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Hypnotherapy has been investigated for 30 years as a treatment for gastrointestinal (GI) disorders. There are presently 35 studies in the published empirical literature, including 17 randomized controlled trials (RCTs) that have assessed clinical outcomes of such treatment. This body of research is reviewed comprehensively in this article. Twenty-four of the studies have tested hypnotherapy for adult irritable bowel syndrome (IBS) and 5 have focused on IBS or abdominal pain in children. All IBS hypnotherapy studies have reported significant improvement in gastrointestinal symptoms, and 7 out of 10 RCTs in adults and all 3 RCTs in pediatric patient samples found superior outcomes for hypnosis compared to control groups. Collectively this body of research shows unequivocally that for both adults and children with IBS, hypnosis treatment is highly efficacious in reducing bowel symptoms and can offer lasting and substantial symptom relief for a large proportion of patients who do not respond adequately to usual medical treatment approaches. For other GI disorders the evidence is more limited, but preliminary indications of therapeutic potential can be seen in the single randomized controlled trials published to date on hypnotherapy for functional dyspepsia, functional chest pain, and ulcerative colitis. Further controlled hypnotherapy trials in those three disorders should be a high priority. The mechanisms underlying the impact of hypnosis on GI problems are still unclear, but findings from a number of studies suggest that they involve both modulation of gut functioning and changes in the brain’s handling of sensory signals from the GI tract.

Keywords: abdominal pain, gastrointestinal, Irritable bowel syndrome (IBS), hypnotherapy, hypnosis

The gastrointestinal (GI) tract operates semi-autonomously within the human body. It has its own nervous system (the enteric nervous system) that enables it to act independently to react to stimuli with reflexes and perform routine functions such as adjusting its muscle activity and secretion activities, without help from the body’s central nervous system. However, the intrinsic nervous system of the GI tract does have rich two-way connections to the central nervous system via nerves, hormones, and immune mediators, and it is now recognized that this communication pathway, commonly termed the brain–gut axis, is very active and that the brain plays an important and continuous role in adjusting gastrointestinal perception and activity (Mayer & Tillisch, 2011). The brain
processes, interprets, and reacts to a steady stream of messages it receives from the gut via this communication highway. It actively filters the incoming neural signals from the gut, both within its brain centers and by sending descending inhibition nerve impulses down into the spinal cord to dampen the sensory signals from the gut before they reach the cortex. The brain in turn sends signals to the GI tract that modulate the smooth muscle activity and amount of fluid secretion in the intestines, among other things, to coordinate intestinal functioning with life activity in general such as sleep, physical activity, and threatening events. Both of these aspects of the brain’s regulating influence (i.e., control of perception and of muscle and secretory gut activity) are affected by emotional states and stress load (Mayer & Tillisch, 2011; Van Oudenhove, Demyttenaere, Tack, & Aziz, 2004). For example, digestion and upper gut functioning is inhibited, but colon activity stimulated, when fight-or-flight response signals are sent out by the brain (Monnikes et al., 2001; Shimizu & Okabe, 2007); and even under non-threatening circumstances the impact of different emotions in the brain ripples down across the brain–gut axis and influences GI activity and intestinal perception fairly directly. A laboratory experiment using hypnosis to elicit distinct emotional states demonstrated that different emotions have measurable and different effects on the smooth muscle activity of the rectum (Whorwell, Houghton, Taylor, & Maxton, 1992). Happiness quiets the muscles of the bowel wall, whereas excitement and anger stimulate those muscles and make them more active. A second experiment by the same researchers demonstrated that different emotions also alter the threshold for perceiving discomfort in the bowel (Houghton, Calvert, Jackson, Cooper, & Whorwell, 2002). They reported that happiness lessened, and anger conversely increased, discomfort sensitivity in response to balloon inflation in the rectum.

Disturbance of the brain’s normal regulating activity of gut functions and perception plays a major role in GI disorders. Chronic stress and maladaptive cognitive coping (especially catastrophizing) increases GI symptom severity and increases vulnerability to alimentary tract illness (Drossman, 1999; Suarez, Mayer, Ehlert, & Nater, 2010). There is clear evidence from a multitude of studies showing that psychological distress at the time of acute infectious GI illness, such as from food- or water-borne infection, undermines the ability of the bowels of the infected individuals to recover and resume normal functioning, and thereby increases their risk of developing chronic GI disorders significantly (Dai & Jiang, 2012).

The brain–gut axis is the basis for both incidental and deliberate psychological influences on GI activity and symptoms, and for clinical purposes it represents an opportunity to tune the brain’s regulation of the gut and correct alimentary tract symptoms in a targeted manner (Camilleri & Di Lorenzo, 2012). Over the past three decades, various psychological interventions have utilized this close connection between the brain and the GI tract successfully to treat GI disorders, both in research studies and in clinical practice. The three forms of psychological intervention that have been tested most to treat GI problems are cognitive-behavioral therapy, hypnosis, and biofeedback (Palsson
All three have been demonstrated to be efficacious for multiple GI disorders and in numerous studies. In this article I will focus on one of these successful intervention modalities—clinical hypnosis—and review and summarize the total body of published studies that have evaluated its clinical impact on GI problems. I will exclude in this review only reports that cannot be considered generalizable empirical tests of clinical effects; that is, single-case reports and case series that did not quantify outcomes sufficiently to determine clinical impact. I will place more emphasis on randomized controlled trials (RCTs) than other types of studies, because they control for expectancy effects, selection bias, and spontaneous change in symptoms over time, and are for those reasons widely considered the minimum standard for formally assessing the efficacy of treatments for medical problems (Irvine et al., 2006). I will also briefly summarize the studies that have assessed mechanisms of effect of hypnosis in the treatment of GI disorders. Finally, I will outline my conclusions about the current status and value of hypnosis as a therapeutic option for GI problems based on this literature.

The Scope of the Empirical Literature on Hypnosis Treatment for GI Disorders

As of January of 2015, the published world-wide empirical literature showed a total of 35 different published studies reporting clinical outcomes of hypnosis treatment for GI disorders (based on comprehensive searches of the PubMed and PsychInfo databases from 1956 forward, as well as examination of reference sections of all found papers and reviews on this topic; single-case reports, reviews, follow-up data on previously reported study samples, and studies reporting no formal clinical change measures were excluded). A quick glance at the scope of this literature, summarized in Tables 1–3, reveals that GI health problems have clearly received extremely uneven attention in hypnosis research. Twenty-four out of the 35 studies, or 69% of all the research, have focused on a single health problem: Irritable bowel syndrome (IBS) in adults. Another five studies have tested hypnosis for the equivalent problem in children—pediatric IBS and functional abdominal pain. Three reports provide findings of tests of hypnosis intervention for inflammatory bowel disease. The rest of the literature consists of isolated reports describing the initial trials of hypnotherapy for a few other GI ailments—non-cardiac chest pain, functional dyspepsia, duodenal ulcers, and globus.

