

Research Article

Frequency of Somatic Symptom Disorder and its Association with Irritable Bowel Syndrome in Patients with Newly Diagnosed Generalized Anxiety Disorder: A Cross-Sectional Study

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Received: 29.06.26, Revised: 01.08.26, Accepted: 31.08.26

ABSTRACT

Background: There are several overlapping physical symptoms that are common amongst GAD (Generalized Anxiety Disorder) and functional gastrointestinal disorders (FGIDs). These symptoms often become more pronounced, worsening the quality of life. Some studies have described the coexistence of anxiety, Irritable Bowel Syndrome (IBS), and Somatic Symptom Disorder (SSD) with FGIDs. However, the prevalence and relationship of SSD to IBS in first-year adult GAD patients remains largely unexplored.

Objective: To assess the prevalence of Somatic Symptom Disorder and to examine the relationship of IBS among 18 to 40 years old GAD patients.

Methods: A cross-sectional study including 180 GAD patients (aged 18-40 years) was done. Participants were selected through non-probability consecutive sampling. The study participants were assessed in accordance with the DSM-5 criteria for the diagnosis of GAD. The 8-item Somatic Symptom Scale (SSS-8) was used to assess the burden of somatic symptoms, and the Rome IV criteria for IBS were used for its assessment. A structured questionnaire was used to collect the demographic and clinical data. Data were analyzed with SPSS version 26.0. Frequencies and percentages were used for the analysis of categorical variables. The association of SSD and IBS was assessed using the chi-square test. A p-value of less than 0.05 was interpreted as statistically significant.

Results: Of the 180 participants, 78 (43.3 %) participants had significant somatic symptom burden as classified as SSD. 56 (31.1%) participants also fulfilled the criteria for IBS as defined by the Rome IV criteria. Among those with IBS, the burden of somatic symptoms was higher at 64.3 %, whereas among those without IBS, the burden was 33.9 % Participants with IBS had a significant burden of somatic symptoms compared with those without IBS ($\chi^2 = 15.13$, $p < 0.001$). Somatic symptom burden was more observed among women than men, though this was not significant ($p = 0.074$).

Conclusion: Among adults aged 18 to 40 with newly diagnosed GAD, a high prevalence of somatic symptom burden and IBS were observed. There was a significant burden of somatic symptoms for GAD patients and the need to address psychological and gastrointestinal symptoms.

Keywords: Generalized Anxiety Disorder, Somatic Symptom Disorder, Irritable Bowel Syndrome, Somatic Symptoms, Rome IV, SSS-8, Cross-Sectional Study.

INTRODUCTION

Generalized Anxiety Disorder (GAD) is a psychiatric disorder. GAD patients show persistent worry and anxiety and suffer from insomnia, restlessness, fatigue, and muscle tension. Patients may suffer from somatic symptoms. The presence of somatic symptoms in GAD patients is of major importance, as they

may dominate the patients' presentation and increase the severity of the condition and the patients' general problems. GAD is associated with many psychiatric and somatization disorders. Thus, an extensive evaluation is essential, especially when a patient presents with many disturbing and unexplained somatic

symptoms. Often these patients do not have a diagnosis that explains their symptoms.

Anxiety disorder patients experience somatic (bodily) symptoms such as pain, fatigue, gastrointestinal issues, headaches, and dizziness. Anxiety can even manifest as cardiopulmonary symptoms or difficulty sleeping. The Somatic Symptom Scale-8 (SSS-8) is a brief self-report measure for bodies' symptom burden developed by Gierk et al. It includes 8 items: gastrointestinal problems, pain, headaches, cardiopulmonary symptoms, dizziness, fatigue, and sleep difficulties. The development and validation of the SSS-8 revealed that the scale can capture the burden of somatic symptoms and correlate with significant indicators of health and psychological distress (2).

