS-SSS); coping and depression were moderately correlated with the IBS-SSS. Regression analyses indicated that psychosocial alarm variables accounted for 46% of the variance in the IBS-SSS. The alarm variable that independently predicted symptom severity was pain severity. *Discussion.* Data lend empirical validation to the Rome Foundation alarm variables, which appear most useful in flagging patients whose IBS profile is dominated by pain intensity.

Keywords prevention; step care; pain; functional gastrointestinal disorders; assessment

1 Introduction

Irritable bowel syndrome (IBS) is a common, oftentimes disabling gastrointestinal (GI) disease characterized by abdominal pain associated with altered bowel habits (diarrhea, constipation, or both in an alternating pattern). These symptoms fall along a severity continuum ranging from mild and intermittent to severe and continuous [19]. Individuals with more mild IBS report infrequent symptoms that are associated with clearly recognized triggers (e.g. hormonal fluctuations during menstrual period, eating, discrete negative life events) closely linked to changes in gut physiology [5]. More severely affected patients report more intense, bothersome, and frequent symptoms; worse quality of life; poorer response to medical and dietary therapies; and serial treatment seeking [4]. While dysregulation at any level of the neuroenteric axis may result in hallmark features of IBS [13], there is suggestive evidence that central factors (maladaptive coping, physiological and emotional reactivity, patient beliefs, negative emotions, and conditioning) play a particularly important role in the shaping the trajectory of symptoms among more severe patients [17,21].

Because psychosocial factors are inextricably tied to the expression of IBS symptoms and health outcomes in treatment seeking individuals [4], recently published guidelines recommend that "physicians include a brief psychosocial assessment of each patient with FGID [functional GI disorders]… [to achieve]… success in treating patients with FGIDs" [20, p. 1450]. An accurate and reliable valid screening tool that identifies patient behaviors associated with more severe IBS has the potential to inform clinical decision making which in turn can "help prevent the subsequent development" of IBS and other functional GI disorders [13]. A patient with severe GI symptoms who screens positive for psychological dysfunction, for example, may require a more comprehensive treatment program than a patient with similar GI profile but no coexisting dysfunction. If communication of screening results is conducted early on and coordinated with effective follow-up and treatment, there is a realistic potential to reduce the illness burden arising from unresolved symptoms, quality of life impairment, heavy health care use, unnecessary and costly tests, and dissatisfaction among both clinicians and patients.

The initial steps of developing a screening instrument involve specifying a pool of clinically relevant screening items and then determining their utility in predicting

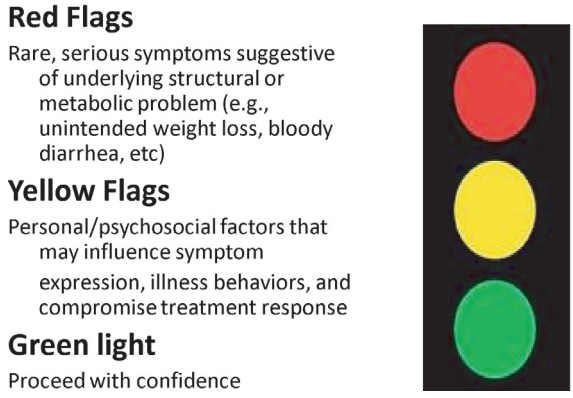

Figure 1: The clinical flags concept.

IBS severity. To this end, the Rome Foundation [22] identified seven "psychosocial alarm variables" that are empirically associated with patients at risk for poor outcomes. These variables include: clinical levels of anxiety and/or depression, suicidal thoughts or wishes, severe pain, symptom-induced interference with normal activities, maladaptive coping, and positive trauma history. Building on the concept of GI "red flags" (e.g. rapid, unintentional weight loss) suggestive of an underlying structural or metabolic problem that warrants medical attention psychosocial alarm factors are conceived as "yellow flags." Yellow flags are psychosocial factors that have prognostic significance for IBS patients. These factors may influence the perception of symptoms, their behavioral manifestation (e.g., health care seeking, reassurance seeking), and the trajectory of illness (see Figure 1). In this respect, even though they are medically benign, yellow flags warrant attention as well.

