

SPECIAL TOPICS

Hypnosis Treatment of Irritable Bowel Syndrome: Effects on Symptoms and Psychophysiology

Olafur Palsson, PsyD

Division of Digestive Diseases, University of North Carolina, Chapel Hill, NC

Keywords: irritable bowel, hypnosis, abdominal pain, psychological treatment, physiology

Irritable bowel syndrome (IBS) is a costly chronic health problem that affects about 10%–15% of the population and is treated with limited success in standard medical care. Hypnosis treatment is an effective adjunct to standard care and has been investigated in 15 published studies. Hypnosis treatment improves IBS symptoms long-term for about three out of every four patients who fail to respond to conventional medical treatment, and it provides broad therapeutic benefits that generally last for years. The physiological mechanisms underlying bowel symptom improvement from hypnosis intervention remain poorly understood.

Introduction

Irritable bowel syndrome (IBS) is a chronic functional gastrointestinal disorder that is characterized by abdominal pain and altered bowel functioning (diarrhea, constipation, or an alternating between the two). It affects about 10%–15% of the U.S. population and is twice as common in women as in men (Drossman et al., 1993; Drossman, Camilleri, Mayer, & Whitehead, 2002). The majority of IBS sufferers have relatively mild symptoms, and many do not seek medical care. However, for a substantial minority of patients, the symptoms are severe and can be associated with considerable suffering, loss of work and school days, and impairment in social functioning.

IBS constitutes a considerable burden on health care resources. It is the most common health problem of patients visiting gastroenterologists, and IBS commonly ranks among the top 10 presenting problems of patients in primary care. HMO patients with IBS have more than twice as many health care visits and 49% higher overall health care costs than other HMO subscribers (Levy et al., 2001).

The causes of IBS are poorly understood. The conceptualization of the nature of IBS has gradually evolved over the last 25 years from simple biomedical

or physiological explanations to a multifactorial model where both physiological and psychosocial factors play a role in the predisposition, precipitation, and perpetuation of the condition (Drossman, 1998). The current consensus is that IBS involves both altered gut reactivity, altered pain perception, and brain-gut dysregulation (Drossman et al., 2002). However, a number of additional factors are recognized to modulate IBS morbidity and patient illness experience. These include immune changes after gut inflammation (leading to postinfectious IBS), sexual abuse history, childhood learning of illness behavior, high neuroticism, and high density of life stressors (Drossman et al., 2002). None of the individual contributing factors to IBS are found in all patients with the disorder, although some, such as visceral hyperalgesia, characterize half or more of tested patients. Multiple contributing factors are often copresent in the individual IBS patient.

Partly because the etiological mechanisms are unclear and complex, IBS has proven a difficult treatment target for conventional medical approaches. There are presently only two medications approved specifically for IBS treatment (Tegaserod [Novartis Pharmaceutical Corp., New Hanover, New Jersey] and Alosetron [GlaxoSmithKline, Brentford, England]). Both of these are limited to use with patients with particular IBS subtype, have only been shown to be effective in women, help at best half of patients, and lead to improvement that is in some studies a mere 10%–15% above placebo responses. Many other medications that are not specifically indicated for IBS are also used to treat the disorder, typically to target the most predominant symptoms (such as diarrhea or pain), but most have little evidence of effectiveness for IBS treatment (American College of Gastroenterology Functional Gastrointestinal Disorders Task Force, 2002). Diet change, education, and reassurance are common elements in standard medical treatment; these are actually

more common interventions in routine clinical care than are medications (Whitehead et al., 2003).

All in all, less than half of IBS patients are satisfied with the outcome of standard medical treatment (Thompson, Heaton, Smyth, & Smyth, 1997). In a prospective study of 1,660 HMO patients consulting doctors for their bowel problems, our research team found that although the majority of mild IBS cases responded to standard care, 55% of patients with symptoms classifiable as severe on a validated symptom index were still without adequate relief 6 months after the visit (Whitehead et al., 2004)

The limited effectiveness of standard medical care for severe IBS has led to extensive efforts to identify alternative therapies that can complement conventional approaches and improve outcomes. Of these, psychological treatments have proven most promising. A wide range of psychological treatments have been tested for IBS, including biofeedback, behavioral treatment, cognitive and cognitive-behavioral therapy, relaxation training, psychodynamic therapy, and hypnosis treatment, as well as various combinations of these modalities. Of the tested therapies, the effectiveness of cognitive/cognitive-behavioral therapy and hypnosis treatment has been best documented. Each of these therapy modalities has proven effective in controlled studies and been found to have a substantial impact on IBS in the majority of all published trials. I will only summarize here the experience with hypnosis treatment.