Hypnosis Treatment of IBS in Adults

IBS is one of the most common ailments of the digestive tract, affecting 11% of the global adult population (Lovell & Ford, 2012). It is a bowel problem characterized by chronic or intermittent abdominal pain associated with abnormal stool functioning—diarrhea, constipation, or both. It is a health problem that usually lasts for numerous years in individuals once it presents itself and places major demands on healthcare systems,
### TABLE 1
Published Randomized Controlled Trials on Hypnosis Treatment for Gastrointestinal Disorders

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Subjects per group</th>
<th>What improved</th>
<th>Nature of control group</th>
<th>Between-groups Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whorwell et al., 19841</td>
<td>IBS</td>
<td>15 H, 15 C</td>
<td>G,E</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Galovski &amp; Blanchard, 19982</td>
<td>IBS</td>
<td>5 H, 6 C</td>
<td>G,E</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Forbes et al., 20003</td>
<td>IBS</td>
<td>25 H, 27 C</td>
<td>G,E</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Palsson et al., 2002</td>
<td>IBS</td>
<td>15 H, 9 C</td>
<td>G,E,P</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>(Study II)4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roberts et al., 20065</td>
<td>IBS</td>
<td>40 H, 41 C</td>
<td>G</td>
<td>Usual medical care</td>
</tr>
<tr>
<td>Lindfors et al., 2012</td>
<td>IBS</td>
<td>45 H, 45 C</td>
<td>G</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>(Study 1)6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindfors et al., 2012</td>
<td>IBS</td>
<td>25 H, 23 C</td>
<td>G,E</td>
<td>Hypnosis = Control</td>
</tr>
<tr>
<td>(Study 2)7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moser et al. 20138</td>
<td>IBS</td>
<td>46 H, 44 C</td>
<td>G, E, Q</td>
<td>Hypnosis Superior</td>
</tr>
<tr>
<td>Dobbin et al., 20139</td>
<td>IBS</td>
<td>30 H, 31 C</td>
<td>G, E, P</td>
<td>Hypnosis = Control</td>
</tr>
<tr>
<td>Lowen et al., 201310</td>
<td>IBS</td>
<td>18 H, 13 C</td>
<td>G, E</td>
<td>Hypnosis = Control</td>
</tr>
<tr>
<td>Vlieger et al., 200711</td>
<td>IBS+FAP</td>
<td>27 H, 25 C</td>
<td>G</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Gulewitsch et al., 201312</td>
<td>IBS+FAP</td>
<td>20 H, 18 C</td>
<td>G</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>van Tilburg et al., 200913</td>
<td>FAP</td>
<td>16 H, 15 C</td>
<td>G</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Calvert et al., 200214</td>
<td>Functional Dyspepsia</td>
<td>26 H, 24 C, 29 C</td>
<td>G, E, Q</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Colgan et al., 198815</td>
<td>Duodenal Ulcers</td>
<td>15 H, 15 C</td>
<td>G</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Jones et al., 200616</td>
<td>Non-cardiac chest pain</td>
<td>15 H, 13 C</td>
<td>G, Q</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Keefer et al., 201317</td>
<td>Ulcerative Colitis</td>
<td>26 H, 29 C</td>
<td>G</td>
<td>Disease discussion</td>
</tr>
</tbody>
</table>

**Note.** Abbreviations in the table: H = hypnosis group; C = control group; G = gastrointestinal symptoms; E = emotional symptoms; Q = quality of life; P = non-gastrointestinal physical symptoms; IBS = irritable bowel syndrome; FAP = functional abdominal pain.

TABLE 2
Published Non-Randomized Controlled Trials on Hypnosis Treatment for Gastrointestinal Disorders

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Subjects per group</th>
<th>What improved</th>
<th>Nature of control group</th>
<th>Between-groups results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houghton et al., 1996¹</td>
<td>IBS 25 H, 25 C</td>
<td>G, E, Q, P</td>
<td>Usual medical care</td>
<td>Hypnosis superior</td>
</tr>
<tr>
<td>Palsson et al., 2006²</td>
<td>IBS 19 H, 57 C</td>
<td>G, E, Q, P</td>
<td>Usual medical care</td>
<td>Hypnosis superior</td>
</tr>
</tbody>
</table>

Note. Abbreviations in the table: H = hypnosis group; C = control group; G = gastrointestinal symptoms; E = emotional symptoms; Q = quality of life; P = non-gastrointestinal physical symptoms; IBS = irritable bowel syndrome.

Publications of studies in the table: 1. (Houghton et al., 1996) 2. (Palsson et al., 2006).

TABLE 3
Published Non-Randomized Controlled Trials on Hypnosis Treatment for Gastrointestinal Disorders

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Subjects per group</th>
<th>What improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvey et al., 1989¹</td>
<td>IBS 33</td>
<td>G</td>
</tr>
<tr>
<td>Whorwell et al., 1987²</td>
<td>IBS 35</td>
<td>G</td>
</tr>
<tr>
<td>Vidakovic-Vukic, 1999³</td>
<td>IBS 27</td>
<td>G</td>
</tr>
<tr>
<td>Palsson et al., 2002 (Study 1)⁴</td>
<td>IBS 18</td>
<td>G, E, P</td>
</tr>
<tr>
<td>Gonsalkorale et al., 2002⁵, 2003⁶</td>
<td>IBS 250</td>
<td>G, E, Q, P</td>
</tr>
<tr>
<td>Prior et al., 1990⁷</td>
<td>IBS 8</td>
<td>G</td>
</tr>
<tr>
<td>Lea et al., 2003⁸</td>
<td>IBS 23</td>
<td>G, E</td>
</tr>
<tr>
<td>Gonsalkorale et al., 2004⁹</td>
<td>IBS 78</td>
<td>G, E, Q</td>
</tr>
<tr>
<td>Al Sughayir, 2006¹⁰</td>
<td>IBS 26</td>
<td>G, Q</td>
</tr>
<tr>
<td>Barabasz &amp; Barabasz, 2006¹¹</td>
<td>IBS 8</td>
<td>G, E</td>
</tr>
<tr>
<td>Smith, 2006¹²</td>
<td>IBS 75</td>
<td>G, E, Q</td>
</tr>
<tr>
<td>Gerson et al., 2013¹³</td>
<td>IBS 75</td>
<td>G</td>
</tr>
<tr>
<td>Kiebles et al., 2010¹⁴</td>
<td>Globus 10</td>
<td>G</td>
</tr>
<tr>
<td>Miller &amp; Whorwell, 2008¹⁵</td>
<td>IBD 15</td>
<td>G, Q</td>
</tr>
<tr>
<td>Galili et al., 2009¹⁶</td>
<td>FAP 17</td>
<td>G</td>
</tr>
<tr>
<td>Anbar, 2001¹⁷</td>
<td>FAP 5</td>
<td>G</td>
</tr>
</tbody>
</table>

