

CLINICAL AND SYSTEMATIC REVIEWS

Psychological Interventions for Irritable Bowel Syndrome and Inflammatory Bowel Diseases

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Psychological interventions have been designed and implemented effectively in a wide range of medical conditions, including Irritable Bowel Syndrome (IBS) and Inflammatory Bowel Diseases (IBD). The psychological treatments for IBS and IBD with the strongest evidence base include: cognitive behavioral therapy, hypnosis, and mindfulness-based therapies. The evidence for each of these therapies is reviewed here for both IBS and IBD. In general, there is a stronger and larger evidence base to support the use of psychological interventions in IBS compared with IBD. This is likely due to the high level of psychiatric comorbidity associated with IBS and the involvement of the stress-response in symptom presentation of IBS. Further research in psychosocial interventions for IBD is necessary. Finally, the importance of conceptualizing both IBS and IBD in a biopsychosocial model is discussed and several resources for accessing Clinical Health Psychology materials and referrals are provided.

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INTRODUCTION

Psychological interventions have been designed and implemented effectively in a wide range of medical conditions. The subspecialty area of clinical health psychology aims specifically to identify and target stress-related and psychological factors that may contribute to the impact or expression of medical problems. Over the past several decades, health psychology and gastroenterology have become increasingly aligned, with a large body of research to support the effectiveness of psychological interventions for a range of gastrointestinal (GI) disorders. This review will outline and describe health psychology interventions for two of the most burdensome GI disorders: irritable bowel syndrome (IBS) and inflammatory bowel diseases (IBD).

IBS and IBD are distinct medical conditions that share some similarities in symptoms and illness burden. IBS is a functional disorder characterized by abdominal pain and abnormalities in defecation while IBD represents a range of organic, immune-mediated inflammatory disorders (e.g., Crohn's disease and ulcerative colitis), characterized by abdominal pain, urgent diarrhea, rectal bleeding, weight loss and fatigue. Although the etiologies of these disorders are different, both are associated with high disease burden and low quality of life and psychological interventions can be helpful in both disorders.^{1,2} Among patients with IBS, psychological interventions can serve as stand-alone therapies to decrease physical GI symptoms and improve overall functioning. Among patients with IBD, psychological interventions complement and may even optimize existing medical interventions in an effort to improve quality of life, medical adherence, and to help patients cope with the effects of a chronic illness.

The psychological treatments for IBS and IBD with the strongest evidence base include cognitive behavioral therapy, hypnosis, and mindfulness-based therapies. Other treatments that have been tested in IBS and IBD, but have revealed weaker evidence, include psychodynamic and interpersonal therapies. These therapies are discussed in detail below and the literature pertaining to IBS and IBD is reviewed for each. In general, the reader will find that there is a much smaller evidence base for psychological treatments for IBD compared with IBS; psychotherapy for IBD is a much newer area of research. This research gap is largely due to the psychologist being able to clearly demonstrate clinical success, given the functional nature of IBS, the involvement of the stress-response in symptom presentation of IBS, and the very high rate of psychiatric comorbidity with IBS. Nonetheless, there is evidence for the use of certain psychological treatments in IBD and these will be discussed.

It should also be mentioned that there is a high rate of comorbidity between IBS and IBD, with 30–50% of patients diagnosed with IBD also reporting IBS-type symptoms^{3–5} (defined as active gastrointestinal symptoms in the setting of endoscopic remission of IBD). With this in mind, psychological treatments that are effective in IBS will likely also be effective in IBD patients who suffer from comorbid IBS, although this has not been adequately studied.

COGNITIVE BEHAVIORAL THERAPY (CBT)

Cognitive behavioral therapy was developed initially as a treatment for depression.⁶ In the CBT model, the relationship between situations, thoughts, behaviors, physical reactions,