Somatic Symptom Disorder (SSD) is one of the more important conditions in the somatic symptom and related disorders section of the DSM-5. The DSM-5 has departed from the previous somatoform classifications in that it no longer requires that symptoms in SSD be medically unexplained. SSD encompasses one or more bothersome somatic symptoms that are accompanied by a marked level of concern and preoccupation. This acknowledges that, as previously mentioned, considerable distress can occur in the presence of a known medical condition. Thus, SSD is better understood as the patient's overall cognitive, emotional, and behavioral response to symptoms, regardless of whether or not a medical explanation is available (3).

The epidemiology of SSD is dependent on the studied population and diagnostic method. A scoping review on empirical evidence shows that most studies used relaxed diagnostic methods, resulting in greater prevalence estimates. The review also showed that SSD is associated with significant impairment in functional ability, low quality of life, and significant psychiatric comorbidities of anxiety and depression. SSD may thus be an expression of a significant component of psychological distress and should be evaluated in patients with anxiety complaints (4).

The association of anxiety with somatization may manifest in increased focus on bodily sensations, interpretation of bodily symptoms, and health worry. Anxious distress may lead to the patient focusing on and emphasizing bodily symptoms, as well as chronic somatic symptoms, which may be anxiety provoking, thus reinforcing anxiety and focusing on somatic symptoms. Anxiety and somatic

symptoms thus amplify one another, creating a cycle of heightened somatic and anxiety symptoms. Thus, the assessment of somatic symptoms of anxiety in new cases of GAD may have added significance to the assessment of psychological symptoms (5).

Another condition of interest is Irritable Bowel Syndrome (IBS). IBS is classified as a gut-brain interaction disorder, and is most commonly expressed with abdominal pain that recurs and changes bowel habits. IBS can manifest with a predominance of diarrhea, constipation or a variable bowel pattern. The Rome IV criteria offer a standardized and symptom-based approach to the diagnosis of IBS, and define the presence of recurrent abdominal pain, and changes of defecation, frequency or consistency of stools. IBS is prevalent to a greater extent within the clinical and public health communities because bowel symptoms interfere with normal daily life and social activities. One large systematic review and meta-analysis that included over 400,000 participants, documented variation in IBS prevalence throughout different countries and different diagnostic methods. The pooled prevalence was shown to be lower with the application of the Rome IV criteria when compared to the Rome III criteria. The same study demonstrated a greater prevalence of IBS in females compared to males, and thus supports the need to examine varying demographic elements when studying IBS (6). The gastrointestinal tract and the central nervous system communicate through complex bidirectional pathways, establishing much cited associations between IBS and psychological disorders. Anxiety and depressive symptoms have been reported in IBS patients and the degree of psychological distress may impact both the perception of the severity of gastrointestinal symptoms and the patient's response to the symptoms. Anxiety and depression are more prevalent in IBS patients compared to patients without IBS, and the results of meta-analyses provide evidence to support the role of psychological assessments in individuals who present with unexplained gastrointestinal symptoms (7).

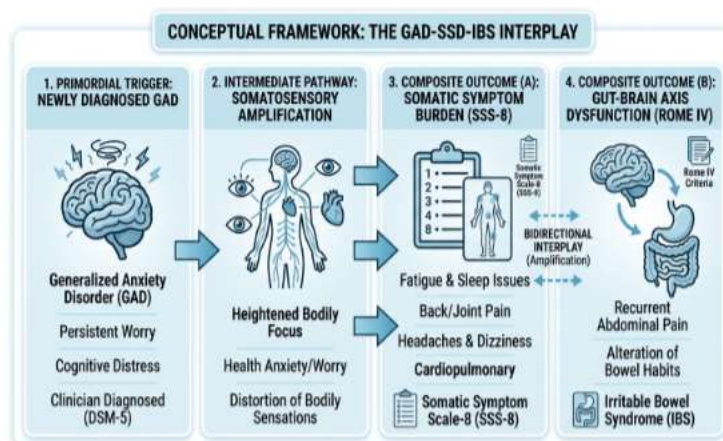
The bidirectional relationship between psychological and gastrointestinal symptoms is also apparent in patients with other co-existing disorders that influence gut-brain interaction. Fairlie et al. found that patients with co-existing disorders of gut-brain interaction showed a higher degree of anxiety and depression. In addition, study participants demonstrated a