This study sought to take a second step by assessing the utility of these variables to predict overall IBS symptom severity in a sample of Rome III-diagnosed IBS patients recruited to an academic medical center as part of an NIH funded clinical trial testing the therapeutic value of two behavioral treatments for IBS. We reasoned that support for the predictive validity of Rome alarm variables would require evidence that they account for a significant amount of variance in the severity of IBS symptoms above and beyond that explained by control variables.

2 Methods

2.1 Subjects

Subjects included ($N = 82$) IBS patients recruited predominantly through referrals from local physicians, community advertising, and local media. Inclusion criteria required participants to present with GI symptoms that met the Rome II diagnostic criteria for IBS [7] as diagnosed by an aboard certified gastroenterologist. As this study was part of a larger clinical trial for patients more severely affected by IBS, participants must also have reported having IBS symptoms of at least moderate intensity, meaning that symptoms must occur at least twice per week for six months and caused interference in daily functioning. Exclusion criteria for randomization were presence of a comorbid organic gastrointestinal disease (e.g., IBD) or mental retardation, concomitant or lifetime participation in psychotherapy featuring cognitive-behavioral techniques, current or past diagnosis of schizophrenia or other psychotic disorders, current diagnosis of unipolar depression with suicidal ideation, and current diagnosis of psychoactive substance abuse. Institutional review board approval and written, signed consent from each participant was acquired prior to the study's commencement and data collection. This study was compliant with the Declaration of Helsinki.

2.2 Procedures

After a brief telephone interview to determine whether subjects were likely to meet basic inclusion criteria (e.g. moderate symptom severity, absence of comorbid gastrointestinal disease), subjects were scheduled for a medical examination with a board-certified gastroenterologist to confirm IBS diagnosis and psychological testing. The testing battery was designed to capture the clinically relevant concepts that formed the basis of the Rome III Psychosocial Alarm Questionnaire [2]. Table 1 shows the screening concepts of the Rome Alarm Questionnaire and the corresponding items used in the present study.

2.3 Instruments

2.3.1 Dependent variable

IBS symptom severity. The IBS symptom severity scale [11, IBS-SSS] is a multidimensional patient-based rating scale of four domains (pain, distention, bowel dysfunction, and general well-being) deemed important to gauging overall IBS symptom severity. All four domains contribute equally to the total score, yielding a range of 0 to 500 to categorize patients into three severity groups: mild (below 175), moderate (175–300), and severe (above 300).

2.3.2 Psychosocial alarm variables

Anxiety. Anxiety was measured by the tension item (Question 3) of the State subscale of the state-trait anxiety inventory (STAI) [25]. Each STAI-State item assesses the temporary condition of situational anxiety. Items are rated between 1 = not at all or almost never to 4 = very much so or almost always with a higher score indicating elevated levels of anxiety at present.

Depression. Depression was measured using the "downhearted and blue" item (Question 9f) of the SF-36 Health Survey [28]. Participants rate responses on a 6-point scale (1 = all of the time to 6 = none of the time over the past four weeks). Low scores signify higher levels of depression.

Table 1: Variables and measures utilized.

Variable name	ROME III psychological alarm question	Source and item
Anxiety	In the last week, have you felt tense or "wound up?"	I am tense. (STAI, Q3)
Depression	In the last week have you felt downhearted and low?	How much of the time during the past 4 weeks have you felt downhearted and blue? (SF-36, Q9f)
Suicidal ideation	Have you recently felt so low that you felt like hurting or killing yourself?	In the past 7 days, how much were you distressed by thoughts of ending your life? (BSI, Q9)
Pain severity	During the last four weeks how much bodily pain have you had?	How much bodily pain have you had during the past four weeks? (SF-36, Q7)
Functional impairment	During the last four weeks how much did pain (or other symptoms) interfere with your normal activities (including work both outside the home and housework)?	During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and house work)? (SF-36, Q8)
Impaired coping	When I have pain (or other symptoms), I say to myself "it is terrible and I feel it will never get better."	When I feel pain, it is terrible and I feel it is never going to get any better. (CSQ, Q5)
Abuse/trauma history	It is quite common for people to have been emotionally, physically, or sexually victimized at some time in their life and this can affect how people manage with their medical condition. Has this every happened to you?	**#3**: Have you been a victim of a violent crime such as rape, robbery or assault? **#4**: As a child, were you a victim of either physical or sexual abuse? **#5**: As an adult, have you had any unwanted sexual experiences that involved the threat or use of force? **#6**: As an adult, have you ever been in a relationship in which you were abused either physically or otherwise? (TEQ, Q3-Q6)

Pain severity. Pain severity was measured using a single pain intensity item (Question 7) of the SF-36 Health Survey [28]. Patients describe the intensity of pain using a 6-point rating scale (1 = none to 6 = very severe over the past four weeks).

