The Role of Psychotherapy in the Management of Inflammatory Bowel Disease

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ABSTRACT

Inflammatory bowel disease (IBD), consisting of ulcerative colitis (UC) and Crohn's disease (CD), represents one of the debilitating chronic gastrointestinal diseases that affects the physical and psychological aspects of patients, leading to increased morbidity and mortality and affecting patients' quality of life. There is an increased prevalence of depressive disorders and anxiety among IBD patients, with the gut-brain axis as the proposed underlying mechanism. Treatment of psychological issues among patients with IBD enhances long-term management outcomes. Therefore, we provide a comprehensive review of epidemiology, pathomechanism, diagnosis, and treatment modality of psychological issues frequently found among IBD patients.

Keywords**:** *anxiety, depression, IBD, psychotherapy.*

INTRODUCTION

Inflammatory bowel disease (IBD), consisting of ulcerative colitis (UC) and Crohn's disease (CD), represents one of the debilitating chronic gastrointestinal diseases that affects the physical, psychological, family, and social dimensions of patients.[1]

The incidence of both Crohn's disease and ulcerative colitis has steadily increased over the past several decades, as well as the prevalence of psychological issues such as depression and anxiety among patients with IBD compared to the general population. Even though the psychological issues among patients with IBD significantly affect their quality of life, the treatment for this condition is still inappropriate.[2] Depressive disorders, particularly anxiety, can remarkably affect a patient's ability to work, family life, and quality of life despite the increased morbidity and mortality of those with chronic diseases.[3]

The association between IBD and mental health issues has already been described and can be understood using the brain-gut axis. This axis presents that intestinal inflammation can affect mood; on the contrary, anxiety and depression can exacerbate intestinal inflammation and mediate IBD relapses.[4,5]

Both IBD and mental health have a physical, psychological, and financial burden on the patients. Treatment of psychological issues among patients with IBD enhances long-term management outcomes. Therefore, it is crucial to identify those who are more likely to develop anxiety or depression.[2,3,5]

INFLAMMATORY BOWEL DISEASE (IBD)

Inflammatory bowel disease (IBD) is a chronic condition characterized by relapsing and remitting inflammation of the gastrointestinal (GI) tract. It encompasses Crohn's disease (CD), which can affect any segment of the GI tract, and ulcerative colitis (UC) that involves exclusively the rectum and colon.[6,7]

The incidence of IBD has steadily increased over the past several decades.[8,9] The mean crude incidence of IBD has increased over the first three decades: 0.36 (1980–1989), 0.48 (1990–1999), and 0.63 per 100,000 person-years (2000–2009) consecutively. In the period of 2010 to 2018, the mean crude incidence doubled to 1.46 per 100,000 person-years.[10]

A number of factors can be attributed to the prevalence of CD and UC, including geographical location, diet, genetics, and inappropriate immune response. IBD results from the interaction between genetic and environmental factors, which alter the immune responses.[6,10] Major symptoms of CD and UC are diarrhea or bloody diarrhea, abdominal pain, rectal bleeding, and weight loss, mainly characterized by inflammation in the rectum and colon. Although UC and CD have several similar clinical features, each does have distinct intestinal manifestations.[10] Crohn's disease affects the entire layers of the intestine from the mouth to the anus; meanwhile, ulcerative colitis only affects the mucosal layer of the colon and rectum.[6,8–10] Diagnosis of IBD should be based on the clinical symptoms, which are divided into

intestinal and extraintestinal manifestations, appropriate physical examination, laboratory findings, radiographic imaging, and gastrointestinal endoscopy. Intestinal manifestations of IBD are diarrheal or bloody diarrheal, abdominal pain, and rectal bleeding. Extraintestinal manifestations of IBD are fever, weight loss, arthralgia, mucocutaneous lesions such as oral ulcers, erythema nodosum, pyoderma gangrenosum, and ophthalmologic complications like episcleritis, iritis, and uveitis.[6,8–11]

Due to its chronicity, IBD can result in significant long-term morbidity, impairment of the patient's health-related quality of life, and high healthcare costs. The chronic intestinal inflammation that occurs in IBD can lead to the development of long-term complications such as strictures, fistulas, obstruction, abscesses, and malignancy. In such situations, these complications require surgical intervention that results in increased morbidity and mortality.[8-11]

Even though there is no cure for IBD, the goals of IBD treatment are to relieve the symptoms, to heal the lesions, which is called mucosal healing, to maintain remission, and to prevent long-term complications.[8–11]

The first step in treating IBD is pharmacological treatments that depend on the type of disease, location of inflammation, severity of disease, side effects, and treatment response.[6,10] Surgical intervention is required in CD patients with intractable hemorrhages, perforation, persisting or recurrent obstruction, abscess, dysplasia or cancer, or refractory to treatment.[8,10] Screening and subsequent surveillance colonoscopy in individuals with IBD is required to assess for dysplasia or colorectal cancer (usually starting eight years after diagnosis).[9,12]