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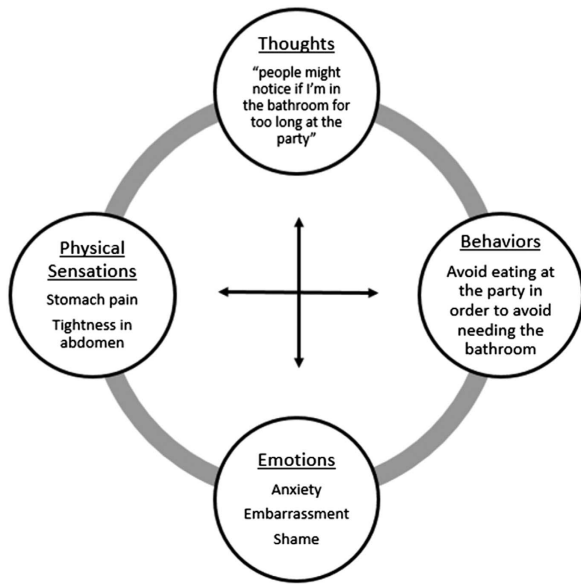


Figure 1 Cognitive behavioral model.

and emotions is the primary focus of treatment. Patients build insight into the relationship between each of these factors and learn ways to intervene on their thoughts, their behaviors, and even their physiologic responses to improve mood or emotions (Figure 1). For example, patients may learn to catch and change unhelpful thinking patterns; to engage in relaxation exercises; and to change behaviors (i.e., avoidance and isolation) that may contribute to physical or psychological distress.

IBS. CBT is the most widely-studied psychotherapy treatment for IBS and there is a strong evidence base to support the use of CBT as a first-line treatment in this patient population. The cognitive behavioral model for treating IBS focuses primarily on the following components: (1) psychoeducation about the stress response and its relationship to GI symptoms; (2) Building insight into cognitive and behavioral responses to IBS symptoms and/or fear of symptoms; and (3) Modifying those responses to decrease distress related to IBS and decrease physical reactivity to stress.⁷ There is no singular standardized protocol of CBT for IBS, and different research studies have applied this treatment in slightly different ways, typically within 6–12 therapy sessions, although the optimal number of CBT sessions for IBS is not yet known. Research seeking to establish standard 'dosing' of CBT for IBS has found that 4 therapy sessions delivered over the course of 10 weeks was as effective as 10 sessions over 10 weeks,⁸ leading to the development of a cost-effective minimal-contact model for CBT,⁹ which is currently being tested. Although most research has evaluated CBT for IBS using individual, face-to-face treatment, CBT can also be delivered effectively in groups and via telehealth or internet-based protocols.^{10–12} However, there is evidence to suggest that a face-to-face format may be preferred by some patients, especially those who are less motivated to make changes or to complete self-monitoring exercises.¹³

In randomized controlled trials, CBT for IBS has been shown to be effective when compared with control groups¹⁴ and to standard medical interventions.^{15–17} Recent meta analyses have found that CBT for IBS is highly effective in improving bowel symptoms, quality of life, and psychological distress and that these effects persist beyond the treatment phase and into long-term follow-up.^{1,18–20} Furthermore, a recent study used mediational analysis to identify mechanisms by which CBT affects IBS symptom expression and revealed that CBT has a direct effect on IBS symptoms, independent of its effects on psychological distress.²¹ Newer forms of CBT are currently being developed to target IBS symptoms and illness-related behaviors directly (e.g., exposure based therapies),^{22–24} which may be an appealing option especially for IBS patients without comorbid psychological concerns.

IBD. There is a much smaller body of evidence to evaluate the efficacy of CBT for IBD. In existing studies, proposed cognitive behavioral models for the treatment of IBD focus on coping with illness, adhering to medical recommendations, and addressing any underlying symptoms of anxiety or depression. Just as in CBT for IBS there is no singular CBT protocol for IBD, and different studies have applied the cognitive behavioral model in different ways with this population.

The evidence base for use of CBT with IBD is mixed.^{25,26} Unlike in IBS, CBT for IBD has generally not been shown to produce improvements in physical symptoms or overall disease status in adult patients.² However, CBT for IBD may serve to improve quality of life and coping skills among this patient population.²⁶ Previous studies have shown that individuals who have IBD and a comorbid psychological diagnosis tend to experience increased disease activity and worse complications.²⁷ Thus, most of the available research has suggested that CBT can be effective for individuals with IBD when they also report comorbid psychiatric symptoms or very low quality of life.²⁸ Among adult patients with IBD who do not have comorbid psychiatric symptoms, the data is mixed and is based on a small number of studies.^{29,30}