Note. Abbreviations in the table: H = hypnosis group; C = control group; G = gastrointestinal symptoms; E = emotional symptoms; Q = quality of life; P = non-gastrointestinal physical symptoms; IBS = irritable bowel syndrome; FAP = functional abdominal pain; IBD = inflammatory bowel disease.


accounting for 25%–50% of all visits to gastroenterologists and 10%–15% of primary care visits (Choung & Locke, 2011). Unfortunately, and in large part due to its complex and poorly understood nature, IBS has proven to be a formidable challenge for medical professionals to treat effectively, with about half of patients getting little or no relief from the usual medical care approaches (Whitehead et al., 2004). Because it is such a common disorder, and because it leaves millions of patients without satisfactory relief
after seeking medical care, alternatives that can improve outcomes for the disorder have been actively sought in research for decades. Hypnosis and cognitive-behavioral therapy have shown more promise than other investigated options as complementary treatments to fill this need, spurring sustained research interest in their use to treatment of this disorder. As a consequence, hypnotherapy has been tested more for IBS in adults than for any other GI problem.

As mentioned above, there are currently a total of 24 published clinical outcome trials on hypnosis treatment for IBS in adults. Ten of these are randomized controlled trials (see Table 1). The first study published in this class (which also was the earliest formal study of hypnosis as treatment for any GI problem) was a randomized placebo-controlled study conducted in Manchester, England, by Dr. Peter Whorwell and colleagues and published in the Lancet in 1984 (Whorwell, Prior, & Faragher, 1984). The investigators assigned 30 IBS patients with severe bowel symptoms that had proven unresponsive to medical treatment to either seven sessions of hypnotherapy or seven sessions of supportive talk therapy combined with placebo pills. The treatment course for both groups was 12 weeks in length. At the end of treatment, all 15 patients in the hypnosis group had improved significantly and showed dramatic improvement as a group in their abdominal pain, bowel dysfunction (diarrhea or constipation), abdominal distension, and general well-being. In contrast, the comparison group exhibited significantly less benefit, with only slight improvement in these outcome parameters and no improvement in bowel dysfunction. A second article by the team reported that all of the hypnosis patients were found to have maintained their clinical improvement at 18 month follow-up (Whorwell, Prior, & Colgan, 1987).

The encouraging results of this initial trial attracted a lot of attention, and studies testing hypnosis for IBS by other investigators soon started appearing in the medical literature. Dr. Whorwell and his Manchester group have continued research on hypnosis for digestive diseases ever since, and have conducted close to one-third of all the studies on GI hypnosis reviewed here. They furthermore established a unique National Health Service hypnotherapy unit integrated with their gastroenterology service at the University Hospital of South Manchester, where several full-time hypnotherapists provide a structured course of gut-focused hypnotherapy to those GI patients who fail to respond to more conventional medical treatment (Whorwell, 2006).

Nine other randomized controlled trials on adult IBS have followed Whorwell and colleagues pioneering 1984 study. These studies have compared the therapeutic changes in IBS patients randomly assigned to hypnotherapy to those seen in various control groups, including patients only receiving usual medical care or standardized medical care, patients on waiting lists to receive the hypnosis treatment, and patients receiving supportive talk therapy, disease education, or biofeedback treatment for IBS. The results have generally been positive for hypnosis. As seen in Table 1, seven of the 10 studies of this type (including Whorwell et al.’s original trial) have found hypnosis to lead to superior improvement in IBS symptoms compared to control groups. One of those positive
trials was our second study of verbatim treatment with the fully scripted seven session North Carolina treatment protocol (Palsson, Turner, Johnson, Burnett, & Whitehead, 2002). We randomly divided 24 patients with severe IBS refractory to medical treatment into immediate hypnosis treatment or a group waiting 3 months to start the treatment (i.e., the same amount of time as the hypnosis treatment course). All IBS bowel symptoms assessed improved substantially in the hypnosis group, with no improvement over the same period seen in the group waiting for treatment. Once the waiting group also received hypnosis treatment, it showed similar significant improvement in all symptoms as the first group. The overall combined response rate in bowel symptoms to the treatment was 87% according to pre-determined responder criteria, and the patients also improved significantly on anxiety and somatization measures. All the treatment responders in this study were still found to be improved at 10-month follow-up. It was the high success rate in this trial, combined with the nearly identical therapeutic impact observed in our prior uncontrolled study of the same protocol, that led us to start sharing the scripted hypnosis protocol used in this work with hypnotherapists across the United States. This has resulted in gradual wide adoption of empirically tested hypnosis clinical services over the past 15 years (Palsson, 2006), with more than 600 therapists in the United States, and many in other countries as well, now offering standardized hypnosis treatment with this method.

It is noteworthy that in two of the three RCTs on hypnotherapy for IBS that did not find hypnosis to provide superior therapeutic change compared to control groups were comparisons with active interventions that are considered other reasonable psychological treatments for IBS—biofeedback (Dobbin, Dobbin, Ross, Graham, & Ford, 2013) and education intervention (Lowén et al., 2013). Both of these studies found significant within-group symptom improvement for both hypnotherapy and the comparison interventions. These outcomes are an important reminder that hypnosis is not the only psychological therapeutic option for IBS patients. Other treatments in that category can provide rivaling benefits, but are almost never tested side-by-side against hypnosis treatment.

In addition to the 10 randomized trials on IBS treatment with hypnosis, two additional controlled studies have used non-randomized study design. These are worth mentioning here since each added some unique insights to the body of knowledge in this domain. Houghton and colleagues in the Manchester group (Houghton, Heyman, & Whorwell, 1996) compared changes in 25 IBS patients treated with a 12 session course of their Manchester Model hypnotherapy to 25 IBS patients with similar symptom status, focusing on work productivity, and in doing so they provided a picture of the economic benefits that such treatment can bring individuals and society. They reported that in addition to greater bowel symptom improvement in the hypnosis group, those patients showed more gains in emotional and physical well-being, took less time off work after treatment if they were employed and were more likely to return to work if they had not been able to
work. Of the four patients who were not working in the hypnosis group, three resumed working, whereas none of the six unable to work in the comparison group did so.