PSYCHOLOGICAL ISSUE IN IBD

IBD patients have significant physical, psychosocial, and economic burdens related to a high risk of adverse events, including morbidity, hospitalization, surgery, work disability, and even mortality.[13–15] Health-related quality of life (HRQoL) is a concept that includes domains related to physical factors (such as natural history of disease and medications), mental factors (such as anxiety and depression), and social factors (such as job status and occupations).[16,17]

It has long been believed that patients with IBD might have psychological illness, including symptoms of common mental disorders and

somatization, which may be related to the complex bidirectional interaction via the gut-brain axis. Mental health is a significant yet overlooked aspect of inflammatory bowel disease (IBD) patient care, with challenges in determining optimal treatments and psychological health resources.[18–20]

The most common psychological conditions in patients with IBD are anxiety and depression. The increased prevalence of these mental disorders calls for mental screening of each person diagnosed with IBD at initial consultation. Psychological disorders in patients with IBD may lead to a high risk of relapse and poor treatment compliance. Moreover, systematic literature review suggested that psychological treatment may be effective in reducing anxiety and depression disorders, gastrointestinal symptoms, and disease activity. In the development of mental disorders among patients with IBD, anxiety and depressive disorders can be reversed, quality of life can be improved, and the course of the disease can be modified by identifying factors related to the development of diseases.[14,19,20]

Epidemiology of Psychological Disorders in IBD

Compared to the general population, patients with IBD had a higher lifetime rate of psychological disorders such as anxiety and depression, which were known to harm the quality of their lives and the severity of their disease.[14]

The prevalence of symptoms of anxiety or depression was higher in inpatients with active IBD than in patients with inactive disease. A meta-analysis study showed that patients with IBD were exposed to a high prevalence of symptoms of anxiety and depression, with approximately one-third of patients affected by anxiety symptoms and one-fourth of patients affected by depression symptoms.[21] A study in Korea among 46,707 non-IBD patients as control and 15,569 patients with IBD who were followed for 6 years, showed that patients with IBD experienced more anxiety (12.2 vs. 8.7%) and depression (8.0 vs. 4.7%) significantly.[22]

Another prospective longitudinal cohort conducted in Ontario, Canada, showed that patients with abnormal anxiety HADS (Hospital Anxiety and Depression Scale) scores had higher IBD-related outcomes (odds ratio 3.36).[23,24] It was worth mentioning that one population-based study demonstrated that depression and anxiety disorders might precede IBD diagnosis by at least 5 years.[14,23,24]

Pathomechanism of Psychological Issues in IBD (The Gut-Brain Axis)

The gut-brain axis (GBA) refers to the link between the human brain with its various cognitive and affective functions and the gastrointestinal (GI) system, which includes the enteric nervous system and the diverse microbiome inhabiting the gut lumen. The neurochemical aspect of this network is not only anatomical, but it extends to include endocrine, humoral/metabolic, and immune routes of communication as well. The autonomic nervous system and the nerves within the gastrointestinal (GI) tract all link the gut and the brain, allowing the brain to influence intestinal activities, including activity of functional immune effector cells, and the gut to influence mood, cognition, and mental health.[25,26]

The neurologic pathway includes the vagus nerve, the enteric nervous system, and the activity of neurotransmitters within the GI tract. Neurologic modulation of afferent sensory nerves directly produces molecules that can act as local neurotransmitters, such as GABA, serotonin, melatonin, histamine, and acetylcholine; this pathway also generates biologically active forms of catecholamines in the lumen of the gut. The autonomic nervous system also influences immune system activation in the gut, for example, by directly modulating macrophage and mast cell responses to luminal bacteria.[26]

Gut microbiota alters nutrient availability and thus influences the release of biologically active peptides from enteroendocrine cells, which in turn can affect the gut-brain axis. For example, neuropeptide galanin is thought to be involved in many critical neurobiological functions, including nociception, sleep/wake cycle regulation, feeding, mood, blood pressure regulation, parental behavior, and neurotrophic functions.[26]

Bacterial metabolites (most importantly,

short-chain fatty acids [SCFAs], produced by the bacterial fermentation of dietary carbohydrates) are decisive humoral influences. Best known to affect the nutrition of enterocytes, they also exert significant hormone-like activity, have immunomodulatory properties, and interact with nerve cells by stimulating the sympathetic branch of the autonomic nervous system. Furthermore, microbiota-derived SCFAs can cross the blood-brain barrier and have been shown to regulate microglia homoeostasis, which is required for proper brain development and brain tissue homoeostasis, and is involved in behavior modulation.[26]

The gut microbiome plays a role in inflammation metabolism within the GI tract by promoting the immune system's release of cytokines (such as interleukin [IL]-10 and IL-4) and other cellular communication mediators, such as interferon-gamma, during dysbiosis. Visceral hypersensitivity and cellular alterations of the entero-endocrine and immune systems occur due to the gut-brain axis disruptions affecting the intestinal motility and secretion [26]