Functional impairment. The extent to which pain interferes with daily activities over the past month was measured using a single item (Question 8) from the SF-36 Health Survey [28]. Patients describe the interference of pain using a 5-point scale (1 = not at all to 5 = extremely over the past four weeks).

Suicidal ideation. Suicidal thoughts and ideas were measured using one item (Question 9) assessing distress pertaining to thoughts of death or dying from the Brief Symptom Inventory (BSI) [3]. Distress regarding suicidal thoughts is rated on a 5-point scale (0 = not at all to 4 = extremely during the past seven days).

Impaired coping. Impaired coping was measured using a single item (Questions 5: "When I feel pain, it is terrible and I feel it is never going to get any better") from the catastrophizing scale of the Coping Strategies Questionnaire (CSQ) [23]. Pain catastrophizing is the tendency to focus on and exaggerate pain experience either in direct response to pain or in anticipation of painful stimuli. Patients rate responses to the CSQ on a 7-point scale (0 = never do that to 6 = always do) Question 5 has been identified as the single item of the CSQ that best characterizes the concept of catastrophizing [12].

Trauma History. History of lifetime trauma was assessed using four items (Questions 3-6) from the Traumatic Events Questionnaire [27]. Items inquire about whether respondents have been a victim of a violent crime, experienced physical or sexual abuse as a child, and/or been exposed to unwanted physical or sexual abuse that involved the threat or use of force as an adult. Subjects who answered "Yes" to at least one of the four items were regarded as having a positive abuse history.

2.4 Statistical methods

After conducting descriptive analyses that provide an overview of participants, we analyzed the relationship between all (i.e., demographic and psychosocial alarm) variables and the IBS-SSS score using Pearson product moment (zero-order) correlations. We then conducted regression analyses to determine which variables, or group of variables, would significantly account for the variance in the IBS-SSS.

3 Results

Demographics. The demographic features of the participant sample are presented in Table 2. The sample was predominantly white, female, and college educated. The mean total score of the IBS-SSS score was 292.7 (SD = 79.7), which falls just below the cutoff (300) of severe. Patient's predominant bowel habit was determined after medical examination by using Rome II guidelines [6] and clinical impression; 52% were classified as diarrhea predominant, 20% constipation-predominant, and 23% alternating/mixed.

Correlation analyses. We analyzed the correlations between all (i.e., demographic and psychosocial alarm) variables and the IBS-SSS score. Pearson product-moment correlations were used for continuous variables and Spearman rho correlations for categorical variables. For demographic variables, age ($r = .23$; $p < .05$) and years of

Table 2: Demographic and clinical characteristics of the sample ($N = 82$)*.

Variable	N (%)
Gender (female)	72 (87.8%)
Age	46.9 (16.8)*
Ethnicity	
African-American	2 (2.4%)
Asian-American	1 (1.2%)
Hispanic	1 (1.2%)
White	78 (95.1%)
Some college or above	72 (87.8%)
Marital status	
Single, never married	20 (24.4%)
Married	38 (46.3%)
Divorced/separated	18 (22.0%)
Widowed	2 (2.4%)
Living with partner	4 (4.9%)
Employed	56 (68.3%)
Duration of IBS symptoms (months)	195.1 (181.4)*
Predominant bowel type	
IBS-diarrhea	43 (52.4%)
IBS-constipation	20 (24.4%)
IBS-mixed	19 (23.2%)
IBS Symptom Severity Scale (IBS-SSS)	292.7 (79.7)*

*Mean and standard deviation.

education ($r = .24$; $p < .05$) were the only variables that were significantly related to the IBS-SSS. Older and more educated patients reported more severe IBS symptoms.

