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Original Article

Avoidance behavior as coping mechanism in patients with Irritable Bowel Syndrome

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ABSTRACT:

Introduction: Irritable Bowel Syndrome (IBS) and Somatization Symptoms Disorder (SSD) patients experience somatization symptoms that have a significant impact on their quality of life and their primary diagnoses as well. Coping strategies in these patients affect how they seek treatment and how they respond to different interventions. One of these coping strategies is "Avoidance behavior". The relationship between avoidance behavior in relation to demographic and social variables in IBS patient needs to be better described.

Methods: This study was performed at Shifa International Hospital, Islamabad. Study participants aged 18 years and above who were seeking regular treatment in the respective units of Shifa International Hospital, were surveyed between March 1st 2023 and January 14th, 2024. Purposeful sampling was done to recruit study participants. Participants were eligible to participate if they had a diagnosis of IBS, or SD. Coping Strategy Indicator (CSI) was used to assess coping strategies in patients with IBS and SD.

Results: There was a total of 88 patients; 67 with IBS and 21 with SSD. With increasing age, the avoidance behavior decreased, with higher education levels avoidance behavior also increased.

Conclusion: Avoidance behavior was observed as a significant interventional target in IBS patents. This is most evident in the younger age group and those with higher level of education.

Keywords: Functional disability, Competence, Irritable bowel syndrome, Recurrent abdominal pain

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Introduction:

Coping is a potential psychological treatment target in irritable bowel syndrome (IBS)[1]. Negative effects of psychological factors as IBS can be minimized by decreasing catastrophizing and somatization[2]. Management if IBS and SSD requires as biopsychosocial approach to address the symptomology. Avoidance behavior is an important mediating variable when considering addressing quality of life in IBS patients in patients seeking treatment. Prevention or re-construction of avoidant behaviors in IBS treatment plan has been recommended as important interventional strategy to improve QoL in IBS patients. However, when reviewing the results, a difference has been demarked between avoidant behaviors and avoidant coping. The relationship of avoidant coping with Qol is insignificant yet the relationship of timeline as a pre-determinant of avoidant coping is significant in the mediation medel[3]. Similarly, when considering the role of avoidance behavior in the treatment with CBT of young adolescents with IBS, reduction in avoidance behavior and time are important mediating variables that affect GI symptomology in IBS adolescents[4]. When considering avoidance behavior as a treatment target, it has been observed that CBT is beneficial is reducing avoidance behavior due to decreased GI symptoms. However, the decrease in the magnitude of avoidance behavior does not result in the significant decrease in psychological distress. When considering GI symptoms versus psychosocial symptoms in IBS, CBT has a medium to large effect on GI symptoms severity. Whereas low-to-medium effect is observed with CBT for psychological symptoms severity in IBS patients.[5]

Despite being a functional disorder, it is unclear whether IBS symptoms occur because of somatic symptoms or whether the prevalence of IBS symptoms is co-incidental with somatic symptoms.[6] Avoidance behavior, personality disorders and demographic variables have been known to be associated with the presence of somatic disorders in clinical setting.[7] Moreover, illness perceptions appear to drive avoidant behavioral responses to IBS symptoms, which in turn predict reductions in quality of life. These relationships seem more pronounced among people who seek treatment for their symptoms.

Therefore, it has been stipulated that health care practitioners might help improve the quality of life in people with IBS by preventing or reconstructing avoidance begaviors.[3] This is best done through behavioral and psychological intervention such as cognitive behavioral therapy. Interestingly, however, differences have been observed between patients who reported early responses to CBT for changes in symptoms as compared to those patients who did not report early responses to CBT.[8] Similarly, effectiveness of CBT is a time-bound phenomenon as the effects of CBT are evident in IBS patients over a course of 6 months when used as a complementary intervention, yet these effects fade always at 12 months.[9] These observations point towards as interplay of psycho-social factors that might predict which subgroup of IBS patients might best respond to targeted psycho-social interventions with regards to their coping strategies.

