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EFFICACY OF CLINICAL HYPNOSIS: A SUMMARY OF ITS EMPIRICAL EVIDENCE

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Hypnosis is a valuable clinical intervention for the treatment of a wide variety of psychological and medical problems which helps improve the quality of life in patients. This paper reviews the state of the evidence regarding the efficacy of hypnosis taking into account the most rigorous research results in this respect, together with other studies of clinical relevance although they do not fulfill stringent methodological criteria. Overall, the findings of research indicate that hypnosis used as an adjunctive to other medical or psychological interventions increases the efficacy and/or efficiency of these interventions. Moreover, hypnosis efficacy is well established in certain clinical applications, especially pain management and other medical conditions, and there is acceptable evidence of its efficacy in treating depression, sleep disorders, smoking cessation, obesity, asthma, and enuresis in children. According to the literature to date, continued research using randomized, controlled methodologies as well as adequate sample sizes is well justified, and it is essential in order to establish the efficacy of hypnosis in other areas.
Keywords: *hypnosis, efficacy, empirical evidence, theoretical study.*

La hipnosis es una intervención clínica valiosa en el tratamiento de una amplia variedad de problemas psicológicos y médicos, ayudando a la mejora de la calidad de vida de muchos pacientes. Este artículo revisa el estado de la evidencia empírica de la eficacia de la hipnosis, teniendo en cuenta los resultados de la investigación más rigurosa al respecto, así como los de otros estudios que, a pesar de no cumplir unos criterios metodológicos rigurosos, poseen relevancia clínica. En general, y según la investigación revisada, cuando se utiliza la hipnosis como un coadyuvante a otras intervenciones médico psicológicas, incrementa la eficacia y/o eficiencia de tales intervenciones. Asimismo, la eficacia de la hipnosis está bien establecida en diversas aplicaciones clínicas, especialmente el manejo del dolor y otras condiciones médicas, existiendo evidencia aceptable de su eficacia en el tratamiento de la depresión, los trastornos del sueño, dejar de fumar, la obesidad, el asma y la enuresis infantil. De acuerdo con la investigación publicada hasta la fecha, está justificada la realización de investigaciones que utilicen estudios controlados con muestras de tamaño adecuado. Así mismo, es esencial establecer la eficacia de la hipnosis en otras áreas aún por investigar.
Palabras clave: *hipnosis, eficacia, evidencia empírica, estudio teórico.*

Hypnosis is a field of study with a great deal of theoretical, clinical, and experimental research. However, a good number of studies on the efficacy of applied clinical hypnosis do not meet stringent methodological criteria in several areas of its application.

A comprehensive review of the state of the empirical evidence regarding the efficacy of hypnosis was published in a special issue of the *International Journal of Clinical and Experimental Hypnosis* (2000, Vol. 48, 2). The criteria on which the evaluation of the empirical status of clinical hypnosis was based in all the reviews were those delineated by Chambless and Hollon (1998). These methodological guidelines are among the most rigorous in existence today. Therefore, the fact that a particular study does not comply with all the criteria does not necessarily mean that the treatment under study is ineffective, but rather that both continued research and the improvement of interventions are needed in order to achieve such criteria (Lynn, Kirsch, Barabasz, Cardeña, & Patterson, 2000). More recently, while this paper was still being edited, Wark (2008) published a brief review in which results from the main meta-analyses conducted on the efficacy of clinical hypnosis are summarized. Although it may be slightly optimistic, this summary is, however, useful for guiding those professionals who want to use hypnosis in the treatment of those problems or areas in which a minimum degree of efficacy/efficiency has been shown. The present paper also attempts to meet that goal, as well as to be a more comprehensive and updated review than that of Wark, taking into account a wide range of studies relevant to the establishment of the efficacy of clinical hypnosis.

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Pain Management

One of the areas where the application of hypnosis demonstrates abundant empirical evidence as to its efficacy is in the management of both chronic and acute pain (Lynn et al, 2000, Montgomery, DuHammel & Redd, 2000). Both the acknowledgement by *The National Institute of Health Technology Assessment Panel Report* (1996) and the meta-analytic review by Montgomery et al. (2000) about the efficacy of hypnosis in pain management support its consideration as an efficacious, well-established, and empirically validated treatment. In Montgomery et al.'s (2000) review, it was found that hypnosis can relieve different kinds of pain in 75% of the population. Results revealed a moderate to large effect of hypnotic analgesia in reducing both clinical and experimental pain which supports the efficacy of hypnotic procedures for pain management. Moreover, the results indicated that hypnoanalgesic techniques are superior to medication, psychological placebos and other treatments, fulfilling the criteria for a well-established treatment according to Chambless and Hollon (1998).