significant decrease in physical quality of life. It is possible that the participants exhibited a greater degree of psychological and somatic symptoms as a broader pattern, as opposed to an isolated gastrointestinal complaint. These findings are most applicable when considering patients with psychiatric disorders with persistent abdominal and/or bowel symptoms (8).

For patients first presenting their psychiatric illness, the combined presence of GAD, somatic symptoms, and IBS may be especially relevant. Patients with newly diagnosed GAD may show multiple physical complaints that may further confuse the clinical picture and be interpreted as the outward signs of anxiety or as separate medical complaints. The presence of gastrointestinal symptoms leads to clinical differentiation of anxiety-related somatic complaints and IBS. Patients can be assessed

more thoroughly with standardized diagnostic criteria and validated symptom measurements that incorporate a structured clinical assessment to better identify comorbid conditions and provide a more complete clinical presentation (9).

There is accumulating evidence of the independent relationships of anxiety, somatic symptoms, and IBS; however, research addressing the relationships of somatic symptom burden and IBS and anxiety in patients with newly diagnosed GAD, particularly in young adult populations, is limited. The prevailing literature has addressed the anxiety of patients with IBS, somatic symptoms in general medical populations, or psychiatric comorbidity of somatic symptom disorder. Analysing these conditions in the context of initial diagnosis of GAD may fill a significant clinical gap.



Thus, the present study aims to describe the burden of SSD/somatic burden and identify the association with IBS among 18–40 year olds with recently diagnosed GAD. By studying these issues together, we aim to understand how functional gastrointestinal symptoms relate to an increase in somatic burden. Understanding the burden of these issues may help clinicians prioritize and extend the assessment of patients experiencing psychological and somatic symptoms in the context of gastrointestinal symptoms related to GAD.

METHODOLOGY

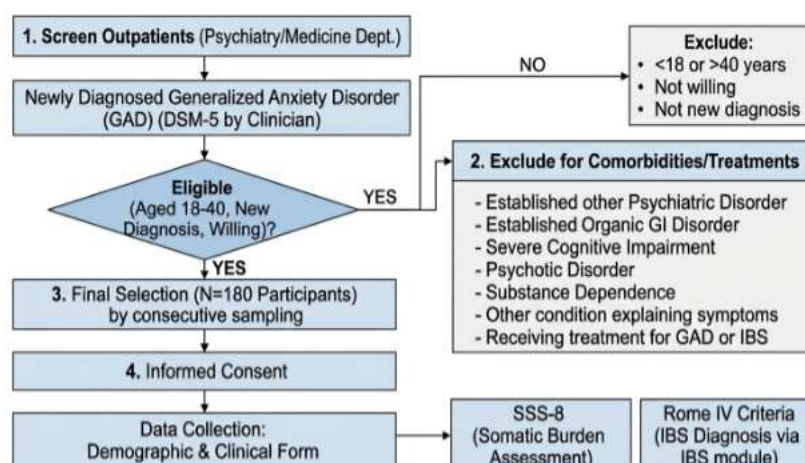
A hospital-based study was done to determine the prevalence of Somatic Symptom Disorder amongst patients diagnosed with Generalized Anxiety Disorder for the first time and its relation with Irritable Bowel Syndrome. The study recruited 180 participants from the ages of 18-40 who satisfied the criteria for

Generalized Anxiety Disorder (GAD). Participants were recruited by the non-probability method of consecutive sampling from the relevant departments of psychiatry and medicine during the study period. Participants were GAD adults between the ages of 18 to 40 who were willing to participate. Participants were assessed and included if they satisfied the diagnostic criteria for GAD. Participants who had an established condition of another psychiatric disorder besides GAD, an established organic gastrointestinal disorder, severe cognitive impairment, psychotic disorder, substance dependence, or any other condition that might explain the reported somatic or gastrointestinal symptoms were excluded. Participants who were receiving the treatment of GAD or Irritable Bowel Syndrome (IBS) before the assessment were also excluded. After selection of participants, the participants were informed about the study and

the study procedures and written informed consent was obtained before the collection of data.