The other non-randomized controlled hypnosis trial in adult IBS was a pilot study by our North Carolina team (Palsson, Turner, & Whitehead, 2006) that confirmed the feasibility of delivering the hypnosis course efficaciously via audio recordings, without any patient interactions with a therapist. Nineteen patients received an audio-recorded version of the whole treatment course of the scripted North Carolina Protocol on compact disks via mail and self-administered the treatment at home over a 3-month period. The patients were evaluated on questionnaires measuring IBS symptoms, quality of life, and psychological distress at baseline and again at the end of treatment and at 3 and 6 month follow-up. Changes over 6 months were compared to those seen in 57 control patients matched with them on age, sex, and symptom severity (three to one match to get a good estimate of the degree of changes that could be expected on average with no hypnosis in patients with similar characteristics). A significantly larger percentage of patients in the hypnosis home treatment group (53% vs. 26%) showed overall IBS severity reduction by half or more on the validated IBS Severity Scale Score at 6 months compared to the matched patients only receiving medical care, and only the hypnosis group exhibited significant improvement in health-related quality of life scores. The hypnosis home treatment was not, however, associated with any significant changes in psychological distress.

Twelve uncontrolled trials (that is, studies without non-hypnosis comparison groups) complement the body of controlled studies on clinical impact of hypnotherapy for IBS in adults (see Table 3). They lend further weight to the evidence of the utility of hypnosis treatment for this disorder as they have all reported positive effects on bowel symptoms. Of particular value is the case series published by the Manchester group on the first 250 consecutive IBS patients treated in their hypnotherapy unit (Gonsalkorale, Houghton, & Whorwell, 2002). Because it quantified outcomes in the routine clinical services of the Manchester hypnotherapy unit, it brought the hypnosis literature from demonstrating efficacy (i.e., proven therapeutic effect in clinical experiments) to a demonstration of effectiveness (proven therapeutic impact in real-world clinical application). The report illustrated what can be expected from hypnosis as an adjunctive therapy for medically treatment-refractory IBS patients when therapy consistently follows an empirically validated protocol, and the results are impressive. The Manchester team found in this audit of their records that after a course of hypnotherapy, which typically consisted of 12 weekly sessions, overall IBS symptom severity was reduced by 53% on average in these 250 patients, and all individual bowel symptoms were reduced by more than half. Anxiety, depression, and quality of life scores improved significantly after treatment as well. A second report by the team presented long-term outcomes for 204 of the patients from this case series who had completed follow-up for as long as five or more years after their treatment (Gonsalkorale, Miller, Afzal, & Whorwell, 2003). The initial response rate in that data set (defined as patients rating their symptoms either
“very much better” or “moderately better” at the end of treatment) was 71%, and four out of every five of those treatment responders retained their improvement fully for up to 5 years after the hypnosis treatment course. The percentage of patients who remained improved did not diminish across the 5 years from treatment termination. Patients were also significantly less likely to use medication or go to doctors due to their IBS, and had far fewer non-GI physical symptoms, after the hypnosis treatment.

**IBS and Functional Abdominal Pain in Children**

Abdominal pain complaints are among the most common health problems of childhood, with a median reported prevalence of 8% of all children across multiple epidemiological studies (Chitkara, Rawat, & Talley, 2005). Most abdominal pain is diagnosed as either IBS or functional abdominal pain (FAP). Those two health problems can be so similar in children that they are sometimes indistinguishable from each other in their clinical characteristics (Rutten, Benninga, & Vlieger, 2014). Research studies on these conditions, including hypnosis studies, therefore sometimes combine subjects with both of them in their study samples for this reason, and these conditions will be discussed here as a single target for hypnotherapy.

Five studies have reported clinical outcomes of tests of hypnosis treatment for pediatric IBS and/or FAP. Three of them were RCTs. Vlieger, Menko–Frankenhuis, Wolfkamp, Tromp, and Benninga (2007) in Holland assigned 53 children with IBS or FAP, ranging in age from 8 to 18 years, to a standard medical care regimen that was supplemented by either six hypnotherapy sessions or six sessions of supportive talk therapy where the symptoms were discussed. Abdominal pain scores decreased in both groups from baseline to one-year follow-up assessment, but did so significantly more in the hypnotherapy group (average pain intensity scores dropping from 13.5 to 1.3, compared to from 14.1 to 8.0 in the supportive therapy group). At the one-year follow-up, the abdominal pain of 85% of the hypnotherapy group children versus only 25% of those in the comparison group was in remission (defined as more than 80% reduction in pain frequency and intensity compared to pre-treatment assessment). The researchers later published long-term follow-up results for this study sample (Vlieger, Rutten, Govers, Frankenhuis, & Benninga, 2012), collected on average 4.8 years after treatment, reporting that 68% of the children in the hypnosis group versus only 20% of the control group children were in remission after all that time (a highly statistically significant difference).

Another RCT with a mixed sample of IBS and FAP children was conducted in Germany (Gulewitsch, Müller, Hautzinger, & Schlarb, 2013), and divided 38 children ranging in age from 6 to 12 years to either hypnosis treatment or a waiting list condition. The investigators reported significantly greater reduction in abdominal pain and pain-related disability in the hypnosis group after treatment, with 55% of those children classified as in remission (i.e., >80% pain reduction) compared to only 5.6% (one child) in the waiting list condition.
The third RCT on hypnosis treatment for this problem was a study by our team at the University of North Carolina (van Tilburg et al., 2009). It was different from the other two RCTs in that the treatment was fully scripted and delivered via audio CDs, and also because it was a guided imagery intervention focused on vivid multi-sensory imagery from start to finish in each session. However, it included hypnotic and post-hypnotic suggestions so it can be considered hypnosis treatment. Thirty-four children with FAP, ranging in age from 6 to 15 years, received usual medical care for their pain problem with or without the addition of the two-month audio treatment program. The hypnosis audio sessions were mostly self-administered by the children at home (the first listening session for each child was during a clinic visit to ensure that the child and an accompanying parent knew how to use the recorded treatment course). The children in the hypnosis group were instructed to listen to the recordings 5 days a week for 2 months. At the end of treatment, 73% of the audio hypnosis group and 27% of the children receiving only usual medical care group were treatment responders, defined as showing at least 50% reduction in abdominal pain, and they also showed significant improvement in quality of life and reduced number of doctor visits compared to the control group. The therapeutic response was fully maintained at 6 month follow-up.

Finally, a couple of published small case series flesh out the literature on hypnotherapy for pediatric FAP. Each used a different twist on hypnosis delivery. Galili, Shaoul, and Mogilner (2009) used only a single session of hypnosis in the treatment of 17 teenage patients, and reported that treatment was successful with 14 of them (82%). Anbar (2001) reported that the pain of four out of five children taught self-hypnosis to manage their FAP symptoms resolved within 3 weeks after the single instruction session.