Identifying Psychological Disorders in IBD Patients

Identifying the psychological disorders of patients with IBD at the time of diagnosis or during the disease is highly related to the patient's care, the timely initiation of appropriate treatment, and the improvement of the outcome of the disease.[27,28] Screening and monitoring the psychological disorders in patients with IBD play a significant role in both primary care and specialist settings. Unfortunately, no IBD-specific instruments to measure anxiety or depression disorders have been validated to date.[29]

One approach to determining anxiety and depression is to use available, valid, and reliable screening measurements (Table 1), in addition to easy-to-score and code into electronic medical records. There are no screening tools that can replace the judgment of the physician. All positive screening findings should be translated into patient evaluation and treatment plans.[30]

HADS is a 14-item self-report questionnaire assessing the anxiety (A) and depression (D) levels in the past week. A 4-point Likert scale was used in each question with a total score of 42 (21 with depression and 21 with anxiety). The cut-off points of 8 are used to identify possible anxiety or depression. Higher levels of anxiety and depression will reflect on the higher score. It has been widely studied to describe the prevalence of anxiety and depression among IBD patients in outpatient settings. The items on the questionnaire are less directly influenced by disease-related symptoms, which differ from other scales.[14,31]

The PROMIS, including Depression Short-Form 8a (PROMIS Depression) and Anxiety Short-Form 8a (PROMIS Anxiety), is used to assess the level of anxiety and depression in the past week with an 8-item self-report questionnaire. The American Psychiatric Association established a guideline on using a native scale for PROMIS Anxiety and Depression to identify the severity of psychological distress.[32,33]

Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D) are the oldest and most commonly used tools by physicians worldwide for assessing anxiety and depression, including their severity. HAM-A and HAM-D consist of 14 and 17 items, respectively, to be evaluated by clinicians.[34]

The General Anxiety Disorder-7 (GAD-7) is a 7-item self-report questionnaire assessing anxiety levels over the last two weeks, demonstrating a good clinical applicability and robust psychometric characteristics. It is valid and reliable, with a total score of 21, and a score of >10 is consistent with moderate anxiety.[14,34]

The Patient Health Questionnaire-9 (PHQ-9) is a self-administered scale developed for depression screening, which is widely available in more than 60 languages. The shorter versions without the suicidal item are PHQ-4 and PHQ-2. The total score is 27, and the cut-off score for PHQ-9 is 10. The management time of the questionnaire is <5 min. As a multipurpose instrument, the PHQ scale can be used to diagnose, monitor, and measure the severity of depression.[14,35]

The WHO Well-Being Index (WBI-5) comprises five simple, non-invasive questions. It has sufficient effectiveness in screening depression and estimating the results of clinical

trials and has been successfully applied in a wide range of research fields. Recently, WBI-5 has been translated into more than 30 languages and used in research projects worldwide. The total score is 25, and a score <12 is consistent with clinical depression.[14,36]

Management of Psychological Issues in IBD

Supporting care includes medical care, and psychosocial, environmental, and behavioral interventions may yield the most significant health benefits. Both anxiety disorders and depression can be treated effectively by pharmacotherapy

Table 1. Psychological issues screening questionnaire among IBD patients.[14,23,29,37–39]

Scale	Sensitivity (%)	Specificity (%)	Items (n)	Total score	Cutoff Points	Interpretation	Reporting Period
General Psychological Assessment							
SCL-90							
	81.6	80.3	90	5-point Likert score for each question	Different per subscales	Different per subscales	1 week
Anxiety							
ASS/ASQ	N/A	N/A	10	50	Point >3 at question 10	Consider anxiety if question number 10 showed >3	2 weeks
HADS-A				21	8	0-7 normal	1 week
	90.0	78.0	7			8-10 borderline	
						11-21 abnormal	
PROMIS-A				T 38-81	T score 60	0.5-1.0 SD mild	1 week
	86.0	81.6	8			1.0-2.0 SD moderate	
						>2.0 severe impairment	
HAM-A				56	17	6-14 mild anxiety	1 week
	85.7	63.5	14			15-28 moderate	
						29-52 severe	
GAD-7	89.0	82.0	7	21	>10	>10 moderate anxiety	2 weeks
SCL-A20	N/A	N/A	20	80	>30	20-<30 risk	1 week
						>30 anxiety	
OASIS	89.0	71.0	5	0-20	8	>8 anxiety	1 week
Depression							
HADS-D				21	8	0-7 normal	1 week
	80.0	69.0	7			8-10 borderline	
						11-21 abnormal	
PROMIS-D	82.3	81.4	8	T 38-81	T score 60	0.5-1.0 SD mild	1 week
						1.0-2.0 SD moderate	
						>2.0 severe impairment	
HAM-D				56	20	10-13 mild	1 week
	86.4	92.2	17			14-17 moderate	
PHQ-9				0-27	10	5-9 mild	2 weeks
	83.0	86.0	9			10-14 moderate	
						>15 severe	
PHQ-2	97.9	67.0	2	0-6	3	>2 depression	2 weeks
WBI-5	61.0	92.0	5	25	<12	<12 depression	2 weeks
SCL-D6 †	68.0	98.0	6	24	>6	0-6 normal	1 week
						7-11 mild depression	
						12-17 moderate	
						18-24 severe	
Kessler-6	N/A	N/A	6	6-24	8	0-7 low risk of distress	
						8-12 moderate risk of distress	
						13-24 high risk of distress	
Kessler-10	71.0	90.0	10	10-50	19	>19 distress	