The criteria for defining GAD formulated in the DSM-5 persuaded its creators to formalize the disorder in 2013. The DSM-5 outlined the necessary steps for the diagnosis of Generalized Anxiety Disorder. These steps were having feelings of anxiety and worry for a duration of 6 months, distress caused by the anxiety, symptoms of anxiety even in the

absence of worry, and the inability to control the worry. Having symptoms of anxiety caused by other circumstances was a reason for not being diagnosed with Generalized Anxiety Disorder. Self-administered questionnaires were not used. The psychiatrist had the final decision in whether a patient got diagnosed with Generalized Anxiety Disorder. Patients who only satisfied the cited criteria for Generalized Anxiety Disorder were included in the study.



Somatic symptom burden was measured using the Somatic Symptom Scale–8 (SSS-8), developed by Benjamin Gierk, Sebastian Kohlmann, Kurt Kroenke, Lena Spangenberg, Markus Zenger, Elmar Brähler and Bernd Löwe, and published for the first time in 2014. As a brief assessment of somatic symptom burden, the SSS-8 comprises 8 items and is completed by patients. The SSS-8 evaluates symptoms of gastrointestinal issues, back pain, arm or leg pain, or pain in the joints, headache, pain caused by chest pain or shortness of breath, feeling dizzy, fatigue, and sleeping difficulties. Each item is rated on a 5-point response scale (0 = not at all to 4 = very much) and reflects the respondent's level of pain they experienced in the past 7 days. The total score can range from 0 to 32 with high scores reflecting higher levels of somatic symptom burden. In the current study, the SSS-8 was used to assess burden of somatic symptoms. However, Somatic Symptom Disorder was clinically diagnosed utilizing the study specified criteria, and the SSS-8 score was not used as a DSM-5 diagnostic criteria.

The Rome IV diagnostic criteria for Irritable Bowel Syndrome were used for this study and were published in 2016 by the Rome

Foundation. It includes the Rome IV Diagnostic Questionnaire for Adults for the translation of the Rome IV criteria for functional gastrointestinal disorders into patient-reported and research-related questions, and is intended for use in clinical research, epidemiological surveys, and provisional clinical assessments. The IBS section of the questionnaire was used to identify participants who met the Rome IV criteria for Irritable Bowel Syndrome. Irritable Bowel Syndrome, according to Rome IV, is characterized by pain in the abdomen that occurs at least once a week with features associated with the passage of stool, frequency of stools per day, or the type of stools which is observed for a period of three months prior to the completion of the questionnaire, and with the first onset of the symptoms occurring six months prior to the diagnosis being made. The questionnaires and the IBS section of the adult diagnostic questionnaire published by the Rome Foundation are licensed instruments. Hence, when publishing the manuscript, it is necessary to specify which of the validated and licensed questionnaires and the scoring algorithm of the questionnaires was used in the study.

A demographic and clinical characteristics collection form was based on a structured data

collection format. The demographic section captured the participant's age, sex, marital status, residency, and the highest educational level. The clinical information captured anxiety symptoms, medical history, gastrointestinal symptoms, and IBS status using the Rome IV criteria. Each participant was assigned a study id number which helped the research team capture all the data in a secure and confidential manner. Data were collected by the research personnel after receiving training under the supervision of the principal investigator. Prior to the formal data collection, the research team evaluated both the questionnaire and data collection instruments in terms of completeness and the flow of the participant selection and administration of the SSS-8, assessment of Rome IV criteria, obtaining the informed consent, and preserving the confidentiality of the participants.