For psychosocial alarm variables, analyses revealed that pain severity ($r = .64$; $p < .001$) and functional impairment ($r = .56$; $p < .001$) were highly correlated with IBS symptom severity; items of impaired coping ($r = .28$; $p < .05$) and depression ($r = -.29$; $p < .05$) were moderately correlated with IBS symptom severity. All variables were positively correlated with IBS Symptom Severity, such that higher pain severity, greater functional impairment, greater impaired coping, and higher levels of depression corresponded with higher symptom severity. Scores on the IBS-SSS were inversely correlated with levels of depression but the inverse nature of this correlation is because low scores of the SF-36 mean higher levels of distress. None of the other psychosocial alarm variables were significantly correlated with the IBS-SSS (Table 3).

Regression analyses. We performed a hierarchical linear regression to determine which variables, or group of variables would significantly account for the variance in the IBS-SSS. We included the demographic variables in Step 1 and the psychosocial alarm variables in Step 2. In order to limit the number of variables in the model, we included only those demographic variables which were significantly correlated with the IBS-SSS (i.e., age and years of education). The results indicated that the psychosocial alarm variables accounted for 42% of the variance in IBS symptom severity ($p < .001$) above and beyond the 8% accounted for by demographic variables (Step 1). The only alarm variable that independently predicted symptom severity in the final model was pain intensity over the past 4 weeks ($\beta = 0.55$; $p < .001$). These data are presented in Table 4.

4 Discussion

This study sought to assess the ability of an expertly derived checklist of psychosocial variables to predict symptom severity of GI symptoms in a sample of more severely affected IBS patients. Together, the seven psychosocial alarm variables (anxiety, depression, suicidality, pain severity, functional impairment, maladaptive coping, trauma) accounted for a relatively large amount (42%) of variance in IBS symptom severity. The proportion of variance alarm variables explained dwarfed the amount of variance (8%) accounted for by demographic variables.

Of the seven alarm variables, the variable that independently predicted IBS symptom severity was average intensity of abdominal pain over the 4 weeks before baseline assessment. Individuals who reported more severe pain were more likely to report more severe IBS symptoms in general. This finding highlights the importance of abdominal pain as a core symptom of IBS that cuts across individual differences in bowel type (e.g., alternating, diarrhea-, constipation-predominant IBS). Beyond its diagnostic centrality, abdominal pain is a key IBS symptom because it appears a reasonable index of illness severity at least as measured by the IBS-SSS. These data echo the findings of other researchers [26] who have found that the frequency and or severity of abdominal pain is linked to behavioral indices of illness severity (e.g. treatment seeking behavior) in IBS patients.

That said, it is unclear whether the statistical association between abdominal pain and symptom severity is simply a clinical phenomenon. It is possible that the findings also speak to the limitations of the existing set of alarm variables and the recommended IBS symptom severity measure. Three of the five items that yield total severity score on the IBS-SSS focus on abdominal pain or discomfort (i.e. bloating). The total score includes one bowel item that assesses bowel satisfaction, a complex psychological construct that does not necessarily correspond with defecatory events. The IBS-SSS includes no measure of stool frequency and its stool consistency item is not computed into the total IBS-SSS score. Similarly, seven items of the Psychosocial Alarm Questionnaire include 3 items that either explicitly assesses pain or its negative consequences (catastrophizing, life interference).

The adoption of items from the pain literature is reasonable because pain assessment is a more mature, well researched, and a psychometrically validated enterprise

Table 3: Correlations between IBS severity and psychosocial alarm variables.

	Anxiety	Depression	Suicidal ideation	Pain severity	Functional impairment	Impaired coping	Trauma history
IBS-SSS	.17	$-.29^{*}$	.20	$.64^{**}$	$.56^{**}$	$.28^{*}$	.13

$^{*}p < .05$; $^{**}p < .001$. Low scores on the SF-36 depression scale signify higher levels of depression.

Table 4: Results of regression analyses predicting IBS symptom severity.