Interestingly, CBT for IBD has produced more promising results in adolescents. A 2011 Cochrane review based on 2 adolescent studies^{31,32} found that CBT had a small, positive effect for quality of life, coping, depression, and anxiety for adolescents but not adults.³³ Since then, a randomized controlled study has revealed that both CBT and supportive therapy can reduce symptoms of depression and improve quality of life in adolescents with IBD and that CBT may be associated with reduced IBD activity.³⁴

For patients who do not exhibit psychiatric symptoms and/or who are not interested in traditional psychotherapy, Behavioral or Self-Management Therapy may be effective, although it requires further study. In Behavioral/Self-Management Therapy, the goal is to target negative health behaviors (e.g., poor medication compliance; dietary non-adherence) to improve overall physical health. This therapy is informed by the CBT model but does not incorporate the cognitive component of traditional CBT, which evaluates negative or distressing thought patterns. The trials that have evaluated Behavioral/Self-Management for IBD have suggested that this may help to improve disease outcomes and quality of life.^{35,36}

HYPNOTHERAPY

Hypnotherapy has been used in a wide range of medical conditions and has been shown to be effective in reducing or alleviating physical symptoms of cancer,³⁷ arthritis,³⁸ fibromyalgia,³⁹ and chronic pain.⁴⁰ Gut-directed hypnotherapy is a variation of medical hypnosis that focuses post-hypnotic suggestions on the health of the gastrointestinal tract. This treatment typically involves 7–12 weekly sessions in which patients first learn to achieve and deepen a hypnotic state and are then led through a series of scripted, gut-focused imageries with hypnotic suggestions in each session (Figure 2). Patients practice these exercises at home using audio recordings and are typically asked to track their progress and symptoms using self-monitoring forms.⁴¹

IBS. Gut-directed hypnotherapy has been shown to be highly effective in the treatment of IBS, including treatment-refractory IBS.⁴² There are currently two available standardized hypnotherapy protocols for IBS: the Manchester Approach⁴³ and the North Carolina Protocol.⁴⁴ Both are scripted, gut-directed hypnotherapy protocols and are meant to be delivered in 7–10 sessions over a 8–12 week period.

The first controlled trial to evaluate hypnotherapy in IBS was published in 1984 and found hypnotherapy to be more effective than control treatment in improving abdominal pain, bloating, bowel dysfunction, and quality of life.⁴⁵ Since that time, these findings have been replicated and extended by several research groups using both the Manchester Approach and the North Carolina Protocol to demonstrate the efficacy of hypnotherapy in this patient population.^{46–51} Hypnotherapy has been shown to have long-term benefits, with 83% of responders in one study maintaining treatment benefits for 1–5 years after the course of treatment.⁵² It is also at least as effective as dietary treatment (FODMAPS) for IBS⁵¹ and has been shown to be a useful addition to standard medical care.⁵³ Similar to the literature evaluating CBT for IBS, the literature evaluating hypnotherapy primarily involves individual, face-to-face treatment. There is some evidence to suggest that group hypnotherapy may be effective in this population of patients,^{54,55} although further research in this area is warranted.

The mechanism of action for hypnotherapy in IBS is not fully understood. Hypnotherapy is hypothesized to produce direct effects on gut function,^{56,57} visceral sensitivity,⁵⁸ and psychological factors (e.g., cognitive patterns, anxiety, and depression).^{59,60} Furthermore, imaging studies have suggested that hypnotherapy may normalize pain processing in the anterior cingulate cortex, a region of the brain that has been shown to be over-active in some IBS patients.^{61,62}

IBD. Most of the available literature to support the use of hypnotherapy in IBD involves small samples and case studies. Nonetheless, compelling data have been presented to suggest that hypnotherapy can reduce rectal mucosal inflammatory responses (IL-6, IL-13, TNF- α , substance P, and histamine) in patients with ulcerative colitis after just one session of hypnotherapy.⁶³ In the only randomized controlled study of hypnotherapy in IBD, 54 patients with quiescent ulcerative colitis received 7 sessions of hypnotherapy and