Hypnosis Treatments in the Upper Gut Problems

Compared to bowel problems, GI disorders in the upper gut—from the stomach up—have received little attention in hypnotherapy research. The Manchester team has, however, taken the first steps to gain hypnosis a firm foothold in this GI region with a pair of strong initial RCTs addressing two of the most difficult functional disorders of the upper half of the GI tract. One of these was a test of hypnotherapy for functional dyspepsia (Calvert, Houghton, Cooper, Morris, & Whorwell, 2002), a poorly understood disorder that is at least as common as IBS in adults (Mahadeva & Goh, 2006) even though it receives far less popular and medical attention. The disorder is characterized by a cluster of symptoms in the upper abdomen unaccounted for by organic causes, that may include pain or burning sensation, uncomfortable fullness after meals and inability to eat normal-size meals. The investigators assigned patients with functional dyspepsia to one of three active therapy conditions for a 16 week treatment period: 26 patients received a 12 session course of hypnotherapy, 24 completed 12 sessions of supportive therapy and also received placebo tablets, and 28 patients were treated with ranitidine,
a medication often given to patients with this disorder (although it is not known to have any specific therapeutic effects on that problem). The hypnotherapy group showed significantly greater reduction in epigastric pain scores than both the other groups at the end of treatment and also at follow-up 40 weeks later. Quality of life was found to be significantly improved in the hypnotherapy group compared to the ranitidine group. Furthermore, the investigators found that none of the subjects in the hypnotherapy group used medication for their dyspepsia during the long follow-up period while most patients in the other two groups did so.

The only other upper gut hypnosis RCT, also conducted by the Manchester team tested treatment for non-cardiac chest pain (Jones, Cooper, Miller, Brooks, & Whorwell, 2006; Miller, Jones, & Whorwell, 2007). This is a difficult-to-treat and commonly very distressing problem of recurrent pain under the breastbone in adults that is thought to often have esophageal causes and can only be properly diagnosed when cardiac problems and reflux disease have been ruled out. The investigators assigned patients with this condition to either 12 sessions of hypnotherapy or 12 sessions of supportive listening plus placebo tablets. After treatment, 80% of hypnotherapy patients versus only 23% of control patients described their chest pain as completely or moderately better. The hypnosis group also improved more than the control group in well-being and used less medication after treatment, but no differences were seen between the groups in changes in anxiety or depression scores. The dramatically superior pain reduction in the hypnosis group was fully maintained at follow-up evaluations conducted on average more than 2 years later.

Apart from these two RCTs, the only published hypnotherapy trial for upper gut problems is an article by Kiebles, Kwiatek, Pandolfino, Kahrilas, and Keefer (2010) on a series of 10 patients with globus, a functional GI disorder characterized by a recurrent feeling of a lump in the throat. The patients were treated with a seven session hypnosis course and showed significant average pre- to post-treatment reduction in symptom ratings. Nine of the 10 patients reported symptom improvement.

Beyond the Functional Disorders: Hypnosis Treatment of Organic Disorders

All of the research that has been discussed above has concerned the so-called functional disorders of the GI tract. These are a large group of more than 20 health problems which include the most common ailments of the GI tract and are by definition problems defined by abnormal functioning in the GI tract in the absence of organic problems such as structural abnormalities, lesions, or infection. A few studies have, however, taken tests of hypnosis intervention outside this realm and ventured into exploring the potential for therapeutic impact on organic GI problems.

Keefer and colleagues studied 54 patients with endoscopically confirmed ulcerative colitis, whose symptoms were in remission at the time of enrollment but who had a history of frequent symptom flare-up episodes, randomly assigning them to two groups:
a seven session course of scripted hypnosis intervention, or a seven session education or disease discussion condition that served as attention placebo condition. The main outcome tested was whether hypnosis treatment could delay symptom relapse. The investigators found that at a one-year follow-up, a significantly greater percentage of the hypnosis patients than the control group (68% vs. 40%) remained in symptom remission. The hypnotherapy patients were in remission 2.5 months longer on average than patients in the control group within the span of that one year. No difference was found between the groups in changes in quality of life or psychological symptoms after the interventions.

An uncontrolled study has provided some indication that hypnosis can help patients with inflammatory bowel disease. The Manchester group treated 15 patients with severe disease, who were on corticosteroids but showing insufficient response to medication, with a 12-session hypnosis treatment. They reported that at follow-up which was done on average 5.4 years later, two of the patients had not improved and were treated with surgery, four patients were in complete remission, eight had mild severity, and one was moderately severe. Sixty percent of the patients had been able to discontinue corticosteroid medication.

The Manchester team also conducted a RCT on prevention of relapse in 30 patients with rapidly relapsing duodenal ulceration whose ulcers had been successfully treated with medication. Half of the patients were treated with a course of hypnotherapy, and the researchers reported that those patients were significantly less likely to suffer ulcer relapse within 1 year (53% vs. 100% relapse rate).

The Quest for Mechanism of Action: Evidence of Physiological and Brain Effects

The fairly consistent success of hypnotherapy trials in demonstrating marked impact on GI symptoms naturally raises questions in scientifically curious minds as to what changes hypnosis effects in the brain and body to achieve such impressive clinical benefits. How does talking to a person change bowel functioning and symptoms? A number of studies have attempted to glean answers to that question, but the mechanisms of action remain somewhat ambiguous in spite of those research efforts.

It is clear from a number laboratory experiments going back more than half a century that hypnosis has the power to practically immediately alter various aspects of GI functioning in a measurable way, which demonstrates that it is a fairly direct way to plug into the brain–gut axis. Gastric acid secretion has been deliberately increased and decreased in multiple studies by means of hypnotic suggestions and hypnotic elicitation of specific emotional states (Kehoe & Ironside, 1963, 1964; Klein & Spiegel, 1989; Stacher et al., 1975, 1976), and hypnotic suggestions have been used experimentally to temporarily increase the rate of emptying the stomach (Chiarioni, Vantini, De Iorio, & Benini, 2006;
Hall, Herb, Brady, & Brooks, 1967) and reduce perception of discomfort and other bowel sensations (Prior, Colgan, & Whorwell, 1990). Watanabe and colleagues in Japan have shown (Watanabe, Hattori, Kanazawa, Kano, & Fukudo, 2007) that hypnotic suggestions for reduced pain sensation in the bowels suppresses evoked viscerosensory brain potentials, meaning that brain centers react less to incoming uncomfortable gut stimuli in response to such suggestions (the investigators were also able to demonstrate through experimental manipulation that nerves using the neurotransmitter histamine are involved in this modulation).