	Estimate	SE	β	R^2	$\triangle R^2$
Step 1				.080	$.080^{*}$
Age	−0.89	0.55	−.19		
Education	−8.10	4.77	−.19		
Step 2				.503	$.423^{**}$
Age	−0.78	0.46	−0.16		
Education	−5.25	3.83	−0.13		
Anxiety	4.43	8.42	0.05		
Depression	0.49	7.16	0.01		
Suicide ideation	13.76	22.44	0.06		
Pain severity	43.75	10.80	0.55^{**}		
Functional impairment	7.83	12.89	0.09		
Impaired coping	3.00	4.72	0.07		
Trauma history	−3.32	7.92	−0.04		

$^{*}p < .05$; $^{**}p < .001$.

than assessment of IBS symptoms. Items drawn from pain assessment may be more clinically relevant for patients whose symptom profile is dominated by pain. In a recently published study by our group [16], we found that single- and multi-item measures of IBS symptom severity whose content and format are drawn heavily from pain assessment are sensitive to patient reports of pain intensity. A "pain centric" screening measure may understate the risk profile of patients whose IBS is dominated by defecatory problems and/or whose abdominal pain is less troublesome or frequent.

By the same token, it is unclear whether appropriating methods for gauging pain intensity (e.g. visual analog scale, numerical rating scales) are ideal for measuring the full range of IBS symptoms. One promising approach comes from Spiegel and colleagues [24] who developed a bank of IBS items that employ a combination of adjectival response options (e.g., 1 = Not at all, 2 = A little bit, 3 = Somewhat, 4 = Quite a bit, 5 = Very much) as well as common 11-point pain intensity item ("How would you rate your pain on average" with 0 = No pain and 10=Worst imaginable pain) for individual IBS symptom.

We find it noteworthy that non-pain variables (e.g., maladaptive coping, quality of life impairment, psychological distress) that have reliably characterized the psychological status of more severely affected IBS patients seen in tertiary care centers did not independently predict IBS symptom severity. This surprised us. After all, a variable such as positive trauma history which researchers have consistently has linked to more refractory symptoms, greater healthcare utilization, and unneeded medical procedures [8, 10] did not predict symptom severity. It Is possible that the brevity and efficiency of brief screening measures comes at the expense of a loss of clinical sensitivity.

It is also possible the psychosocial variables that characterize psychosocial profile of IBS patients differ from those that predict symptom severity or, for that matter, treatment outcome. In other words, psychological dysfunction may better characterize the subjective well being of individuals with IBS than the severity of their symptoms per se. If so, disease-specific variables may have greater predictive power than broader psychological processes such as general levels of psychological distress whose limited explanatory value has been noted by other researchers [26]. This suggests that a symptom specific variable like visceral anxiety [14] (fear of visceral sensations) may be more strongly predictive of symptom severity than broader (e.g. general anxiety) or more distal (e.g. early life trauma) psychological factors. Future research that assesses the incremental validity of symptom specific factors may enhance the predictive validity of the Rome checklist and its clinical utility in clinical GI settings

While the first version of the Alarm Questionnaire has imperfections it may promote research that strengthens its screening value for patients with different symptom complexions. It also has immediate clinical utility. The pattern of endorsement of Rome checklist may function as a useful "psychological thermometer" that indexes the strength of central factors contributing to IBS symptoms. In the relative absence of widely available therapies that target psychosocial influences [18], this information may be helpful in alerting gastroenterologists to patients at risk for unsatisfactory response to peripheral acting treatments (fiber supplements, laxatives, antidiarrheals, antispasmodics) that represent the first line treatments in the US. A review of the patients' responses to the Rome Questionnaire can also serve as a basis for discussing psychosocial topics that may bear on symptoms The goal of screening is not to arrive at a psychiatric diagnosis, conduct formal psychotherapy, or transform gastroenterologists into psychiatrists but to explicate key psychosocial factors underlying unresolved symptoms. Whether a gastroenterologist sidesteps these clinical realities does not suspend their influence on symptoms on a day to day basis between follow up visits. A brief, frank, supportive, and non stigmatizing discussion of "yellow flags" may go a long way in fostering an effective therapeutic alliance, enhancing compliance with prescribed regimens, and nipping in the bud the acquisition of illness behaviors.

Screening performed either at initial evaluation or at follow up when symptoms complaints persist despite evidence based care [1] may not impact clinical outcomes unless systems are in place to ensure the provision of appropriate treatment and follow-up. Administratively, this requires implementing well defined clinic procedures to assure the routine distribution, scoring and interpretation of screening measures to high risk patients. Of course, such administrative initiatives require "buy in" on the part of clinical gastroenterologists and their office staff. Additional barriers include physicians' lack of confidence in their abilities to broche psychologically sensitive topics, a belief that their disclosure will open a can of worms, skepticism about the nature and effectiveness of psychosocial treatments to which flagged patients may be triaged, time constraints, and a persistent (albeit unrealistic) fear that personal questions are necessarily offensive or embarrassing to patients. In the end, these factors need to be weighed against the positive benefit of screening on improving the efficiency and efficacy of care for IBS patients.