†Sensitivity and specificity for the diagnosis of major depression

as well as psychotherapy.[14,40,41]

Psychotherapy, in conjunction with pharmacotherapy, is aimed at increasing cerebral serotonin levels. Psychological therapies should be considered in patients with IBD and functional symptoms. Most cases of mental disorders can be successfully treated with behavioral interventions, such as cognitive behavioral therapy (CBT), hypnosis, and mindfulness techniques for patients with and without IBD. CBT is better than usual controls and treatments, but not superior to other positive behavioral interventions. It can effectively improve medical compliance and underlying symptoms of anxiety or depression. [14,25,42,43]

Mindfulness meditation programs can regulate pain, anxiety, and depression of various physical health diseases. Hypnotherapy is a promising adjunctive treatment for IBD and has further proved beneficial for pain and anxiety in non-IBD populations. Although hypnosis is efficacious, few behavioral professionals are trained in medical hypnosis. One study demonstrated the effect of 12 hypnotherapy sessions on patients with IBD taking steroids for five years; the result showed that 60% of patients stopped using steroids after hypnotherapy.

Along with psychotherapy, antidepressants have been recognized as treatments for gut–brain disorders that might benefit psychological and gastrointestinal health. Antidepressants are effective for treating depression, anxiety, and chronic pain syndromes, but the overall support for their efficacy is modest at best. Although there are no large, randomized trials for patients with IBD, there is evidence that selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), and tricyclic antidepressants (TCAs) can reduce anxiety and depression when used in combination with the following drugs.[44,45]

A systematic review study conducted by Paulides et al. in 2021 showed compelling results about the role of psychotherapy in the management of IBD, focusing on the type of interventions and their correlation with the disease activity and the quality-of-life aspects. A total of 2397 patients with IBD were analyzed in the 31 studies included, of whom 1446 patients were included in the intervention group. The study included 23 studies that were RCTs, of which 4 were pilot RCTs, one study was partially randomized, 6 studies were prospective observational studies, and 1 prospective observational study used a control group.[46] Table 2 summarizes all included studies with significant results.

For the disease activity, thirteen studies included IBD patients in remission or with very mild disease only; 4 studies reported a positive effect, and 3 studies reported mixed results. Four studies focused on IBD patients with active diseases, only the impact of psychotherapy during a flare, and these 4 studies showed a significant positive effect of psychotherapy on QoL.[46]

For the intervention, eight studies used mainly CBT intervention, 5 studies showed significant positive effects, and 2 described mixed results in QoL. The other nine studies used stress management programs; 4 studies reported a positive impact, and 1 showed mixed results. For mindfulness, there were 4 studies, and three of them showed mixed results, and the other two studies used hypnosis, and only one study showed positive results.[46]

All active IBD patients should undergo screening to determine concomitant anxiety, depression, and other psychological issues that are commonly found among IBD patients. Treatment of these issues includes pharmacological (with antidepressant and anxiolytic agents) and behavioral intervention, improving IBD outcomes (fewer complications, readmissions, and surgeries). Meanwhile, treatment for IBD conditions, such as cytokine-modulating drugs and biologic agents (infliximab, vedolizumab), alleviates and prevents the psychological issues from developing.[14,44,47] This emphasizes the role of the bidirectional gut-brain axis as the proposed mechanism of this phenomenon (**Figure 1**).

CONCLUSION

Inflammatory bowel disease (IBD) is a chronic condition characterized by relapsing and remitting inflammation of the gastrointestinal (GI) tract, including Crohn's disease (CD) and ulcerative colitis (UC).

Table 2. Study characteristics and outcome data of included studies with significant results