Data collection was followed by checking the completion of questionnaires and programming into SPSS. Variables were classified as either categorical or continuous and were summarized accordingly. The principal measure was the frequency of Somatic Symptom

Disorder/somatic symptom burden in patients with newly recognized GAD. The secondary measure was the presence of IBS, as well as the relationship it provides to the somatic symptom domain. The relationship between SSD and IBS was studied with the application of the Pearson chi-squared test. Other demographic variables of interest were studied in conjunction with SSD and the application of the appropriate chi-squared tests was used. Adjustment of the expected cell frequencies was made, along with application of an exact test if the assumptions of the chi-squared test were not met. The statistical decision value was set as a p-value of less than 0.05, two-tailed. Prior to enrollment, all of the participants were informed of the purpose of the study; that participation was voluntary, as was the right to withdraw at any time; and it would not affect their clinical care. Written informed consent was obtained. Study participants were given identification codes instead of names; access to the data was restricted to the research team. All activities were carried out consistently with the ethical principles of research and the applicable requirements of the institution.

RESULTS

Table 1. Socio-demographic Characteristics of Participants (N = 180)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–24	54	30.0
	25–30	52	28.9
	31–35	42	23.3
	36–40	32	17.8
Gender	Male	69	38.3
	Female	111	61.7
Marital status	Single	102	56.7
	Married	78	43.3
Residence	Urban	119	66.1
	Rural	61	33.9
Education	≤12 years	63	35.0
	>12 years	117	65.0

Note. SSD = Somatic Symptom Disorder; GAD = Generalized Anxiety Disorder.

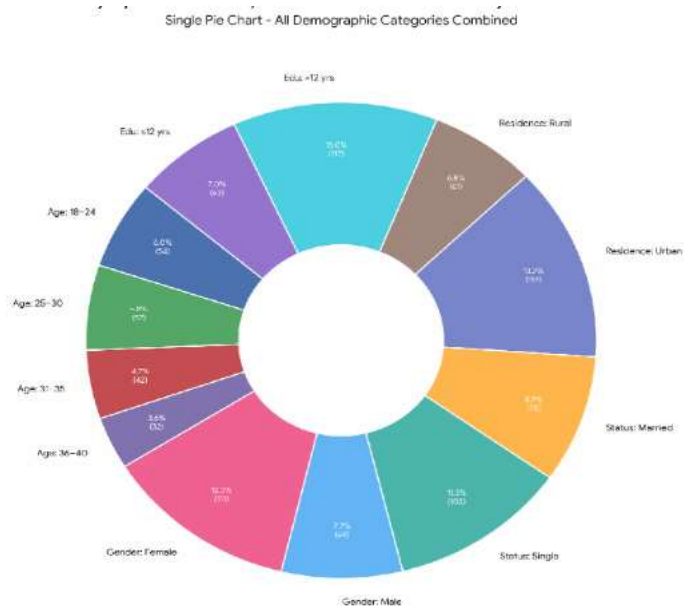


Table 2. Frequency of Somatic Symptom Disorder Among Patients With Newly Diagnosed GAD (N = 180)

Somatic Symptom Disorder	Frequency (n)	Percentage (%)
Present	78	43.3
Absent	102	56.7
Total	180	100.0

Note. GAD = Generalized Anxiety Disorder.