In addition to demonstrations of hypnotic modulation of perception and physiological activity, multiple hypnosis experiments have also documented that the hypnotic state itself seems to have a transient but powerful soothing effect on the GI tract. During hypnosis, GI smooth muscle activity quiets markedly, propulsion of material from the mouth to the bowels slows, and emptying of the stomach is reduced (Beaugerie et al., 1991; Hall et al., 1967; Whorwell et al., 1992).

However, in contrast to these various interesting effects that can be demonstrated on the GI tract during hypnosis, it is far less clear what is actually changing in the GI tract of patients after a hypnosis treatment course that can be given credit for the therapeutic GI effects reported in GI hypnosis research. Researchers in several studies have investigated this, with less than satisfactory results overall. That research has been done almost exclusively—with only one exception—in the context of hypnosis treatment for IBS, and the most common target for such investigation has been pain sensitivity of the bowel wall. That is a fitting research focus since the majority of IBS patients have been found to exhibit such increased visceral pain sensitivity compared to controls in non-hypnosis work, and this visceral hypersensitivity is widely recognized to be one of the key mechanisms producing the clinical abdominal pain of IBS (Drossman, Camilleri, Mayer, & Whitehead, 2002). Typically, such pain sensitivity is measured by using balloon inflation tests inside the rectum or lower end of the colon, and four studies have conducted such tests on IBS patients before and after hypnotherapy (Lea et al., 2003; Palsson et al., 2002; Prior et al., 1990; Vlieger et al., 2010). Even though the treated patients in these studies showed large reductions in clinical abdominal pain after hypnotherapy (often decreasing their pain scores by half or more), all the studies failed to show any overall change in bowel pain sensitivity. However, one of these IBS studies, by the Manchester group (Lea et al., 2003), observed an interesting effect. They found that even though after a course of hypnotherapy pain sensitivity did not change for their whole treatment sample, the subgroup of patients with greatest visceral sensitivity exhibited a significant decrease in pain sensitivity in the bowel after the hypnotherapy course, whereas those who had normal sensitivity prior to treatment showed no change in sensitivity and those who had less than normal sensitivity to bowel discomfort before treatment trend toward increased sensitivity to bowel discomfort after hypnotherapy. In other words, as the authors concluded, it appears from this study that hypnotherapy normalized visceral discomfort thresholds. An earlier study by the same research team (Prior et al., 1990) also found that sensitivity
to some other types of bowel sensations (i.e., the sense of urgency to defecate or a sense of need to pass gas) was decreased significantly after hypnosis treatment in such balloon inflation laboratory tests, but the thresholds for discomfort or pain sensations were unchanged.

Although these research studies on bowel pain sensitivity show some indications of hypnosis-related modulation of perception, they do not seem to support a substantial change in bowel thresholds for pain perception as a key mechanism of hypnotherapy GI effects. However, it does not preclude the possibility that more substantial change in the processing of gut sensation is happening in regard to clinical symptoms, since experimental stimuli in the gut are administered at a different place than where clinical symptoms occur (IBS is mostly a small bowel problem whereas the balloon inflation tests are, for convenience sake, generally done in the rectum or sigmoid colon), and they also have a different meaning to subjects than clinical pain.

Three of the same studies that have measured pain threshold changes after hypnotherapy (Lea et al., 2003; Palsson et al., 2002; Prior et al., 1990) have also measured the effects of the treatment on muscle compliance in the bowel wall (an inverse measure of how tense the smooth muscles are), to assess whether hypnotherapy relaxes the bowels. None of those studies have found significant change in that parameter, suggesting that bowel muscle tone is not a mechanism for therapeutic effect.

A Swedish research group has used two other approaches to detecting the impact of hypnotherapy on gut activity in a pair of studies. In the first study (Simrén, Ringström, Björnsson, & Abrahamsson, 2004) they tested the reactivity of the gut to fats, because fatty meals are sometimes reported to cause symptoms in IBS patients. They discovered by infusing lipids into the intestines that the GI tract showed lessened reactivity to fats (attenuated gastro-duodenal response) after hypnosis treatment of their sample of 28 IBS patients. However, this was a relatively small effect, and lipid reactivity is likely to be only a minor contributor to overall IBS symptoms.

In the second study by the same group, the investigators measured changes in various aspects of movement through the bowels (gastric emptying rate, colonic transit time, and small bowel manometric readings) in 81 of the patients from their randomized trial of 90 patients receiving hypnosis treatment versus supportive therapy (Lindfors et al., 2012). They found no significant changes in any of these parameters in either group, although non-significant trends were seen toward more smooth muscle waves (migrating motor complexes) and increase in the rate of gastric emptying (Lindfors, Tornblom, et al., 2012).

In spite of the general lack of clear effects of hypnotherapy on GI functioning, it is likely that major physiological effects do occur from the intervention that have not been captured by the research methods used so far. For example, changes in stool consistency (reduction in diarrhea and constipation) are key aspects of clinical improvement in IBS from hypnotherapy, and this is likely to be indicative of bona fide physiological changes in bowel functioning. Evidence of this can for example be clearly seen in our first two
studies on the North Carolina Protocol (Palsson et al., 2002), where we asked patients (in addition to tracking other IBS symptoms) to rate the consistency of their every bowel movement for 14 days before and at the end of treatment. We found that stool consistency normalized in a highly statistically significant manner after hypnotherapy, with decrease in both hard and watery stools. In the first study the percentage of all stools rated either hard or watery changed on average from 30% to 18%, and in the second study from 25% to 10%. This is almost certainly indicative of changes in secretion or absorption activity in the bowel, but those parameters have not been measured in IBS hypnosis studies to date.

The only non-IBS study measuring GI tract changes from hypnosis was conducted in research on the case series of 10 patients treated for globus by Kiebles and colleagues (2010) that was mentioned above. Upper esophageal sphincter pressure, a reasonable suspect as a contributor to the uncomfortable lump-in-the-throat sensation in this disorder, was measured by high-resolution manometry before and after the treatment course. The pressure parameters measured (respiratory augmentation and average resting pressure) were unchanged after the seven session course of hypnosis treatment even though 9 out of the 10 patients rated their globus symptoms improved. However, it should be noted that only one of the patients had abnormal esophageal sphincter pressures before treatment.