Understanding these relationship of demographic and psychological determinants of health with coping strategies will help tailor a cognitive behavioral approach, which is of essence in treating these patients.[6] This approach has the potential to facilitate the implementation of individual case based protocols of treatment for GI symptoms in IBS patients. One such therapy is Acceptance and Commitment Therapy(ACT) that has the potential for

better GI outcomes in patients with IBS,10 provided the limited efficacy of CBT.[8,9]

Materials and Methods

An institutional review board (IRB) approval granted through the IRBs of Shifa Tameer-e-Millat University with an IRB#020-23. Research team members collected data by regularly following up with the patients after their clinical visits. The quantitative, prospective survey design was used to assess the trends of various coping strategies practiced by the targeted sample in response to differential disease diagnosis. The survey design included administration of two different types of questionnaires.

A purposeful sampling was done to recruit study participants. Participants were eligible to participant if they had a diagnosis of IBS, somatization, or IBS with somatization and were currently receiving treatment, with the assumption that study participants were using a certain type of coping strategy to address the burden of their illness, as avoidance coping holds due consideration in the treatment of physical symptoms for the respective diagnosis.

To increase recruitment without researcher bias, eligibility questions were used to define inclusion and exclusion criteria. Patients were screened for the study two screening question based on the eligibility criteria: "what is the type of your diagnosed? Patients who met the eligibility criteria, i.e., a diagnosis of IBS, IBS with somatization, or somatization were included in the study. Patients with a diagnosis of inflammatory bowel disease or psychological diagnosis other than somatization were excluded. G*Power was used to calculate a sample size of 55 study participants by using a moderate effect size (f=0.15) with alpha set at 0.05 and power at 0.80.11 A total of 100 participants completed the survey. Thus, the required sample size was met. Thus, study finding may be generalized to larger population.

Demographic variables were selected based on the literature review. Demographic data measurement included assessing age, gender, and education. We used the coping Strategy Indicator (CSI) instrument by James H. Amirkhan as the key tool in our study.[12] The reliability and validity of the CSI is greater as compared to the Ways of Coping Questionnaire (WOCP) that includes a construct of Escape avoidance by Lazarus and Folkman (1984).13 Cronbach's alpha for the scales on the CSI range from .84 to .93, and yield stable scores i.e., test retest correlation averaging .82 across 4 to 8 weeks spans.14 convergent validates have been demonstrated, both in terms of convergence with existing measures of coping, personality, and pathology, and in terms of no covariation with social desirability indices. Criterion validity of the CSI was predicted by its ability to predict actual coping responses that were observed in both laboratory simulation and real world settings. The items on the CSI denote three different coping strategies: problem solving, seeking social support, and avoidance.[16] Permission from the instrument's developer (Amirkhan) was obtained to use the CSI through an email. CSI questionnaires were first scored manually in SPSS by calculating the total aggregate score for each construct within the questionnaire by adding up the raw scores for items within each construct. Scoring on the CSI questionnaire was done by following the instruction on the CSI scoring sheet. Each type of coping strategy denotes each construct on the instrument and there are 11 items under each construct. Each items are graded on a three-point Likert scale from 3-1 which means 11*3=33 is the maximum raw score possible on each construct. Whereas 8 is the minimum raw score possible for each construct.

Data was collected from the eligible participants after verbally obtaining informed consent. Verbal agreement to

participate in the study. Survey data was recorded on reliable and validated questionnaires either before or after their scheduled clinical visit. Some of the patients provided incomplete data and were therefore not included in the inferential analysis. Some of the patients refused to voluntarily participate in the study or some decided to withdraw from the study during the data collection process and were therefore excluded from the study.

Data accuracy was ensured by explaining each question to each study participants. All questionnaires had simple easy to read questions. The overall data collection process took about 11 months. Anonymity of the data collection process and data storage security was maintained. Statistical Package for social sciences (SPSS)17 used to secure an electronic database along with data analysis.