Author (year)	*Study type*	*Population*	*Instrument*	*Methods*	*Result*
Bennebroek Evertsz et al., 2017	RCT	IBD patients with poor mental QoL	IBDQ, SF-36	Eight 1-hour weekly sessions of IBD-specific CBT vs WLC	Significantly greater improvement in IBDQ and SF-36 mental score after 3.5 months compared with control group
Boye et al., 2011	RCT	IBD patients with high chronic distress (PSQ ≥ 60)	IBDQ	Three 3-hours group sessions psychoeducation in combination with CBT and 6-9 individuals weekly CBT sessions with booster sessions at follow-up, at-home assignments of relaxation training and behavioral adjustments vs TAU	QoL improved from baseline to 18 months in intervention group (P = 0.009). Significant differences only found in UC group, not in CD group.
Hunt et al.,2019	Parallel RCT	IBD Patients	sIBDQ	Self-help IBD-specified CBT workbook vs psychoeducational workbook	Significant improvement in sIBDQ score in intervention group from baseline to week-6 (P < 0.01) and 3 months (P <0.05) and significant compared with control group at Week 6 (P < 0.05). QoL remained significantly improved compared with control group During a flare.
Vogelaar et al., 2014	RCT	IBD patients in remission with severe fatigue (CIS-fatigue ≥ 35)	IBDQ + SF-36 + EQ-5D	Six 1.5-hours SFT plus psychoeducation sessions in the first 3 mo,1 booster session at 6 months vs TAU	SFT was associated with significantly higher mean IBDQ total score compared with control group at 3 mo (P = 0.02), but The effect declined at 6 (P = 0.241) and 9 months (P =0.635). SF-36 scores not significantly improved
Berill et al 2014	RCT	IBD patients in remission with IBS symptoms or high stress levels	IBDQ	Six 40-minutes face-to-face multiconverg ent mindfulness- based therapy vs TAU	PP analysis significant at 4 months only (P =0.038). No significant difference in improvement in IBDQ scores between groups at follow-up (all P >0.05). IBS-type subgroup had higher IBDQ scores at 4 months compared to control subgroup (P = 0.038)
Diaz-Sibaja et al., 2009	RCT	IBD patients in remission	Spanish IBDQ	10 weekly 2-hours group sessions focused on coping, problem-solving, relaxation, and cognitive restructuring Techniques vs.WLC	IBDQ scores of intervention group significantly improved at week 10 and 3 months (P < 0.01) but not at 6 months (P = 0.20) and 12 months (P = 0.06). No significant difference between mean scores of both groups pre and post-treatment

McCombie et al., 2016	RCT	IBD patients	IBDQ plus SF-12	8 weeks computerized CBT, 8 sessions vs TAU	ITT analysis showed no increase in IBDQ scores in 12 weeks (P = 0.44) and 6 months (P = 0.50); no increase in SF-12 mental and physical scores all P > 0.05. PP analysis showed A greater increase in Mean IBDQ score than in control patients (P =0.01). Improvement in SF-12 mental scores significant at week-12 (P =0.03) but not SF-12 physical scores (P = 0.20
Mikocka-Walus et al., 2015 ;Mikocka-Walus et al., 2017	RCT	IBD patients in remission or with mild disease	SF-36	10 weekly 2-hours group sessions CBT (either face-to-face or online CBT) vs TAU	Significant improvement in mental QoL over 12 months in CBTgroup in univariate analysis (P = 0.013) but at multivariate level no significant effect at 12 and 24 months (P > 0.5)
Gerbarg et al., 2015	RCT	IBD patients	IBDQ	2 days 9-hours total breath, body, and mind workshop, daily 20 minutes breathing exercises with follow-up session vs 9-hours educational seminar and educational lecture	Significant improvement in IBDQ mean scores at week 6 and 26 (both P = 0.01), significant improvement compared with control group at week-26 (P =0.04)
Haapamäki et al., 2018	Prospective observational study	IBD patients	15D questionnaire	10-12 days of group adaptation courses (lectures, exercise, relaxation, social, individual consult) divided into 2 periods separated by 4-6 months	Significant increase in HRQoL at all time points (all P < 0.001)
Jordan et al., 2019	Prospective observational study	IBD patients in remission or with mild disease with moderate to severe symptoms of anxiety and/or low mood	sIBDQ	4-10 (mode 6) weekly 50-minute sessions of CBT	Significant increase in sIBDQ scores compared to baseline (P < 0.001).
Keefer et al., 2012	Pilot RCT	of CD patients in remission	IBDQ	6 weekly 60-minute sessions of “project management” based on cognitive-behavioral principles of health behavior change and social learning theory vs TAU	PP analysis showed more improvement in the intervention group on IBDQ total score (P = 0.001).
Lores et al., 2019	Prospective observational study	IBD patients with mental health issues (scored by HADS)	AQoL-8D	In-service or external CBT and ACT vs decliners (patients who scored above clinical cut-off scores on the mental health questionnaires but who declined psychological treatment)	Significant increase in HRQoL in the intervention group from baseline (P < 0.001) and compared with decliners (P < 0.05).