Subsequently, Patterson and Jensen (2003) provided a comprehensive review of the literature on controlled trials of hypnosis and pain in clinical settings, excluding those studies with student volunteers that were included in Montgomery et al.'s (2000) meta-analysis. For the purposes of the review, Kihlstrom's (1985) definition of hypnosis was used, since it is wide enough to include those studies examining the effects of hypnotic analgesia, as well as sufficiently specific to take into account the primary component of hypnosis, that is, suggestion. In this way, studies examining interventions that were not defined as hypnosis by the investigators, even though they might have included suggestions, were excluded from the review. Likewise, the authors examined the studies which considered parameters such as the type of pain treated (acute vs. chronic), study design, and the nature of the control group. Results regarding acute pain studies demonstrate consistent clinical effects with hypnotic analgesia that are superior to attention or standard care control conditions, and often superior to other viable pain treatments. Findings from chronic pain studies show that hypnotic analgesia is consistently superior to no treatment but equivalent to relaxation and autogenic training for this condition. Therefore, the authors conclude that the available evidence from randomized controlled studies with clinical populations indicates that hypnosis has a reliable and significant impact on acute procedural pain and chronic pain conditions.

With regard to chronic pain exclusively, there is a recent review of controlled prospective trials of hypnosis for the treatment of patients with this problem (Elkins, Jensen, & Patterson, 2007). The findings indicate that hypnosis interventions were demonstrated to be significantly more effective than non-treatment in decreasing pain associated with a variety of chronic pain conditions. Moreover, these reductions in perceived pain were reported to be maintained for several months; and, in a few studies, hypnotic procedures proved to be more effective than non-hypnotic treatments such as physical therapy or education.

It is worth mentioning that hypnotic treatment is helpful for chronic-pain patients not only in achieving analgesic effects but also in anxiety management, improving sleep, and enhancing quality of life (Jensen et al., 2006).

Notwithstanding, Elkins et al. (2007) indicate that several of the studies reviewed show basic research design weaknesses, such as small sample size, lack of credible controls for placebo and /or expectation, and lack of long-term follow-ups; further investigation is required to fully determine the efficacy of hypnosis in treating chronic pain.

On the other hand, Hammond´s (2007) review on the efficacy of clinical hypnosis in the treatment of headaches and migraines concluded that hypnosis fulfills the research criteria in Clinical Psychology in order for it to be considered an *efficacious and well-established treatment*. Furthermore, hypnosis does not produce any side effects or risks of adverse reactions, which decreases the cost of medication associated to conventional medical treatments (Hammond, 2007).

Castel, Pérez, Sala, Padrol, and Rull (2007) treated 55 patients suffering from fibromyalgia with hypnosis. The first experimental group received hypnosis along with relaxation suggestions, the second group received hypnosis plus analgesia suggestions, and the third was treated with relaxation alone. These results showed that the greatest relief in pain intensity and in the sensorial dimension of pain was achieved by the group that received hypnosis along with analgesia suggestions, followed by the group receiving hypnosis plus relaxation suggestions. Moreover, it was found that the effect of hypnosis together with relaxation suggestions was not superior to relaxation alone.

Likewise, Karlin (2007) examined the possible mechanisms accounting for the effects of hypnotic analgesia found in the aforementioned meta-analyses,

namely, the ability to hallucinate the absence of painful stimuli that are present (negative hallucination), beliefs, expectancies, and distraction inherent to hypnotic analgesia suggestions, and their relationship with patient's hypnotizability.

Finally, Martínez et al. (2008) carried out a pilot study in which the efficacy of a multicomponent cognitive-behavioral treatment for fibromyalgia with and without hypnosis was compared with pharmacologic treatment alone. The results support that hypnosis as an adjunct to cognitive-behavioral treatment can be useful in the management of the symptoms of fibromyalgia.