Results:

Descriptive for Study Samples

There were two different samples from two different populations for the stud. A total of 67 IBS patients and 21 SSD patients self-reported data. In the IBS sample, considering the age rangers: 28.4% were between 18-29 years old, 26.9% of participants were between 30-39 years, and 22.4% were 50 years and above. A large percentage of participants were males (59.7%) as compared to females (40.3%). Most participants had a high school diploma or equivalent degree (56.7%). In the SSD sample, majority of the participants were less than 50 years old (71.4%), and males (66.6%) as compared to females (33.3%). When considering education, high school diploma or the equivalent (61.9%) was the most common level of education, followed by higher than bachelor (28.6%) and higher than bachelor (9.5%).

To assess the test of normality, Kolmogorov-Smirnov test was performed. The results were significant which means that the assumption of normality was not met, yet the central line. Therefore, the distribution can be considered as a normal distribution, and parametric tests can be applied.

Coping Strategy Indicator (CSI)

The score for each item on the CSI scale were manually scored by following the developer's scoring guide to form continuous variables for calculating continuous scores. To meet research objectives, a mean score for each item was first calculated and then the average mean score for each participants was calculated.

CSI Scores by Constructs (IBS): A mean score of 24.64(+/-5.24) was observed for problem solving coping. The observed mean score of 24.62 is in between the average mean score of 21.0 and 31.0 but below the mean score of average which is 26 on the referent score. A mean score of 21.74(+-7.56) was observed for seeking social support coping. A mean score of 21.73 is in between the average mean score of 18.0 and 28.0 but below the mean score average which is 23 on the referent score. A mean score of 21.85(+/-4.964) was observed for avoidance coping. The observed mean score of 21.85 is in between the average mean score 15.0 and 23.0 and above the mean score of problem solving and seeking social support reflect a negative outcome because these coping strategies are positive in nature. Whereas a higher mean score for avoidance behavior is considered negative in nature.

Table.1

Table: 1 Mean CSI score by Constructs in IBS patients

Constructs	N	Mean	Std.Dev	Std.Error	Min	Max
Problem Solving	67	24.62	5.24	0.64	11	33
Seeking Social Support	67	21.74	7.56	0.92	11	33
Avoidance	67	21.85	4.96	0.61	13	31

CSI Scores by constructs (Somatization Disorder):

A mean score of 26.57(+/-5.24) was observed for problem solving. A mean score of 26.57 is in between the average mean score of 21.0 and 31.0 and equal to or greater than the mean score average which is 26 on the referent score. A mean score 19.48(+/-7.10) was observed for seeking social support coping. A mean score of 19.48 is in between the average mean score of 18.0 and 28.0 but below the mean score average which is 23 on the referent coping. A mean score of 23.29 is slightly above the average score range of 15.0 and 23.0 and above the mean score average which is 19 on the referent score. A problem solving mean score is equal to the general population. Whereas the mean score of seeking social support is lower than the general population, which reflects a negative outcome. Whereas a higher mean score for avoidance behavior a negative outcome.

Table 2. Mean CSI Scores by constructs in Somatization Disorder.

Constructs	N	Mean	Std.Dev	Std.Error	Min	Max
Problem Solving	21	26.57	5.24	1.14	19	33
Seeking Social Support	21	19.48	7.10	1.55	11	33
Avoidance	21	23.29	5.56	1.21	14	32

Avoidance Behavior in Study Samples

Once sample t-test was conducted three times for three different samples. One-sample t-test was conducted on the study samples to assess of the means of samples for avoidance behavior are different form historic controls. A mean score for avoidance behavior on the CSI scale is 19. In the two samples, mean score for avoidance behavior in IBS patients and those with

SD were statistically significant (<0.001).