Miller and Whorwell, 2008	Prospective observational study	IBD patients with refractory disease	Multiple choice question	12 sessions of gut-focused hypnosis plus audio practice at home	At baseline, 6.67% good/ excellent QoL, after hypnotherapy 80% (Calculated *P* = 0.003)
Mizrahi et al., 2012	RCT	IBD patients with active disease	IBDQ	5 weeks individual 50-minutes relaxation training with guided imagery at 2 weeks intervals, daily 15-minutes relaxation exercises at home vs WLC	PP analysis showed significant Difference in effect of intervention over time (*P* = 0.014) and within-patient improvements n = 27 control group n = 13 control group Fatigue (*P* =0.002) on general IBDQ scores.
Neilson et al., 2016	Non-RCT	IBD patients	WHOQoL-BREF	Weekly 2.5-hours and one 7-hours mindfulness group session, 45-minutes daily home exercises vs TAU	At week 8, significantly greater improvements in intervention group compared with control group but only in psychological health (*P* < 0.01) and physical health (*P* < 0.01). At week 32, no significant differences.
O'Connor et al., 2019	Pilot RCT	IBDpatients in remission who reported fatique	SF-36 + sIBDQ	3 small-group 1-hour psychoeducational sessions focusing on fatigue every 8 weeks for 6 months vs TAU	SF-general health and SIBDQ greater improvement in intervention arm (No *P* stated).

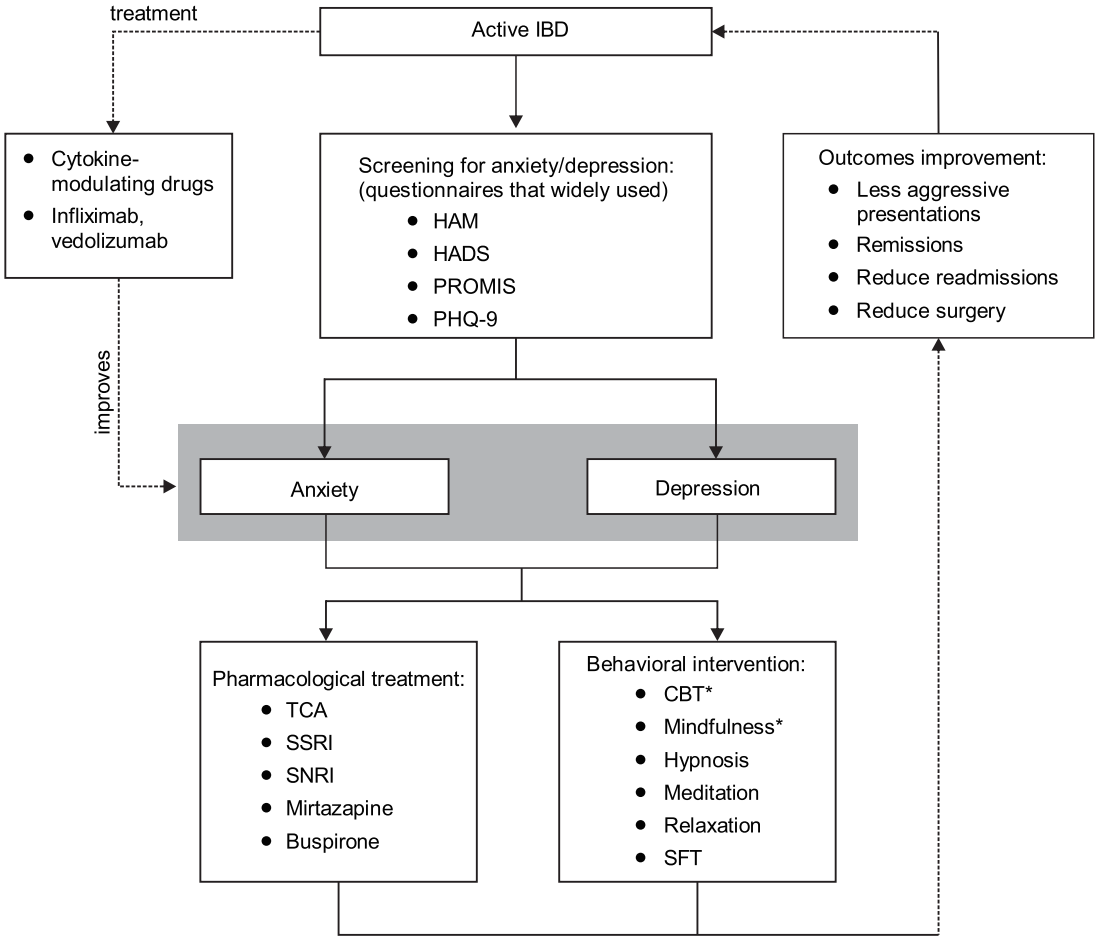

Figure 1. Diagnosis and treatment of psychological issues among IBD patients.[14,44,47] Notes: The dotted line shows the role of the brain-gut axis and its bidirectional effect. *Behavioral interventions that apply mainly to depression are CBT and mindfulness.

The patients with IBD had significant physical, psychosocial, and economic burdens related to a high risk of adverse health outcomes, including morbidity, hospitalization, surgery, work disability, and even mortality.

Psychological conditions like anxiety and depression are common and can affect the quality of life and the course of IBD. The increasing prevalence of anxiety and depression among IBD patients leads to the need for mental screening for earlier management. Therefore, consultation with a psychologist, psychiatrist, or psychosomatic consultation is recommended for IBD patients at least once a year.