Hypnosis and IBS

In 1984, Whorwell and colleagues published a randomized and placebo-controlled study that attracted a lot of attention because of the striking effectiveness of the hypnotherapy used (Whorwell, Prior, & Faragher, 1984). The investigators randomly assigned 30 patients who had severe IBS that was refractory to standard medical care to either seven sessions of hypnosis treatment, delivered over a 12-week period, or to a control group who received the same amount of psychotherapy plus placebo pills (thus receiving a double placebo, as the psychotherapy was presumed to have little effectiveness). The hypnosis group showed dramatic improvement in all central IBS symptoms after treatment, whereas the control group had minimal improvement (only slight improvement in abdominal pain and bloating). A follow-up report added that all patients in the hypnotherapy sample

were still improved at 18-month follow-up, and that 35 additional patients had been treated successfully, with high success rate (95% success rate for patients with classic IBS symptoms).

In the next few years after these reports, several other investigators followed the example of Whorwell et al. and generally replicated the effectiveness of this treatment. However, Whorwell's Manchester team has remained the leader in this research domain and has published several of the key studies. This area of research has bloomed into a literature totaling about 15 studies to date with uniformly positive outcome findings.

North Carolina Protocol

In 1994, when I began a 2-year postdoctoral fellowship at the University of North Carolina at Chapel Hill under Dr. William Whitehead (who had spent much of his distinguished research career on understanding the psychophysiology of IBS), I already had past experience in clinical hypnosis research. He and I quickly discovered a common interest in testing for ourselves this novel therapy for IBS that seemed so much more effective than anything else for severe and treatment-refractory cases. We especially wanted to gain understanding of the mechanism of action of this treatment.

For the sake of both scientific rigor and to facilitate the generalizability of our version of IBS hypnosis treatment if it proved effective, we decided to take the unusual step of creating a completely standardized written protocol for verbatim delivery of the entire treatment course. In consultation with Dr. Whitehead, I wrote a seven-session hypnosis protocol. It was based on an intervention paradigm that aimed at changing attention focus and perceptual experience of the symptoms; attenuating psychological threat perception by reducing neuroticism and catastrophizing, both of which had been found to be elevated in IBS; neutralizing physiological stress and its triggering of gut reactions; and encouraging normal intestinal functioning through hypnotic suggestions and imagery.

We tested this standardized treatment in two studies, measuring both clinical symptom changes and physiological parameters that we hypothesized would be relevant. In the first study, our physiological variables of interest were bowel pain thresholds and the smooth muscle tone of the bowel wall, both of which