Factors affecting Avoidance behavior in Somatization Disorder Patients

Age and Avoidance Behavior

Age significantly predicted variations in avoidance behavior as a coping strategy, $p<0.05$. R^2 for the overall model was 39.8%, a moderate effect size. The slope coefficient (B) of age was significantly different from zero in the model which mean that there was linear relationship of age with avoidance behavior. For each 1-point increase in age, coping scores for avoidance could be expected to decrease 2.3 point with increasing age, p=0.002, i.e., older adults were more than two times less likely to use avoidance behavior as a coping strategy than younger adults (see Table 3)

Table 3. Avoidance Behavior by Age in Somatization Patients

Model	Unstandardized B	Coefficient Std.Error	Standardized Coefficient B	T	Sig
1 Constant	29.306	1.9954		14.996	<.001
Age	-2.385	.673	-.631	-3.544	.002

Age, Education and Avoidance Behavior in IBS Patients

Multiple regression analysis was conducted to assess it variations in age and education predicted variation in the Avoidance Behavior scores (a mechanism that may be involved in the management of IBS). Age and education significantly predicted variations in avoidance behavior as a coping strategy, $p<0.05$. R^2 for the overall model was 14.2% a small to moderate effect size. The slope coefficient (B) of age and education were significantly different from zero in the model which means that there were linear relationships of age and education with avoidance behavior. For each1-point increase in age, coping scores for avoidance behavior decreased 1.2 points with increasing age, when adjusted for education. In the multiple regression model, the overall variation in avoidance scores by age decreased by 1 point when variation

was calculated by adjustment for the variable of education. For each 1-point increase in education, coping scores for avoidance behavior increased 1.6 points, when adjusted for age. Thus, the magnitude of predicted variation in the outcome variable may be affected other variable in the model (see Table 4). In the regression model, the overall variation in avoidance scores by age decreased.

Table 4. Multiple Regression: Avoidance Behavior in IBS Patients by Age and Education

Model	Unstandardized B	Coefficient Std.Error	Standardized Coefficient B	T	Sig
2 Constant	22.295	1.687		13.218	<.001
IBS Age	-1.177	.449	-.304	-2.622	.001
IBS Edu	1.566	.741	.245	2.114	.038

a. Dependent variable: Avoidance Behaviour in IBS patients

Discussion:

Avoidance behavior may be considered as a psychological risk factor in persistent somatic symptoms and related syndromes and disorders.[18] Avoidance behavior holds special significance as a treatment target through cognitive behavioral therapy for improving GI symptoms in adolescent IBS patients.[4] Avoidance behavior is a type of maladaptive coping like catastrophizing that holds special significance in IBS symptom severity.[2] The role of avoidance behavior/coping is not new to symptoms treatment in IBS and SSD, especially when avoidance behavior has been linked with consequences like quality of life and avoidance coping with timelines;[3] and avoidance of potentially symptom-provoking situations, or the fear-avoidance concepts is not yet adequately addressed in somatoform disorders.[4]

Acceptance and commitment therapy (ACT) is an effective treatment for IBS symtoms[19] and psychosomatic symptoms.[20] acceptances is a phenomenon opposite to avoidance and based on the common-Sense Model of Self-Regulation (CSM) for the treatment of chronic illnesses.[21] Thus, avoidance behavior can only be decreased by increasing acceptance. Thus, it was needed to asses it the avoidance scores in our study participants are higher than the general population and if ACT would be the right choice that needs to be promoted for decreasing avoidance scores. Even though our study did not have implementation of ACT, as a first step we needed to identify if avoidance behavior was prevalent in our study participants. Thus, our study was first of its kind as it only measured avoidance scores in our context but also assessed avoidance scores by using a questionnaire[16] different than the avoidance coping strategy and quality of life.[3] The questionnaire that was used in our study has a referent score of 19 which means that the average avoidance score in the general population is 19 as was calculated by the developer after testing the reliability and the validity of the tool. Considering avoidance scores in our study samples of IBS patents and patients SD to be higher than the avoidance scores in the reference range, suggest a higher tendency for avoidance as a coping strategy in these two groups. Consequently, these points towards an increased need to address avoidance behavior as a treatment target in psychological intervention such as cognitive behavioral therapy (CBT) for improving symptomology.