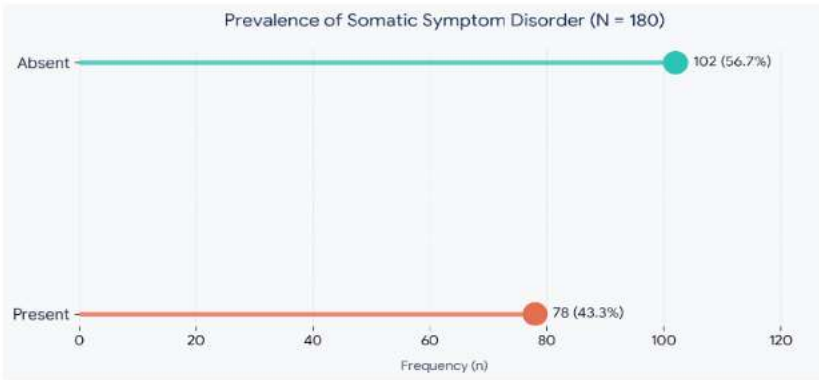


Table 3. Frequency of Irritable Bowel Syndrome among Patients with Newly Diagnosed GAD (N = 180)

Irritable Bowel Syndrome	Frequency (n)	Percentage (%)
Present	56	31.1
Absent	124	68.9
Total	180	100.0

Note. GAD = Generalized Anxiety Disorder; IBS = Irritable Bowel Syndrome.

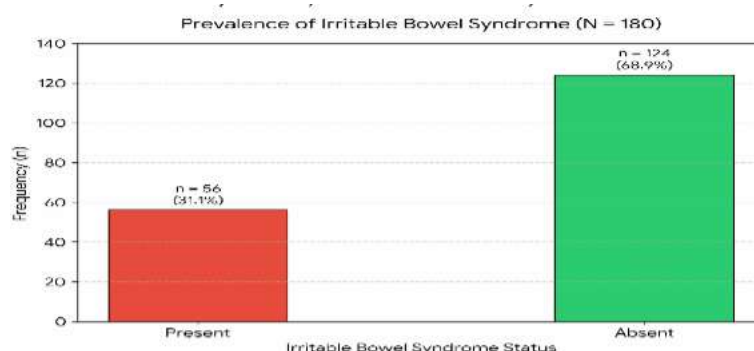


Table 4. Association between Somatic Symptom Disorder and Irritable Bowel Syndrome (N = 180)

IBS Status	SSD Present n (%)	SSD Absent n (%)	Total
IBS Present	36 (64.3)	20 (35.7)	56
IBS Absent	42 (33.9)	82 (66.1)	124
Total	78 (43.3)	102 (56.7)	180

Note. IBS = Irritable Bowel Syndrome; SSD = Somatic Symptom Disorder. Chi-square test: $\chi^2 = 15.13$, $p < .001$.

Table 5. Association of Gender with Somatic Symptom Disorder (N = 180)

Gender	SSD Present n (%)	SSD Absent n (%)	Total
Male	24 (34.8)	45 (65.2)	69
Female	54 (48.6)	57 (51.4)	111
Total	78 (43.3)	102 (56.7)	180

Note. SSD = Somatic Symptom Disorder. Chi-square test: $\chi^2 = 3.20$, $p = .074$.

Table 6. Association of Age Group with Somatic Symptom Disorder (N = 180)

Age group	SSD Present n (%)	SSD Absent n (%)	Total
18–24	19 (35.2)	35 (64.8)	54
25–30	23 (44.2)	29 (55.8)	52
31–35	20 (47.6)	22 (52.4)	42
36–40	16 (50.0)	16 (50.0)	32
Total	78 (43.3)	102 (56.7)	180

Note. SSD = Somatic Symptom Disorder. Chi-square test: $\chi^2 = 2.91$, $p = .406$.

DISCUSSION

The study investigated the occurrence of somatic symptom burden and its connection to Irritable Bowel Syndrome (IBS) in 180 individuals aged between 18 and 40 years with newly diagnosed Generalized Anxiety Disorder (GAD). In this study, 43.3% of the participants were categorized as having high somatic symptom burden, and 31.1% were classified as having IBS. High physical and gastrointestinal symptoms among individuals with GAD call for thorough evaluation within the constraints of the first clinical encounter. It is not unexpected that individuals with anxiety disorders have a high level of physical symptoms, and may prompt many clinic visits as psychological and physical symptoms merge (10).