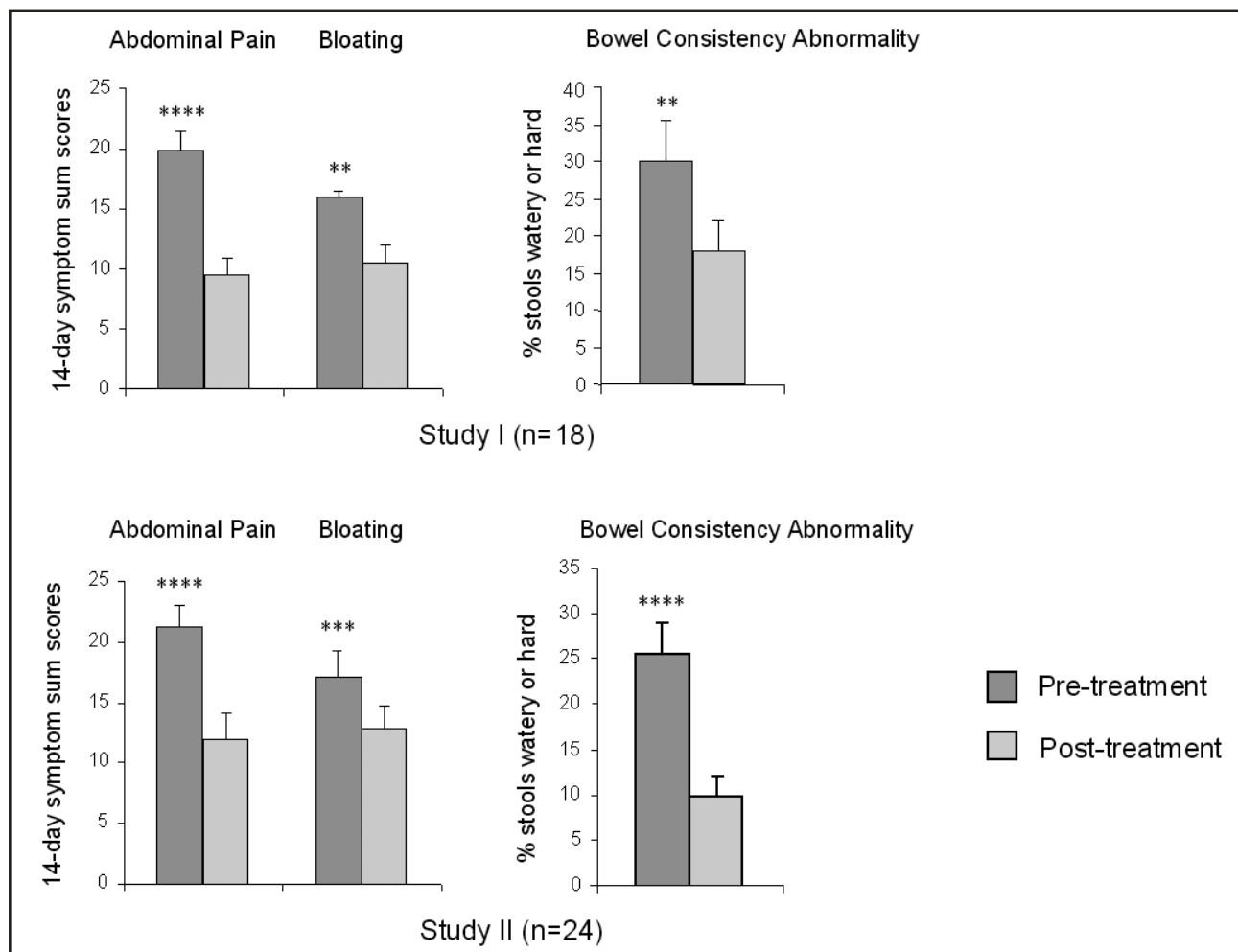


Figure 1. Effects of standardized hypnosis treatment on clinical symptoms of Irritable Bowel Syndrome.

* $p < .05$. ** $p < .01$. *** $p < .0001$. Note. From "Hypnosis treatment for severe Irritable Bowel Syndrome: investigation of mechanism and effects on symptoms," O.S. Palsson, M.J. Turner, D.A. Johnson, C.K. Burnelt, and W.E. Whitehead, 2002, *Digestive Disease and Sciences*, 47, p. 2608. Reprinted with permission.

were measured with computer-controlled balloon inflation tests inside the bowel lumen. In the second study, we used a well-standardized psychophysiological stress profile to measure surface parameters of autonomic activity (heart rate, blood pressure, skin temperature, and skin conductance) and skeletal muscle tension (forehead EMG) before and after the hypnosis treatment course.

The great majority of patients in both our studies (87% and 93%, respectively) showed significant clinical improvement, which on the average was quite substantial, as shown in the Figure. However, the physiological variables we tested revealed nothing that would suggest a mechanism of action. Visceral pain thresholds and smooth muscle tone were entirely unchanged after treatment, and no

stress profile parameters changed except for a small decrease in skin conductance reactivity (which we did not feel meant much because all the other autonomic parameters were unchanged). Thus, our standardized word-for-word protocol was found to be clinically effective, but we failed in identifying physiological correlates of improvement. Unfortunately, apart from one very small trial by Blanchard's group in New York (Galovski & Blanchard, 1998), our work has remained the only published research on hypnosis for IBS in the United States.