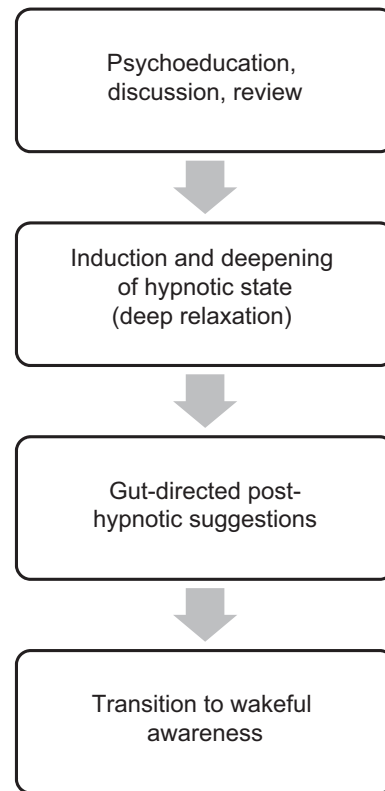


Figure 2 Typical stages of a hypnotherapy session.

demonstrated prolonged clinical remission by ~2.5 months compared with controls.⁶⁴ Finally, in a study of 15 patients with severe, active IBD who received 12 sessions of gut-directed hypnotherapy followed by 5 years of follow up, 26.6% of patients maintained remission for the entire 5 years and 60% of patients did not require further corticosteroid therapy for entire follow-up period.⁶⁵ The mechanism of action for hypnotherapy in IBD has not yet been evaluated and future studies should seek to clarify this question.

MINDFULNESS

Mindfulness-based therapy (MBT) is a form of treatment that uses meditation and relaxation to foster awareness and acceptance of the present moment. This kind of therapy requires individuals to practice noticing and observing details about their surroundings without passing judgment or reacting to triggers in the environment. This practice typically takes place through formal exercises with the ultimate goal of learning to engage this non-judgmental and non-reactive mindset in one's day-to-day activities (Table 1). Although there are many variations of MBTs, most are based on Jon Kabat-Zinn's Mindfulness Based Stress Reduction (MBSR) program for coping with chronic illness.⁶⁶

In IBS and IBD, mindfulness-based exercises are not necessarily specific to GI-illnesses, although they may be practiced in the setting of active GI symptoms and may be modified to focus directly on GI symptoms if indicated. The goal of these exercises is to notice and to accept discomfort

Table 1 Common mindfulness exercises

Exercise	Description
Mindful breathing	Purposefully observe breath cycles, noticing and observing the air travel in and out of the body.
Mindful eating	Choose a food (e.g. raisin) and practice eating mindfully. Hold the raisin, see, touch, smell, place in mouth, taste, and swallow. Observe this process for 3–5 min.
Mindful listening	Close eyes and notice the sounds in the environment
Mindful observation	Choose an object and observe it for 2–3 min, noticing the texture, shape, weight, and color etc.

(physical and/or mental) without making any judgments or attempts to change the present moment. This skill can be achieved and practiced at first using neutral or day-to-day activities such as breathing or eating. Eventually, this skill may be applied to more salient situations such as active symptom experience in order to promote a calm and non-reactive response to symptoms that may have once caused physical or emotional distress.

IBS. MBTs have been used effectively for a wide range of psychiatric and medical diagnoses,^{67,68} including IBS.^{69,70} Among patients with IBS, MBT is shown to decrease hypervigilance to visceral sensations, to decrease catastrophization in the setting of active symptoms, and to lead to improvement in overall symptoms and quality of life.⁷¹ In 2011, a randomized control trial demonstrated a 38.2% reduction in IBS symptom severity, along with improvement in quality of life, after having completed 8 weekly training sessions in mindfulness.⁷¹ In 2013, another study replicated these findings and demonstrated maintenance of improvements in IBS symptom severity and psychological distress up to 6 months post-treatment.⁷² However, it should be noted that the participants in these studies were primarily affluent, Caucasian women, and these results may not be generalizable to the larger population of IBS sufferers. Clearly, the evidence base for MBT is much smaller than for CBT or hypnosis and further research is needed. In future research, MBT skills may be incorporated into CBT protocols to produce a hybrid treatment; this treatment blend has been found effective in a preliminary, internet-based treatment trial.^{73,74}