One interesting finding concerns the relationship between severity and age and gender. Older and more educated patients reported more severe IBS symptoms. Given that 80% of subjects had at least a college education, we are not confident that the age finding amounts to a clinically significant result. The positive association between age and IBS symptom severity is perhaps more substantive. For these subjects, GI symptoms occurred during middle adulthood—a time of struggle when they are forced to cope with problems such as reduced career opportunities or job loss, failure to achieve critical life goals; health problems, both one's own and also those of family and friends; problems with troubled adolescents; financial difficulties, or divorce, widowhood, and parental bereavement [15]. Any combination of these stressors may overwhelm coping skills necessary to control IBS symptoms unresolved through conventional medical or dietary treatments. This stress may be compounded by the widely held, but specious view that benign GI symptoms are a normal part of aging and do not require treatment. A sound screening measure may help identify patients who are suffering silently and prevent escalation of future problems and expenses.

Study data should be interpreted in light of a number of study limitations. Because our data are cross sectional and correlational, we do not intend to suggest that the findings demonstrate causal relationships between the variables of the Rome Alarm Questionnaire and IBS symptom severity. At best, our data can be construed as suggestive of a possible causal relationship that could be confirmed through longitudinal methodology. Furthermore, our data reflected a relatively small subset of treatment-seeking and therefore more severely affected individuals who were willing to enroll in a randomized controlled trial of two psychological treatments. Our sample did not include individuals with mild symptoms because their clinical management is more straightforward. Screening stands to be most productive in more severe patients whose symptoms are believed more strongly governed by psychological influence than those with mild IBS. Our findings may not necessarily generalize to primary care settings or community populations (i.e., nonconsulters) representative of the majority of individuals with symptoms compatible with IBS. Nor did our sample include a sufficiently large enough sample of males to assess gender effects. Our choice of measures was for the most part based on Rome Foundation recommendations. Whether the results of the pattern of data extend to other measures of IBS symptom severity (e.g., Functional Bowel Disorder Severity Index [9]) or other populations (e.g. less chronic or more heterogeneous patients) is subject to further study. Where possible, we attempted to use the verbatim screening items described by the Rome Foundation. In some cases, this was not possible and a surrogate item with comparable or better (e.g., catastrophizing) psychometric properties was substituted. Because this study was carried out in the context of a NIH clinical trial that places a premium on maximizing internal validity, we were unable to modify the content of items per Rome Foundation recommendations (e.g. broaden the focus of functional impairment items to include pain "or other symptoms") because doing so may have altered the established psychometric properties of the original measure. It is also possible that a tally of item cutoff scores defined by Rome may have yielded more robust statistical findings but we were reluctant to adopt this approach because of the limited empirical support for recommended cutoff values. Future research should be devoted toward validating the modified items of the Rome Questionnaire. Because the Alarm Questionnaire includes a set of single item measures, its reliability (i.e., magnitude of internal reliability coefficient) is likely less than multiple-item scales, particularly for complex constructs (e.g., depression, impairment). On the other hand, these measures are harder to administer and lengthier which defeats the purpose of screening. Because of the nature of the study, it bears a limitation of the Rome Screening Questionnaire in so far as its individual items, while derived from validated measures, have received limited psychometric validation for the construct they are designed to measure.

In summary, this study lends preliminary empirical validation to the Rome Psychological Alarm Questionnaire. Future research is needed to refine the content and format of alarm questions, their scoring algorithm, and gauge their utility in optimizing treatment outcomes.

Nomenclature

IBS	Irritable Bowel Syndrome.
IBS-SSS	Irritable Bowel syndrome Symptom Severity Scale.

FGID	Functional Gastrointestinal Disorders.
CSQ	Coping Strategies Questionnaire.
STAI	State-Trait Anxiety Inventory.
SF-36	Short Form 36 Healthy Survey.
BSI	Brief Symptom inventory.
TEQ	Traumatic Events Questionnaire.
IBSQOL	Irritable Bowel Syndrome Quality of Life.

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