How Hypnosis Treatment for IBS Is Conducted

Hypnosis treatment for IBS typically consists of 7–12 individual therapy sessions spaced over a 3-

month period. Each treatment session begins with a hypnotic induction followed by extended deepening with physical relaxation. This in turn is followed by therapeutic suggestions and imagery; finally trance termination is executed, typically through slow counting with re-alerting suggestions. Both the therapeutic suggestions and imagery differ depending on the practitioners. There are some notable differences between the two most tested treatment protocols (that of the Manchester group and our North Carolina protocol). For example, our protocol places emphasis on changing the attention to symptoms, threat perception, and gut stress reactions in a way that is suggested to happen automatically without any effort or even awareness on the patient's part. The Manchester group emphasizes the patient's enhanced conscious sense of control over symptoms (ego-strengthening suggestions) and also uses a greater amount of direct gut-related suggestions. However, there are also many similarities between the approaches: Both make frequent use of hypnotic and posthypnotic suggestions for creating general well-being and a sense of mental calm and comfort, and imagery relating to normal functioning of the intestines is also a part of both protocols. Unlike our word-for-word scripted approach, the Manchester group uses a customizable general session outline.

Between therapy visits, patients are asked to use a hypnosis audio recording at home daily for the duration of the treatment course. This is considered to be an integral part of treatment, and adherence to home practice is therefore strongly encouraged.

How Well Does Hypnosis for IBS Work?

There is by now extensive experience with the outcome of hypnosis interventions for IBS based on a dozen studies. Although outcome measures and responder definitions have varied, the following general conclusions can be made:

Success Rates Tend to Be 70% or Better, Even for Patients Unresponsive to Standard Medical Care

In our two small studies, 85% and 93% of patients could be classified as treatment responders based on convergent diary symptom ratings and subjective global improvement ratings. The Manchester group's early work showed a 95% success rate for patients with classic IBS symptoms. A large case series by the

Manchester group showing the treatment outcomes for 250 consecutive patients treated in their clinic found 71% of patients to respond to treatment (Gonsalkorale, Houghton, & Whorwell, 2002).

Hypnosis Treatment Substantially Reduces All of the Central Symptoms of IBS

Abdominal pain, bloating or distention, and bowel activity dysfunction (diarrhea or constipation) are all improved through hypnosis treatment. The greatest improvement is commonly seen in abdominal pain, which is reduced by an average of 50% or more in many studies (for example, in our studies, as seen in the Figure).

Therapeutic Benefits Include Enhanced Psychological Well-being and Quality of Life Improvement

Hypnosis treatment is associated with a significant reduction in symptoms of depression, anxiety, and somatization, and quality of life scores improve after treatment (Gonsalkorale et al., 2002; Palsson, Turner, Johnson, Burnett, & Whitehead, 2002).

Treatment Benefits Generally Last for Years

Gonsalkorale and colleagues completed long-term follow-up on 204 patients treated with hypnosis (Gonsalkorale, Miller, Afzal, & Whorwell, 2003). They found that 81% of those who initially improved from treatment fully maintained their therapeutic effect long term—for up to 5 years post-treatment—and many of the remaining 19% only reported a small deterioration rather than full relapse. Previous studies also have shown excellent maintenance of improvement at 10- to 18-month follow-up (Whorwell, Prior, & Colgan, 1987; Palsson et al., 2002).

Treatment Leads to Lasting Reduction in Disability and Reduced Health Care Utilization and Medication Needs

Houghton, Heyman, & Whorwell (1996) compared 25 patients treated with hypnosis to 25 patients with equivalent IBS severity who only received standard medical care. In addition to better symptom improvement, those in the hypnosis group took less time off work if they were employed and were more likely to return to work if they had not been able to work. (Of four patients who were not working in the hypnosis group, three resumed work, whereas none of the six

nonworking control patients returned to work). Gonsalkorale et al. (2002) also found reduced health care utilization and medication use in their long-term follow-up of 204 patients.

What Physiological Mechanisms Account for Improvement in IBS from Hypnosis Treatment?