IBD. Several studies have evaluated the efficacy of mindfulness-based interventions in IBD. These studies have demonstrated effects in patients with both active and inactive disease and have included Ulcerative Colitis and Crohn's Disease. A recent study comparing MBT to waitlist control found that the mindfulness group reported significant improvements in anxiety, quality of life, and depression when compared to the control group.⁷⁵ This study also found that these effects persisted at 6-month follow-up. Other studies have produced compelling but less clear results. In 2014, a study comparing group MBT to group psychoeducation (time/attention control) did not find any significant differences between groups in terms of disease activity, mindfulness, depression, or anxiety, but did find that the participants who completed MBT reported higher quality of life during their next disease flare.⁷⁶ Similarly, another study of 55 patients with both IBD and IBS symptoms found that MBT produced

higher quality of life scores, although their results were not statistically significant.⁷⁷

PSYCHODYNAMIC AND INTERPERSONAL THERAPIES

Psychodynamic therapies have not been tested as rigorously as have CBT, hypnosis, and mindfulness in patients with gastrointestinal disorders. This is partly due to the nature of these therapies, which are not manualized and can be difficult to test in a controlled research environment. Of the trials that do exist with GI populations, brief psychodynamic and brief interpersonal therapies have been used (usually lasting 10–12 sessions). These therapies are un-structured and their goal is to build insight into different aspects of one's illness experiences. This is typically achieved through an in-depth discussion of symptoms and interpersonal conflicts. For the purposes of this review, the term "psychodynamic" will be used to refer to both brief interpersonal and brief psychodynamic treatments, which have significant overlap and which are both based in psychodynamic theory.

IBS. There are few available research studies evaluating brief psychodynamic psychotherapy for IBS. The first available study is from 1983 by Svedlund *et al.*,⁷⁸ in which 101 patients were randomized to two groups: medical treatment alone (standard care) or medical treatment with 10 weekly sessions of psychodynamic psychotherapy. After 3 months, the patients who received psychotherapy reported more symptom improvement than those who received only medical treatment and these group differences persisted at 1-year follow-up. In the 1990s, Guthrie *et al.* conducted two studies demonstrating that 12 weeks of psychodynamic therapy was superior to supportive listening, but suggested that this difference might apply only to women.^{79,80} More recently, Creed *et al.* compared psychodynamic therapy to an antidepressant group and a standard care group and found no differences between psychodynamic therapy and antidepressant treatment, although both were superior to standard care.⁸¹ Creed's findings also suggested that psychodynamic therapy might be most effective for individuals with trauma histories.⁸²

IBD. Only one study to our knowledge has evaluated psychodynamic treatment for IBD. In 2004, Keller *et al.* compared 12 weeks of psychodynamic therapy to standard care in a sample of 81 patients with Crohn's Disease.⁸³ No differences were found between psychodynamic therapy and standard care on psychosocial or disease variables, but a

tendency towards fewer surgical procedures and fewer relapses in the psychodynamic group was noted.

CONCLUSION

There is strong evidence to support the use of a variety of psychotherapeutic interventions for patients with gastrointestinal illnesses. This paper reviewed three of the most common evidence-based psychological treatments for IBS and IBD (cognitive behavioral therapy; hypnotherapy; and mindfulness-based therapy) and also presented evidence for other psychotherapies that have been tested but have produced weaker results (psychodynamic and interpersonal therapies). There is a large body of literature to support the use of psychological interventions with IBS and a smaller, growing body of literature evaluating these interventions in IBD. This discrepancy is not surprising as IBS is traditionally classified with the functional disorders, which tend to be more psychosocially complex, and IBD is an organic disease with fewer psychiatric and social contributors. Despite this, psychotherapeutic interventions can be useful in both illnesses.