An important finding of this study was the positive correlation between somatic symptom burden and IBS. Of the 64.3% of IBS study participants with somatic symptom burden,

33.9% had no IBS, and the correlation was of statistical significance ($\chi^2 = 15.13$, $p < 0.001$). In line with this study, the psychological stress of IBS with different subtypes was connect most with anxiety and depression, where the psychological symptoms interact with and enhance gastrointestinal symptoms (11).

The presence of bidirectional gut-brain interaction explains part of the observed relation between IBS and somatic symptoms. GI symptoms are influenced and modulated by neural, endocrine, immune, and psychological factors. Anxiety and increased attention to bodily sensations make perception and distress of GI symptoms worse. Psychological and environmental factors, as described in a systematic review, have been shown to be of great importance in the abdominal pain-related disorders of gut-brain interaction. Therefore, the participants that had IBS in the present study, and showed a high prevalence of somatic

symptoms, should not be considered to have two completely independent disorders. It is more likely that the somatic symptoms and IBS are both affected by the same biological and psychological factors (12).

These findings have relevance for the clinical management of GAD. Patients often present with multiple physical complaints and clinicians can become so focused on ruling out all organic pathology that they tend to neglect the importance of the psychological profile of symptom distress. Current thinking is that Somatic Symptom Disorder should not be about whether or not a symptom can be explained by pathology, as it should be about the patient's psychological and behavioral responses to bodily distress. This is of particular concern for patients with GAD because anxiety increases health related worry and symptom amplification. Thus a heightened focus on the subjective burden of physical symptoms may assist clinicians in identifying the need for coordinated mental and physical health care (13).

These findings support the use of psychological treatments to address anxiety and physical symptoms when there is overlap of anxiety, somatization, and gastrointestinal problems. A systematic review and meta-analysis of psychological treatments for IBS documented how psychological interventions lessened IBS related symptoms. This leads to the conclusion that psychological interventions have a role in the clinical management of IBS. For patients having newly diagnosed GAD and IBS or prominent somatic symptoms, the coordination of care by psychiatric, psychological, and gastrointestinal services may be warranted as opposed to addressing each of the symptoms individually. More long term studies are required to determine if the treatment of GAD and associated somatic symptoms will lead to resolution of IBS symptoms and if the reduction of somatic symptoms will decrease the chronicity of somatic and gastrointestinal symptoms (14).

CONCLUSION

At a minimum, a quarter of participants in the study, 18 to 40 years of age and newly diagnosed with Generalized Anxiety Disorder, showed a considerable burden of somatic symptoms and Irritable Bowel Syndrome. There was a positive association between burden of somatic symptoms and Irritable Bowel Syndrome which signaled considerable overlap between psychological, somatic, and

gastrointestinal symptoms in this population. Given this grounds, routine assessment of physical symptoms and gastrointestinal concerns may be useful in the overall management of patients diagnosed with Generalized Anxiety Disorder.

Future Suggestions

Prior to drawing definitive conclusions, larger, multicenter studies are needed along with a prospective longitudinal study. These would help determine the various factors and how they interrelate, including Generalized Anxiety Disorder, somatic symptoms, and Irritable Bowel Syndrome. These studies may also help answer whether psychological interventions aimed at Generalized Anxiety Disorder would help reduce somatic and gastrointestinal symptoms in the long term.

Limitations

The study design is cross-sectional and therefore does not allow for the unambiguous determination of cause and effect among the somatic symptoms, GAD, and IBS. The research sample is limited to a specific clinical population, therefore the results are limited in how much research population they can describe. Somatic symptoms and gastrointestinal complaints were assessed based on participant-provided information, and therefore are subject to reporting and recall bias. The GAD treatment wasn't extended to provide a follow-up observation to determine how symptoms may evolve.

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