CONFLICT OF INTERESTS

Authors do not have conflicts of interest to declare.

REFERENCES

1. Askar S, Sakr MA, Alaty WHA, et al. The psychological impact of inflammatory bowel disease as regards anxiety and depression: a single-center study. Middle East Curr Psychiatry. 2021;28(1):73.
2. Azzam NA, Aljebreen A, Almuhareb A, Almadi MA. Disability and quality of life before and during the COVID-19 outbreak: A cross-sectional study in inflammatory bowel disease patients. Saudi J Gastroenterol. 2020;26(5):256–62.
3. Bannaga AS, Selinger CP. Inflammatory bowel disease and anxiety: links, risks, and challenges faced. Clin Exp Gastroenterol. 2015;8:111–7.
4. Bernstein CN. Psychological stress and depression: Risk factors for IBD? Dig Dis Basel Switz. 2016;34(1–2):58–63.
5. Gracie DJ, Guthrie EA, Hamlin PJ, Ford AC. Bi-directionality of brain-gut interactions in patients with inflammatory bowel disease. Gastroenterology. 2018;154(6):1635-1646.e3.
6. Seyedian SS, Nokhostin F, Malamir MD. A review of the diagnosis, prevention, and treatment methods of inflammatory bowel disease. J Med Life. 2019;12(2):113–22.
7. Block KI, Gyllenhaal C, Lowe L, et al. Designing a broad-spectrum integrative approach for cancer prevention and treatment. Semin Cancer Biol. 2015;35(Suppl):S276–304.
8. Lichtenstein GR, Loftus EV, Isaacs KL, Regueiro MD, Gerson LB, Sands BE. ACG clinical guideline: Management of Crohn's disease in adults. Am J Gastroenterol. 2018;113(4):481–517.
9. Rubin DT, Ananthakrishnan AN, Siegel CA, Sauer BG, Long MD. ACG clinical guideline: Ulcerative colitis in adults. Am J Gastroenterol. 2019;114(3):384–413.
10. Mokhtar NM, Nawawi KNM, Verasingam J, et al. A four-decade analysis of the incidence trends, sociodemographic and clinical characteristics of inflammatory bowel disease patients at a single tertiary centre, Kuala Lumpur, Malaysia. BMC Public Health. 2019;19(4):550.
11. Mulder DJ, Noble AJ, Justinich CJ, Duffin JM. A tale of two diseases: the history of inflammatory bowel disease. J Crohns Colitis. 2014;8(5):341–8.
12. Feuerstein JD, Isaacs KL, Schneider Y, et al. AGA Clinical practice guidelines on the management of moderate to severe ulcerative colitis. Gastroenterology. 2020;158(5):1450–61.
13. Perkumpulan Gastroenterologi Indonesia. Konsensus penatalaksanaan inflammatory bowel disease (IBD). Jakarta: Perkumpulan Gastroenterol Indones; 2022.
14. Hu S, Chen Y, Chen Y, Wang C. Depression and anxiety disorders in patients with inflammatory bowel disease. Front Psychiatry. 2021;12:714057.
15. Li X, Song P, Li J, et al. The disease burden and clinical characteristics of inflammatory bowel disease in the Chinese population: A systematic review and meta-analysis. Int J Environ Res Public Health. 2017;14(3):238.
16. Burisch J, Jess T, Martinato M, Lakatos PL, ECCO -EpiCom. The burden of inflammatory bowel disease in Europe. J Crohns Colitis. 2013;7(4):322–37.
17. IsHak WW, Pan D, Steiner AJ, et al. Patient-reported outcomes of quality of life, functioning, and GI/psychiatric symptom severity in patients with inflammatory bowel disease (IBD). Inflamm Bowel Dis. 2017;23(5):798–803.
18. Szigethy E, Murphy SM, Ehrlich OG, et al. Mental health costs of inflammatory bowel diseases. Inflamm Bowel Dis. 2021;27(1):40–8.
19. Tarricone I, Regazzi MG, Bonucci G, et al. Prevalence and effectiveness of psychiatric treatments for patients with IBD: A systematic literature review. J Psychosom Res. 2017;101:68–95.
20. Gracie DJ, Hamlin PJ, Ford AC. The influence of the brain-gut axis in inflammatory bowel disease and possible implications for treatment. Lancet Gastroenterol Hepatol. 2019;4(8):632–42.
21. Barberio B, Zamani M, Black CJ, Savarino EV, Ford AC. Prevalence of symptoms of anxiety and depression in patients with inflammatory bowel disease: a systematic review and meta-analysis. Lancet Gastroenterol Hepatol. 2021;6(5):359–70.
22. Choi K, Chun J, Han K, et al. Risk of anxiety and depression in patients with inflammatory bowel disease: A nationwide, population-based Study. J Clin Med. 2019;8(5):654.
23. Bernstein CN, Zhang L, Lix LM, et al. The validity and reliability of screening measures for depression and anxiety disorders in inflammatory bowel disease. Inflamm Bowel Dis. 2018;24(9):1867–75.