Not only can the interventions reviewed in this paper improve quality of life and mental health among patients with IBS and IBD, these therapies also directly target physiological processes by reducing arousal of the autonomic nervous system, decreasing the stress-response, and even reducing inflammation. This physiologic effect is largely due to the so-called brain-gut axis, which explains in part the common gastrointestinal consequences of stress and anxiety. Although the brain-gut axis is particularly important in the treatment of IBS, it is also relevant among patients with IBD, especially when considering the increased likelihood of an IBD flare in the context of chronic stress.^{84,85}

In the subspecialty area of clinical health psychology, all physical illness is considered and treated in the framework of the biopsychosocial model in which a patient's symptom presentation and experience is contextualized given his/her unique medical, psychological, and social history. This is especially important when considering functional disorders, like IBS, but is also valuable in the context of chronic relapsing and remitting diseases such as IBD. Furthermore, many patients with IBD present with overlapping functional gastrointestinal symptoms, which may be particularly vulnerable to stress and other psychosocial variables. In IBD patients with comorbid IBS, the psychological approaches mentioned here can be expected to work by reducing or alleviating psychosocial contributors to symptom severity (IBS-focused) while also improving health behaviors such as adherence to dietary and medical recommendations (IBD-focused). For example, if a patient with IBD is in clinical remission based on laboratory tests but is reporting active GI symptoms (e.g., abdominal pain and diarrhea), an evidence-based psychotherapy for IBS might be appropriate. If, on the other hand, a patient is experiencing mild symptoms of active IBD or is reporting distress related specifically to their diagnosis of IBD, an evidence-based psychotherapy for IBD may be indicated. In clinical practice, it is common for these two approaches to be combined to suit the needs of a patient with comorbid IBD and IBS. It should be noted, however, that there are not

currently any research studies to evaluate the effects of psychotherapy for IBD with comorbid IBS and future research in this area is necessary.

OUTLOOK

Given the importance of stress and psychosocial variables on the overall functioning of many patients with IBS and IBD, it is clinically valuable to offer all IBS and IBD patients access to multidisciplinary treatment to address disease aspects related to both mind and body. However, this option is not yet available to most gastroenterology patients due largely to the financial barriers of establishing a large multidisciplinary practice as well as to the lack of appropriately trained health psychologists with expertise in psychosocial gastroenterology. When a gastroenterology patient is able to receive multidisciplinary care, it typically takes place through referrals to different, specialized practices and communication between these providers is often poor.

Ideally, a patient would be seen by a multidisciplinary team within the same practice. This would allow providers to collaborate and consult with each other and would provide a richer and more comprehensive treatment plan to each patient. For example, if a gastroenterologist, psychologist, and nutritionist are available to discuss a patient's treatment plan, each of these providers can reinforce and build on the work of the others. The psychologist can help a patient to implement behavioral changes (i.e., dietary and medical adherence) while a nutritionist can remain informed about psychosocial barriers that might impede change or motivation. The gastroenterologist, meanwhile, gains a richer biopsychosocial perspective about a patient that would otherwise be difficult to obtain through regularly scheduled medical follow-ups. Through this collaboration, the patient is more likely to feel nurtured and satisfied with their treatment.

To work towards such a practice as the standard of care, more health psychologists need to be trained in and recruited to work in gastroenterology. Furthermore, the value of multidisciplinary collaboration needs to be demonstrated to medical students and trainees to build the foundation for a medical model in which preventive care and mind-body treatments are regarded as key components in the treatment of functional disorders.

Finally, although we did not cover nursing self-management interventions in this paper, there are several studies supporting their benefit in mild to moderate IBS patients. Having nurses and nurse practitioners develop programs based on the evidence-based, nurse-led IBS self-management protocols developed at University of Washington⁸⁶⁻⁸⁸ and/or having nurses recommend and support the use of patient self-help books (such as "Master Your IBS: An 8-Week Plan Proven to Control the Symptoms of IBS"⁸⁹ or "Controlling IBS the Drug Free Way"⁹⁰) could bridge existing gaps in psychosocial care for GI disorders.

RESOURCES

Clinical health psychology resources for patients and providers can be found through the following organizations: Society of Behavioral Medicine (www.sbm.org); Association for

Behavioral and Cognitive Therapies (<http://www.abct.org>); International Foundation for Functional Disorders (www.iffgd.org); and "IBShypnosis.com" (<http://ibshypnosis.com/>). Patient-specific handouts related to functional and motility disorders can be accessed through the University of North Carolina's Functional GI and Motility Disorders website (<https://www.med.unc.edu/ibs/patient-education/educational-gi-handouts>).

CONFLICT OF INTEREST

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