A few studies have investigated the brain side of possible brain–gut hypnotherapy mechanisms, and here the results have been mixed, although perhaps more promising. Most enlightening of these trials was a recent first-ever study by Lowen and colleagues in Sweden (Lowén et al., 2013) of brain processing of bowel sensations after hypnotherapy in IBS, using functional Magnetic Resonance Imaging (fMRI) techniques. They compared brain reactions in response to mild and intense intra-rectal stimuli in 18 women with IBS who completed a 12 session course of hypnotherapy, 13 women who completed an educational intervention for IBS, and 20 healthy women. Both IBS groups improved in their symptoms from their respective treatments. That clinical improvement was associated in both groups with lessened brain response to bowel stimuli in a part of the brain called the insula (which serves a wide variety of functions including processing of emotions and control of the body’s homeostasis). Interestingly, however, only the hypnosis subjects showed reduction in activity in the posterior insula in response to intense balloon stimuli in the bowel after treatment. The posterior insula is the primary receiving and processing station in the cortex for sensations from inside the body, and the authors point out that this means that in the hypnotherapy group exclusively, this brain center after hypnosis treatment was either less reactive to uncomfortable bowel sensations or it had started receiving attenuated sensory signals from the bowels (perhaps due to increased descending inhibition from the brain dampening of the signals in the spine). After treatment, balloon inflation brain responses in both IBS groups looked like those of the healthy subjects, supporting the notion that psychological treatment of IBS normalizes brain processing of gut sensations.
Since the brain’s modulation of gut activity is to a large extent mediated by the autonomic nervous system (Mayer & Tillisch, 2011), our research team decided to measure several psychophysiological variables in one of our IBS hypnosis treatment studies (Palsson et al., 2002), to attempt to detect autonomic alterations that correspond to changes in bowel symptoms. We measured blood pressure, heart rate, sweat gland activity, and skin temperature, both at rest and their reactivity in response to a standard laboratory cognitive stressor task, in a sample of 24 patients before and after treatment with our scripted seven-session hypnosis treatment. We also measured the patients’ skeletal muscle tension (using surface electrodes on the forehead) to investigate whether physical relaxation in skeletal muscles might be relevant to the treatment benefit. We found negligible evidence of autonomic nervous system changes after treatment (a small mean reduction in sweat gland stress reactivity was the only physiological change found after treatment, and this may have been mere test–retest habituation), and no change was found in general skeletal muscle tension. Thus we failed to find any clear changes that could reflect differences in the influence of the brain on the gut after treatment even though our patients showed a very substantial improvement in bowel symptoms.

Other pieces of the puzzle of what changes in the brain as a result of hypnosis GI treatment may lie in repeated observations of cognitive and non-GI physical symptom changes. Several studies of hypnotherapy for GI disorders have found that non-gastrointestinal symptoms such as headache, back pain, and urinary symptoms tend to improve significantly after hypnotherapy, along with the reduction in gastrointestinal symptoms (see Tables 1–3). An excess amount of such general body symptoms, which is a tendency often called somatization, is characteristic of a significant subset of patients with IBS (MacLean, Palsson, Turner, & Whitehead, 2012), and may point to excess attention to body symptoms in general. It is not unlikely that the reduced activity in the posterior insula, representing decreased brain reactions to visceral sensations, is paralleled by lessened reactions in the brain to other (non-GI) physical sensations as well as a result of hypnotherapy. Hopefully this will be investigated in future research.

Finally, it should not be ignored that significant reduction in affective symptoms has often been documented to occur as a positive side benefit of hypnosis treatment for GI disorders. This is likely to translate into lessened disturbance of bowel activity, for as discussed in the introduction it is clear from experiments that there is a relatively open channel through the brain–gut axis for emotions to affect gut activity. The positive emotional changes observed in these studies are in turn likely to result from decrease in dysfunctional thoughts about the symptoms and the GI disorder, and increased sense of overall well-being due to suggestions, imagery and relaxation methods used in the treatment. Gonsalkorale et al (Gonsalkorale, Toner, & Whorwell, 2004) found that dysfunctional IBS-related cognitions, such as those typically targeted in cognitive-behavioral therapy, were measurably reduced after a course of hypnotherapy in a sample of 78 patients, and analysis showed that this was not merely a side effect of symptom improvement.
Hypnosis for Nausea and Vomiting: GI Application of Hypnosis for Non-GI Disorders

This review has not included one fairly widely researched GI application of hypnosis treatment—the use of hypnosis to treat or prevent nausea and vomiting. The reason for this exclusion is that nausea and vomiting are uncommon as GI disorders in their own right (although they do exist, as functional nausea and vomiting as well as cyclic vomiting), and have therefore not been studied as targets for hypnotherapy. On the other hand they are common symptoms in a variety of non-GI health problems as well as side effects of medical treatment. A heterogeneous research literature has examined hypnosis as intervention for relief of pregnancy-related (McCormack, 2010), chemotherapy-related (Richardson et al., 2007) and post-operative (Kekecs, Nagy, & Varga, 2014) nausea and vomiting, with the strongest evidence so far perhaps being supporting the utility of hypnosis to control anticipatory nausea and vomiting in chemotherapy. These studies are further demonstrating that hypnosis can be a useful tool in various ways for tuning brain–gut communication in order to reduce GI symptoms.

Conclusions: Current Status and Future Directions

Over the past 30 years, an impressive body of clinical tests of hypnosis intervention for GI disorders has accumulated in the scientific literature. The 35 different studies published in scientific journals over this period have without exception reported significant positive impact of hypnotherapy on the bowel symptoms of the GI disorders they have treated. Just under half of these studies were RCTs, and the great majority of them (14 out of 17) show superiority in clinical outcomes for groups treated with hypnosis compared to a wide range of comparison groups.

There is certainly room for improvement in this area of research, and many of the studies can fairly be criticized individually for various aspects of design and conduct. The majority of the studies are small, control groups have not always been optimal, and the hypnosis methods have sometimes been described poorly or hardly at all. However, the remarkable consistency in positive evidence goes a long way to over-ride most of those methodological concerns. Small study samples are mostly worrisome in clinical outcomes research, for example, because they may cause lack of statistical power to detect bona fide therapeutic effects, and also because biases in sampling could lead to observations that are not replicable. However, when a large number of these small studies show consistent positive results, as the case is here, this becomes far less of a problem. Likewise, much of the concern about the control groups sometimes not being optimal (like waiting control groups that do not control for anticipation of therapeutic benefit) is neutralized by the fact that similar therapeutic advantages of hypnotherapy have been observed almost always over any kind of control group, except certain other active psychological treatments. In regard to lack of well-defined hypnosis methods that
mar some of the studies in the literature, the more important fact is that two structured methodologies to GI hypnosis treatment are available that have been described in great detail for the benefit of hypnotherapists and have each been tested in several studies with consistently high success rates: The Manchester Method (Gonsalkorale, 2006), and the North Carolina Protocol (Palsson, 2006).