24. Narula N, Pinto-Sanchez MI, Calo NC, et al. Anxiety, but not depression, predicts poor outcomes in inflammatory bowel disease. Inflamm Bowel Dis. 2019;25(7):1255–61.
25. Faraj J, Takanti V, Tavakoli HR. The gut-brain axis: literature overview and psychiatric applications. Fed Pract. 2021;38(8):356–62.
26. Appleton J. The gut-brain axis: influence of microbiota on mood and mental health. Integr Med Clin J. 2018;17(4):28–32.
27. Weaver E, Szigethy E. Managing pain and psychosocial care in IBD: A primer for the practicing gastroenterologist. Curr Gastroenterol Rep. 2020;22(4).
28. Rozich JJ, Holmer A, Singh S. Effect of lifestyle factors on outcomes in patients with inflammatory bowel diseases. Am J Gastroenterol. 2020;115(6):832–40.
29. Lewis K, Marrie RA, Bernstein CN, et al. The prevalence and risk factors of undiagnosed depression and anxiety disorders among patients with inflammatory bowel disease. Inflamm Bowel Dis. 2019;25(10):1674–80.
30. Regueiro M, Greer JB, Szigethy E. Etiology and treatment of pain and psychosocial issues. Gastroenterology. 2017;152(2):430-439.e4.
31. Goodhand JR, Wahed M, Mawdsley JE, Farmer AD, Aziz Q, Rampton DS. Mood disorders in inflammatory bowel disease: Relation to diagnosis, disease activity, perceived stress, and other factors. Inflamm Bowel Dis. 2012;18(12):2301–9.
32. Tarescavage AM, Forner EH, Ben-Porath Y. Construct validity of DSM-5 level 2 assessments (PROMIS depression, anxiety, and anger): evidence from the MMPI-2-RF. Assessment. 2021;28(3):788–95.
33. McGuire FH, Carl A, Woodcock L, et al. Differences in patient and parent informant reports of depression and anxiety symptoms in a clinical sample of transgender and gender diverse youth. LGBT Health. 2021;8(6):404–11.
34. Zimmerman M, Martinez JH, Young D, Chelminski I, Dalrymple K. Severity classification on the Hamilton depression rating scale. J Affect Disord. 2013;150(2):384– 8.
35. Mitchell AJ. Clinical utility of screening for clinical depression and bipolar disorder. Curr Opin Psychiatry. 2012;25(1):24–31.
36. Topp CW, Østergaard SD, Søndergaard S, Bech P. The WHO-5 well-being index: A systematic review of the literature. Psychother Psychosom. 2015;84(3):167–76.
37. Holi M. Assessment of psychiatric symptoms using the SCL-90. University of Helsinki, 2003.
38. Yiengprugsawan V, Kelly M, Tawatsupa B. Kessler psychological distress scale. Encyclopedia of quality of life and well-being research. Springer; 2014. p. 3469–70.
39. Campbell-Sills L, Norman SB, Craske MG, et al. Validation of a brief measure of anxiety-related severity and impairment: The overall anxiety severity and impairment scale (OASIS). J Affect Disord. 2009;112(1–3):92–101.
40. Colombel JF, Shin A, Gibson PR. AGA clinical practice update on functional gastrointestinal symptoms in patients with inflammatory bowel disease: Expert review. Clin Gastroenterol Hepatol Off Clin Pract J Am Gastroenterol Assoc. 2019;17(3):380-390.e1.
41. Neilson K, Ftanou M, Monshat K, et al. A Controlled study of a group mindfulness intervention for individuals living with inflammatory bowel disease. Inflamm Bowel Dis. 2016;22(3):694–701.
42. Shikatani B, Antony MM, Kuo JR, Cassin SE. The impact of cognitive restructuring and mindfulness strategies on post-event processing and affect in social anxiety disorder. J Anxiety Disord. 2014;28(6):570–9.
43. Mikocka-Walus A, Bampton P, Hetzel D, Hughes P, Esterman A, Andrews JM. Cognitive-behavioural therapy for inflammatory bowel disease: 24-month data from a randomized controlled trial. Int J Behav Med. 2017;24(1):127–35.
44. Mikocka-Walus A, Ford AC, Drossman DA. Antidepressants in inflammatory bowel disease. Nat Rev Gastroenterol Hepatol. 2020;17(3):184–92.
45. Szigethy E. Hypnotherapy for inflammatory bowel disease across the lifespan. Am J Clin Hypn. 2015;58(1):81–99.
46. Paulides E, Boukema I, van der Woude CJ, de Boer NKH. The effect of psychotherapy on quality of life in IBD patients: A systematic review. Inflamm Bowel Dis. 2020;27(5):711–24.
47. Prendergast KL, Gowey MA, Barnes MJ, Keller CV, Horne C, Young J. Treating anxiety and depression in inflammatory bowel disease: a systematic review. Psychol Health. 2022 Jan 2;37(1):105–30.