Anxiety Disorders

Empirical research indicates that hypnosis may contribute to the efficacy of cognitive-behavioral therapy. In a study by Schoenberger, Kirsch, Gearan, Montgomery, and Parstynak (1997), a cognitive-behavioral intervention for public speaking anxiety was compared with the same intervention supplemented by hypnosis. Cognitive restructuring and in vivo exposure were common components of both treatments, whereas relaxation was substituted in the hypnosis group by hypnotic induction and suggestions. Participants were asked to improvise a speech during which they had to rate their anxiety on a scale. Anxiety was reduced in both groups; however, on subjective and behavioral measures of fear made during the impromptu speech, only the hypnotic group differed significantly from the control group. Furthermore, anxiety decreased more quickly in the participants treated with hypnosis than in those treated with cognitive-behavioral therapy alone. This is the only study in which hypnosis as an adjunct to cognitive-behavioral therapy has proven its superiority in the treatment of anxiety over non- treatment (Schoenberger, 2000).

On the other hand, Van Dyck and Spinhoven (1997) conducted a study to prove whether the combination of exposure *in vivo* and hypnosis is more efficacious than exposure alone for the treatment of fear and avoidance in agoraphobic patients. The results revealed that the group receiving the combined treatment did not obtain better results than the group that received the treatment with exposure alone. Furthermore, the combined treatment was not superior to the exposure treatment alone in the prevention of dropouts. The authors conclude that exposure *in vivo* is a highly efficacious therapeutic procedure difficult to surpass and that it works even in patients reluctant to such treatment. Imagination and hypnotic relaxation do not improve the effects of exposure to a great extent; however, if patients show interest in these techniques and their use improves their adherence to treatment, it may be very helpful to include them in interventions for agoraphobia (Van Dyck & Spinhoven, 1997).

Obesity

Hypnosis as an adjunct to cognitive-behavioral treatment for obesity is considered as "*possibly efficacious*" (Schoenberger, 2000) based on the findings of a study by Bolocofsky, Spinler, and Coulthard-Morris (1985), the largest study of its kind on this topic. Bolocofsky et al. (1985) compared a group that received a behavioral management program (stimuli control, relaxation, weight diary, and program reward) with another group that received the same program plus hypnosis. Both treatments consisted of one session per week for 9 weeks. At the end of treatment, both groups had lost an average of 9 pounds of weight. However, at the 8 month and 2 year follow-up, only participants in the hypnosis group had kept on losing weight and following the program rules, and the compliance with the program was significantly and consistently correlated with weight loss (Bolocofsky et al., 1985).

Even though these findings are promising, further research with more rigorous methodology is needed to establish the efficacy of hypnosis in the treatment of obesity (Schoenberger, 2000).

Depression

The study conducted by Alladin and Alibhai (2007) represents the first comparison of a treatment which uses hypnosis as an adjunct to a well-established psychological therapy for depression (Beck´s Cognitive Behavioral Therapy for Depression) with the same therapy without hypnosis. The results of this study indicated that both patients who received cognitive hypnotherapy and those who received cognitive-behavioral therapy improved relative to their baseline scores. However, the former showed significantly greater changes in depression, anxiety, and hopelessness than those who were treated with cognitive-behavioral therapy without hypnosis. Moreover, these improvements were maintained at the 6 and 12 month follow-ups.

Findings of this study fulfill the APA criteria for considering cognitive hypnotherapy treatment as "*probably efficacious*" for depression (Alladin & Alibhai, 2007).

Smoking Cessation

According to Green and Lynn's review (2000), hypnosis is classified as a "*possibly efficacious*" treatment for smoking cessation in accordance with the criteria of Chambless and Hollon (1998). Hypnotic interventions have proven to be more efficacious than waiting lists or non-treatment, and equivalent in effectiveness to other interventions such as behavior modification and health education. However, hypnotic procedures have not yet shown to be superior to other treatments, and evidence as to whether hypnosis achieves better results than placebo is controversial. Furthermore, specific effects of hypnosis are difficult to separate from those produced by the cognitive-behavioral and educational interventions to which hypnosis is added (Green & Lynn, 2000). Also, most studies base their results on participants' self-reports of smoking which overestimate treatment efficacy. Therefore, research including biochemical verification of abstinence is required in order to obtain valid results (Green & Lynn, 2000).

