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Comparative efficacy of psychological therapies for improving mental health and daily functioning in irritable bowel syndrome: A systematic review and meta-analysis



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HIGHLIGHTS

- A meta-analysis of 31 RCTs of psychotherapy for adults with IBS was conducted.
- Psychotherapy significantly improved both mental health and daily functioning.
- Several therapy modalities were similarly effective for improving mental health.
- Cognitive behavior therapy was most effective at improving daily functioning.

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ABSTRACT

Previous meta-analyses have shown that psychotherapy improves gastrointestinal symptoms in adults with irritable bowel syndrome (IBS); however, the impact on functioning in daily activities is unknown. Meta-analysis was used to estimate the effect of psychotherapy on mental health and daily functioning in adults with IBS. An extensive literature search located 28 eligible randomized controlled trials (RCTs) providing outcome data for mental health and 18 RCTs providing data for daily functioning. Compared to a mixed group of control conditions, psychotherapy produced significantly greater improvements to mental health ($\bar{d} = 0.41$) and daily functioning ($\bar{d} = 0.43$). Cognitive behavior therapy (CBT) was evaluated in the largest number of trials (21 trials), followed by hypnosis (4 trials), psychodynamic (3 trials), and relaxation (2 trials). The psychotherapeutic modalities were comparable with respect to their effect on mental health. CBT produced the greatest improvements to daily functioning, and this effect was significantly larger than that produced by relaxation therapy. These results have important clinical implications for treatment of adults with IBS.

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Abbreviations: GI, gastrointestinal; IBS, irritable bowel syndrome; ITT, intent-to-treat; RCT, randomized controlled trial; SMD, standardized mean difference; TAU, treatment as usual.
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1. Introduction

Irritable Bowel Syndrome (IBS) is a common and often debilitating functional gastrointestinal disorder (FGID) characterized by abdominal pain and altered bowel habits. Like other FGIDs, IBS is thought to result from reciprocal interactions between biological, psychological, and social factors, and has no universally effective medical treatment (Van Oudenhove et al., 2016). Individuals with IBS report difficulties with a broad range of daily activities compared to healthy controls (Hungin et al., 2003). A systematic review of eleven studies found that the average cost of IBS to an individual's productivity ranges from \$335 to \$748 per year, with the total annual indirect cost estimated to be \$205 million in the United States (Inadomi et al., 2003). This sizable impact of IBS on daily functioning likely results not only from gastrointestinal discomfort but also from emotional distress (Bass, 2009). Psychological disorders affect 50% to 94% of IBS patients (Lydiard, 2001; Whitehead et al., 2002), and number of psychiatric diagnoses has been shown to predict both degree of physical role limitations and number of days of restricted activity 15 months later. The degree of distress was so great in one sample of tertiary care patients that 38% reported seriously contemplating suicide as a result of their symptoms (Miller et al., 2004).

The lack of satisfactory medical treatment for IBS has led to the development of a variety of psychological therapies. The rationale for such therapies is grounded in the biopsychosocial model described by Engel (Engel, 1980; Engel, 1977) and applied to FGIDs by Drossman and colleagues (Drossman, 1998; Halpert & Drossman, 2005; Tanaka et al., 2011). As it applies to IBS, this model states that thoughts, emotions, and behaviors are bidirectionally related to gut physiology and symptom manifestations. The model delineates several pathways through which psychological factors may affect clinical outcomes (e.g., gastrointestinal symptoms, emotional wellbeing, and daily functioning) in IBS.

Although several meta-analyses have evaluated the effect of psychological therapies on gastrointestinal symptoms in IBS (Ford et al., 2014; Ford et al., 2009; Lackner et al., 2004; Laird et al., 2016), effects on other important patient-reported outcomes remain largely unexamined. Specifically, no meta-analysis to date has investigated the effect of psychotherapies on functioning in daily activities, and only one meta-analysis (published more than a decade ago) has evaluated the effect of psychotherapies on mental health among individuals with IBS (Lackner et al., 2004). Furthermore, no meta-analysis to date has investigated whether therapeutic modality moderates these effects. Our previous meta-analysis reported that cognitive behavior therapy (CBT),¹ relaxation therapy, and hypnosis therapy were similar in the magnitudes of their effects on gastrointestinal symptoms (Laird et al., 2016); however,

whether these therapeutic modalities are comparable in their effects on mental health and functioning is unknown. Because CBT is more likely to promote behavior change, it is possible that CBT will be associated with greater improvements to functioning compared to other therapeutic modalities.

Whether delivery method (online vs. in-person) or format of therapy (group vs. individual) moderate improvements to mental health and daily functioning is another important question to explore, as this may promote more effective or efficient delivery of psychotherapy in this population. Our previous meta-analysis reported that therapies delivered online were no less effective for reducing gastrointestinal symptoms than therapies delivered in person (Laird et al., 2016). This could be good news for individuals living in geographically remote areas; however, whether online therapies are as effective at improving mental health and daily functioning is unknown. Similarly, our previous meta-analysis found that format of therapy (group vs. individual) did not significantly moderate the efficacy of psychotherapy for improving gastrointestinal symptoms. If therapy delivered in a group format is as effective as individual therapy for improving mental health and daily functioning, this could be a cost-effective method of delivery.

How the dose of therapy is related to therapeutic outcomes is another important question. A recent meta-regression of psychotherapy for depression found that more sessions, greater total contact time between therapist and patient, and greater number of sessions per week each correlated with greater symptom improvement (Cuijpers et al., 2013). However, these authors also found that a longer duration of therapy in weeks was associated with *less* reduction of depressive symptoms. In our previous meta-analysis, the effect of psychotherapy on gastrointestinal symptoms was not significantly moderated by any of the dosage variables coded (number of sessions, session duration, therapy duration in weeks, session frequency (Laird et al., 2016)). What effect such dosage characteristics have on improvements to mental health and daily functioning in IBS is unknown.

Conclusions about the efficacy of psychotherapy for IBS also may be premature without adequate consideration of the type of control condition used. Unlike medication trials, in which placebo controls are the gold standard, control conditions utilized in psychotherapy trials vary widely (Huang et al., 2015). In our previous meta-analysis, gastrointestinal symptom improvement was similar for trials using active ($\bar{d} = 0.66$) vs. non-active controls ($\bar{d} = 0.68$) (Laird et al., 2016). How control condition type influences improvements to mental health and daily functioning has yet to be investigated. Country in which the study was conducted was another moderator of interest. In our previous analysis, we found that studies conducted in Sweden produced significantly greater reductions in gastrointestinal symptoms compared to studies conducted in the US and the UK (Laird et al., 2016). Of the five Swedish trials included, the two providing exposure-based CBT had especially large effect sizes and likely at least partially account for the greater average effect size found in Swedish trials. Whether Swedish studies also demonstrate a greater improvement to mental health and daily functioning is unknown.

¹ Despite its name, cognitive therapy is a cognitive behavioral intervention that often incorporates behavioral strategies in the service of testing beliefs. Therefore we included interventions labeled "cognitive therapy" within the larger category of "cognitive behavior therapy".

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