Five studies, including our two trials, have attempted to elucidate the mechanism of action of hypnosis treatment. Three of them have focused on pain thresholds and smooth muscle tone, in the manner already described for our study above. None found smooth muscle tone changes after treatment, but one of the studies (Lea et al., 2003) found increase in visceral pain thresholds in the most pain-sensitive subset of patients only (but not overall pain threshold changes), and another found some bowel sensation thresholds (urgency, gas) to be raised, but not discomfort thresholds, after treatment (Prior, Colgan, & Whorwell, 1990). Our second study, as already indicated, found negligible evidence of autonomic nervous system changes after treatment and no change in general skeletal muscle tension. Finally, Simren and colleagues (Simren, Ringstrom, Bjornsson, & Abrahamsson, 2004) have shown that hypnosis treatment reduces the gastro-duodenal response to fats (lipids usually stimulate the bowel and are thought to trigger the meal-related bowel discomfort reported by many IBS patients). In summary, there are indications of a variety of small physiological effects of hypnosis treatment, but none of these seem likely to account in any substantial way for the great symptom reduction observed from this intervention. The search for the physiological correlates of the hypnosis treatment impact continues.

Advantages and Limitations of Hypnosis for IBS

Hypnosis treatment offers great advantages as an adjunct to standard medical management of IBS. It helps about three out of every four patients who have not improved from regular medical treatment to gain substantial and long-lasting bowel symptom relief. Additionally, the treatment improves psychological well-being, reduces disability, enhances quality of life, is very comfortable, has no serious adverse side effects, and enhances the sense of self-efficacy in many patients who have felt that they have no capac-

ity to control their chronic symptoms. All of this can be accomplished in a highly reproducible manner with a fixed and brief course of therapy.

However, there are several reasons why hypnosis for severe and refractory IBS is not used by everyone. One is undoubtedly the lingering unnerving public impression of hypnosis, colored by misrepresentation in movies and stage shows. The treatment also faces three more serious practical obstacles. One is the up-front cost of the treatment and difficulty with insurance reimbursement for this service from some health insurance plans. Another is the lack of availability of suitably trained and experienced therapists in many geographical areas. A third obstacle is the absence of large-scale controlled studies to satisfy medical evidence needs for making this treatment a part of routine care. This last problem keeps efficacy ratings for hypnosis lower than treatments that have far less impact on symptoms, and thus prevents full acceptance of hypnosis for IBS in gastroenterology. Hypnosis and other psychological treatments are currently only given a grade B status by the gastroenterology task force for evidence-based review of IBS treatments, primarily because of the absence of large-scale controlled research.

All of these hindrances can be overcome. We have started offering to teach hypnosis for IBS regularly in workshops for U.S. clinicians, and the Manchester group does the same in England. To facilitate wider use of this treatment, we have also started sharing our full written treatment protocol at no cost with licensed health professionals who have proper training and experience in hypnosis, and this has resulted in the exact treatment tested in our studies being offered by about 150 clinicians nationwide, as well as in at least six other countries. Our North Carolina research team is presently seeking grant funding to conduct the kind of large-outcome trials that are required for this therapy to be considered for grade A efficacy ratings. If hypnosis proves to be effective in such large-scale tests, this in turn will help with insurance coverage for the treatment.

Conclusion

In conclusion, the future looks bright for hypnosis as an intervention for IBS in spite of the need for further work in this domain. It appears inevitable that this treatment (along with its similarly successful cousin,

cognitive-behavioral therapy) will continue to gain momentum in IBS management, pushed forward by the sheer weight of the broad and substantial benefits it generates for the patients that standard medical care now treats with little success.