An interesting finding in our study is that avoidance behavior decrease with increasing age. This finding can be synonymous with the fact that the study samples in our study included younger patient as compared to older patents. This also corresponds with the increased significance of avoidance behavior in younger patients in a study that assessed the effectiveness of CBT in young IBS patients by targeting avoidance behavior as a treatment target for GI symptoms.[4] In short, age holds a special significance as a determinant of avoidance behavior in IBS

patients as well as patients with somatization diagnosis, whether the relationship of age with avoidant behavior is assessed by considering avoidant behavior as mediating variable or as an dependent variable.

An exaggerated avoidance response as seen in our study emphasize the need to address avoidance behavior in patients with IBS and SD. This was especially noticeable for younger patients with lower educational background. Despite the role of avoidant behavior in treating GI symptomology in adolescent IBS patients, younger age was only an eligibility criterion in this randomized control trial.[4] In our study, demographic variable like age and education were assessed for the magnitude and the direction of their relationships with avoidance behavior. Younger age continues to be predictor variable for avoidance behavior in our study. This assessment holds significance because even in a systematic review that was conducted to assess psychological determinants of persistent somatic symptoms, assessment of sociodemographic factors as risk factors was excluded.[17] Our current manuscript is a derivation from a larger grant-funded project and 50% of our study participants had a somatic symptom burden-cited in a study currently being submitted to another journal for publication. Therefore, socio-demographic variables in addition to psychological symptoms hold due consideration in IBS patients and somatization symptom disorder (SSD) patients. Despite the relevance of socio-demographic variables in relation to avoidance scores that are used a response strategy to somatology in IBS patients and SSD patients, factors that contribute to expected increased avoidance scores in addition to sociodemographic variables may be explored. Multicenter assessments for consistency across larger populations, and a longitudinal study design for confirmability of findings over time may be conducted.

The current approach was taken to identify the modifiable factors associated with avoidance coping strategy. This approach is synonymous with a needs assessment approach-an approach to identify the gaps or the barriers to plan and implement corresponding interventions to minimize risk behaviors and promote protective behaviors. The current research is part of comprehensive planning process that will lead to subsequent interventions by integrating education about mechanisms that increase adherence to improved rates of effective coping and decreased rates of ineffective coping, especially when psychological interventions are needed to improve quality of life in IBS patients and SSD patietns.[14,21]

There is an unmet need not only at the local, national level but also at the global level that requires targeted approaches to manage symptoms in addition to the biomedical approaches for the selected samples. Thus, the study was conducted to understand the factors related to avoidance coping a key factor associated with symptomology not only in IBS patients but also SSD patients.

Limitations and Recommendation

The study was based on the patient's enrollment from one tertiary care hospital despite intra-organizational collaboration. Therefore, in future multi-centered studies may be conducted to assess if the pattern prevails across different organization. Our study met the generalizability criteria for the IBS sample, yet the generalizability for SSD and IBS-SSD patients is not possible. In future, studies may be conducted to specifically enroll patients from the Psychiatry Department and patients with a primary diagnosis of IBS and a comorbidity of SSD. Furthermore, longitudinal study design may be planned to assess if the patients followed overtime still continue to use avoidance behavior especially in younger patients.

Conclusions

Avoidance behavior can be addressed by considering the role of sociodemographic factors in relation to avoidance behavior for addressing symptomology in patients with the diagnosis of either IBS or SSD; especially when socio-demographic variable like age and education act as causal factors influencing avoidance behavior in IBS patients: and increasing age alone as a causal factor that decreases the likelihood of avoidance behavior in SSD. Additionally, considering the role of ACT as an alternative to CBT for addressing avoidance behavior in IBS patients and SSD patients, our study is unique as it identifies the younger age group practicing avoidance behavior and needs ACT as a IBS patients and SSD patients.

Conflict of Interest: There is no conflict of interest involved.

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Authors Contribution:

SK: Conceived and designed the study, involved in data collection, performed statistical analysis and writing manuscript.
NK, SH, KA, AB, AH, MYA, MR: Collected the data, critical review and preparation of manuscript.

All authors have read, approved the final manuscript and are responsible for the integrity of the study.