A more significant limitation of this empirical literature than any methodological concern is the fact that only one GI health problem has been addressed sufficiently to conclusively show sufficient evidence of success for high confidence in the treatment—IBS in adults. However, one could actually view this lopsided research focus as an advantage. The concentration of so much firepower in this relatively small research domain on a single target has led to enough achievement in work on that disorder to declare the mission accomplished. It is unequivocal, after the publication of 10 RCTs and 14 other studies buttressing the evidence of significant symptom impact, that hypnosis is a potent therapy for IBS in adults. That conclusion is supported by both of the systematic reviews and meta-analysis in this area within the past year, which limited their assessment to only evidence from the RCTs. Schaefert, Klose, Moser, and Häuser (2014) reported their analysis of the eight RCTs in this domain that met their analysis requirements, and concluded that compared to control conditions hypnosis treatment leads to significantly more short-term reduction in global GI symptoms and also achieves adequate long-term relief at a higher rate. Their report found that collectively across those eight studies, hypnotherapy produced long-term adequate symptom relief for 54% of IBS patients whose symptoms had been refractory to conventional treatment. Lee, Choi, and Choi (2014) judged seven of the randomized trials to be suited for their meta-analysis, and they also concluded that the evidence shows hypnosis to be beneficial for short-term improvement in IBS GI symptoms.

The total body of research published on hypnotherapy for adult IBS collectively gives a fairly clear picture of what hypnotherapy has to offer the patients. The key facts can be summarized as follows:

1. At least half of patients who have been unresponsive to the usual medical care approaches can be expected to benefit.
2. A treatment course of 7 to 12 sessions, typically delivered over a time period of 2 or 3 month period, is sufficient to produce marked symptom improvement.
3. All of the central symptoms of IBS, including abdominal pain, constipation and diarrhea, and bloating, can be expected to improve substantially in treatment responders.
4. The treatment commonly provides broader benefits than bowel symptom relief, with “positive side effects” often including marked enhancement in quality of life and reduction in non-GI symptoms.
5. Patients who respond to treatment will in the majority of cases retain their improvement for years after treatment.
The accumulation of this critical mass of hypnotherapy research in adult IBS has played a substantial role—along with the even larger and equally impressive body of research on cognitive-behavioral therapy for the disorder (Ford et al., 2014; Palsson & Whitehead, 2013)—in gaining psychological treatments the status of recommended treatment options for certain IBS cases by the two main U.S. membership organizations in gastroenterology: The technical review on IBS by the American Gastroenterological Association recommends psychological treatment for moderate and severe patients, those with inadequate response to standard medical care, and patients in whom psychosocial factors clearly exacerbate symptoms (Drossman et al., 2002), and the current evidence-based position statement of the American College of Gastroenterology gives psychological treatment “strong recommendation” rating for improving global IBS morbidity (Brandt et al., 2009).

What seems to be primarily needed now in hypnosis treatment for IBS specifically, is to make the empirically tested therapies more widely available to patients. Our team in North Carolina has taken a significant step in this direction by sharing our fully scripted protocol over the past 15 years, which makes it easy for any suitably qualified hypnotherapist to utilize the exact method tested in the research studies. Physicians team up with medical care providers to facilitate referrals and use of this option, which is still rarely utilized even for patients in medical care, and there needs to be increased education of both physicians and the public about this important therapy option, with emphasis on the empirical support and the endorsement of psychological treatment by the authoritative bodies gastroenterology. There also needs to be more widespread training of hypnosis professionals in the specific gut-directed hypnotherapy approaches that makes this impact on IBS possible.

The same conclusions as outlined for adult IBS largely apply in regard to pediatric IBS and FAP treatment with hypnosis as for adult treatment. Even though the body of evidence is that much smaller, it is hard to argue against it being a proven form of treatment when all three well-conducted RCTs that have been published demonstrate high success rates, with more than half of children responding to treatment and very substantial improvement in symptoms, and initial indications that the therapeutic impact may last for 5 years (Vlieger et al., 2012). Replication of long-term maintenance is needed, of course, but there seems to be sufficient evidence already to recommend offering this intervention as an adjunct for children with these common pain problems. The emphasis here should also be, like in the case of adults, on facilitating access to this treatment, education about the benefits, and training of hypnosis professionals in the specific intervention methods that achieve these results.

In regard to GI disorders other than IBS and FAP, hypnosis has shown intriguing promise, but unfortunately no more than a promise. It is hard to trust a single RCT study in clinical outcomes research as adequate demonstration of efficacy, and in fact it is also risky to trust research conducted by only a single team. So until multiple RCTs have been published, preferably by different research teams, the findings from these promising
trials should be considered preliminary. It ought to be considered a high priority for the field of gastrointestinal disorders to conduct further controlled trials to confirm that hypnosis treatment is efficacious for functional chest pain. Considering that there are literally dozens of GI disorders, pioneering trials on those would be most welcome as well, for it is almost certain that hypnosis has GI applications beyond the narrow spotlight in which we have viewed that area of application so far.

Another future empirical emphasis that seems to be called for by the current status of this research domain is systematic documentation of effectiveness of hypnosis in clinical practice outside of research centers. Almost all the published evidence comes from studies treating tertiary care patients at major academic medical centers. We do not fully know from the research how well this treatment translates to more general clinical practice outside such specialty centers. This is not nearly as much of a concern when therapists adhere closely to the empirically tested protocols of treatment shown to be successful in formal studies, but when they use more or less their own clinical approach, little is known about how well the treatment works. It would strengthen the case for routine provision of hypnotherapy to be able to formally demonstrate real-world clinical effectiveness in published research.

Regarding research on the mechanisms of hypnosis impact on GI symptoms, it seems that the evidence points to both central nervous system and gut changes associated with the therapeutic influence of hypnosis intervention. It may be as difficult, if not impossible, to fully tease brain and body effects apart in GI hypnosis research as they are so integrated via the brain–gut pathway. However, it will likely be more productive in future work, instead of focusing on isolated possible mechanisms, to investigate changes simultaneously in psychological (cognitive and emotional) variables, brain activity, and in gut physiology variables in the same set of patients, in order to model how hypnosis impacts symptoms and clarify the paths of the therapeutic influence. It furthermore seems that measures other than those that have been utilized to date are called for to quantify some effects that have so far escaped detection (such as bowel functioning changes responsible for normalization of stool consistency, as mentioned earlier).

In summary, the body of research reviewed in this article strongly supports hypnosis as a potent psychological tool for addressing clinical problems in the alimentary tract. Collectively, the studies discussed here represent the strongest claim that clinical hypnosis has to offer at the present time as a therapy for physical health problems. There is no question that it can help to substantially improve clinical outcomes for adult and pediatric patients with IBS and abdominal pain who continue to have troublesome and persistent symptoms in spite of the best efforts of their medical care providers. Promising first studies on several additional GI disorders and continuing active research in this domain make it highly likely that hypnosis will broaden its scope of value substantially and further strengthen its emerging status as a powerful tool for helping large numbers of patients with difficult GI disorders in the coming years.
References