References

- American College of Gastroenterology Functional Gastrointestinal Disorders Task Force. (2002). Evidence-based position statement on the management of irritable bowel syndrome in North America. *American Journal of Gastroenterology*, 97, S1–S5.
- Drossman, D. A. (1998). Presidential address: Gastrointestinal illness and the biopsychosocial model. *Psychosomatic Medicine*, 60, 258–267.
- Drossman, D. A., Camilleri, M., Mayer, E. A., & Whitehead, W. E. (2002). AGA technical review on irritable bowel syndrome. *Gastroenterology*, 123, 2108–2131.
- Drossman, D. A., Li, Z. M., Andruzzi, E., Temple, R. D., Talley, N. J., Thompson, W. G. et al. (1993). United States householder survey of functional gastrointestinal disorders—Prevalence, sociodemography, and health impact. *Digestive Diseases and Sciences*, 38, 1569–1580.
- Galovski, T. E., & Blanchard, E. B. (1998). The treatment of Irritable Bowel Syndrome with hypnotherapy. *Applied Psychophysiology and Biofeedback*, 23, 219–232.
- Gonsalkorale, W. M., Houghton, L. A., & Whorwell, P. J. (2002). Hypnotherapy in irritable bowel syndrome: A large-scale audit of a clinical service with examination of factors influencing responsiveness. *American Journal of Gastroenterology*, 97, 954–961.
- Gonsalkorale, W. M., Miller, V., Afzal, A., & Whorwell, P. J. (2003). Long-term benefits of hypnotherapy for Irritable Bowel Syndrome. *GUT*, 52, 1623–1629.
- Houghton, L. A., Heyman, D. J., & Whorwell, P. J. (1996). Symptomatology, quality of life and economic features of Irritable Bowel Syndrome—The effect of hypnotherapy. *Alimentary Pharmacology and Therapeutics*, 10, 91–95.
- Lea, R., Houghton, L. A., Calvert, E. L., Larder, S., Gonsalkorale, W. M., Whelan, V. et al. (2003). Gut-focused hypnotherapy normalizes disordered rectal sensitivity in patients with Irritable Bowel Syndrome. *Alimentary Pharmacology and Therapeutics*, 17, 635–642.
- Levy, R. L., Von Korff, M., Whitehead, W. E., Stang, P., Saunders, K., Jhingran, P. et al. (2001). Costs of care for Irritable Bowel Syndrome patients in a health maintenance organization. *American Journal of Gastroenterology*, 96, 3122–3129.
- Palsson, O. S., Turner, M. J., Johnson, D. A., Burnett, C. K., & Whitehead, W. E. (2002). Hypnosis treatment for severe Irritable Bowel Syndrome: Investigation of mechanism and effects on symptoms. *Digestive Diseases and Sciences*, 47, 2605–2614.
- Prior, A., Colgan, S. M., & Whorwell, P. J. (1990). Changes in rectal sensitivity after hypnotherapy in patients with Irritable Bowel Syndrome. *GUT*, 31, 896–898.
- Simren, M., Ringstrom, G., Bjornsson, E. S., & Abrahamsson, H. (2004). Treatment with hypnotherapy reduces the sensory and motor component of the gastrocolonic response in Irritable Bowel Syndrome. *Psychosomatic Medicine*, 66, 233–238.
- Thompson, W. G., Heaton, K. W., Smyth, G. T., & Smyth, C. (1997). Irritable Bowel Syndrome: The view from general practice. *European Journal of Gastroenterology and Hepatology*, 9, 689–692.
- Whitehead, W. E., Levy, R. L., Von Korff, M., Feld, A. D., Palsson, O. S., Turner, M. J., et al. (2004). Usual medical care for Irritable Bowel Syndrome. *Alimentary Pharmacology and Therapeutics*, 20, 1305–1315.
- Whitehead, W. E., Palsson, O. S., Levy, R. L., Von Korff, M., Feld, A. D., & Garner, M. D. (2003). What constitutes standard medical care for IBS in U.S. primary care and gastroenterology clinics? *American Journal of Gastroenterology*, 98, S272–S273.
- Whorwell, P. J., Prior, A., & Colgan, S. M. (1987). Hypnotherapy in severe Irritable-Bowel-Syndrome—Further experience. *GUT*, 28, 423–425.
- Whorwell, P. J., Prior, A., & Faragher, E. B. (1984). Controlled trial of hypnotherapy in the treatment of severe refractory Irritable-Bowel Syndrome. *Lancet*, 2, 1232–1234.



Olafur Palsson

Correspondence: Olafur S. Palsson, PsyD, Division of Digestive Diseases, CB#7080, Room 1105C, Bioinformatics Building, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7080, email: opalsson@med.unc.edu.