Additionally, a study by Green, Lynn, and Montgomery (2008) found gender differences in the success of interventions including hypnosis to quit smoking, the male participants being more successful than the females. This result has also been found in interventions without hypnosis (Green, Lynn, & Montgomery, 2008).

To sum up, in spite of the existent methodological problems that make it difficult to establish hypnosis efficacy, it is considered as efficacious as other available procedures. Moreover, hypnosis has the advantage of its efficiency, being briefer and less costly than other interventions, as is shown by its wide use in clinical practice for smoking cessation (e.g.: Elkins & Rajab, 2004; Elkins et al., 2006; Green, 1996; Lynn, Neufeld, Rhue, & Matorin, 1993; Mendoza, 2000).

Trauma

There exist many anecdotic reports and case studies claiming that hypnosis has an impact in the treatment of trauma. However, according to Cardeña's review (2000), there is only one randomized controlled study (Brom, Kleber, & Defare, 1989) that is close to fulfilling Chambless and Hollon's criteria (1998). Brom, Kleber, and Defare (1989) compared the effects of hypnotherapy, systematic desensitization, and psychodynamic psychotherapy in the treatment of post-traumatic stress. All three of these interventions proved to be more effective than a waiting-list control group both at the end of treatment and at a 3-month follow-up, but none of them was superior to the others. However, the hypnotherapy group required fewer sessions of treatment than the other groups, and hypnosis along with desensitization were more effective than psychodynamic therapy in treating intrusion symptoms (Brom, Kleber, & Defare, 1989).

More recently, a study on the treatment of Acute Stress Disorder (Bryant et al., 2005) compared hypnosis as an adjunct to cognitive-behavioral therapy with cognitive-behavioral therapy alone, and with supportive counseling. At the end of treatment, the best of the three interventions for re-experiencing symptoms was the one including hypnosis, although at 6-month and 3-year follow-ups it showed to be equivalent to the cognitive-behavioral treatment alone. Both interventions were better than supportive counseling at all three testing times regarding symptoms of post-traumatic stress and depression.

In view of the fact that therapies used for treating trauma can easily be conducted with hypnosis and that hypnotic procedures may help modulate and integrate traumatic memories (Cardeña, 2000), hypnosis can be considered a promising intervention for ameliorating the post-traumatic symptoms of victims of trauma. Moreover, in several studies it has been demonstrated that people suffering from post-traumatic stress are highly hypnotizable, therefore, they may benefit from hypnosis more than most other patient populations (Bryant, Guthrie, & Moulds, 2001; Spiegel, Hunt, & Dondershine, 1988; Stutman & Bliss, 1985). Consequently, more research is required in this area so that hypnosis can be recognized as an empirically supported treatment for post-traumatic conditions.

Psychosomatic Disorders

In a recent investigation, randomized and controlled clinical studies were systematically evaluated, and a meta-analysis was conducted to evaluate the efficacy of hypnosis in treating psychosomatic disorders (Flammer & Alladin, 2007). Studies included in the meta-analysis compared groups treated with hypnosis as the only technique used, except for standard medical care, with waiting-list control groups.

The results indicated medium efficacy of hypnosis for psychosomatic disorders. However, these results should be viewed with some degree of reservation because of the limitations of this study. The authors indicated some of these: first, the lack of a distinct category for

psychosomatic disorders both in the ICD-10 and in the DSM-IV classification systems affects the interpretation of the meta-analysis and, the fact that there were no available studies fulfilling the criteria that assessed the efficacy of hypnosis in treating the wide range of conditions considered by the authors as psychosomatic disorders. Moreover, the effects of factors such as differences in diagnostic criteria, age, and severity of symptoms on the treatment outcome were not examined because the selected studies failed to provide sufficient information (Flammer & Alladin, 2007). Another troublesome point is that the report of long-term follow-up data was not an inclusion criterion in the meta-analysis, that is, the measurement of efficacy is circumscribed to post-intervention data.

Additionally, in this meta-analysis the included studies were also analyzed with respect to the hypnotic interventions utilized, which were categorized as classical hypnosis, modern hypnosis, and mixed form of hypnosis. The results indicated that the mixed and modern Ericksonian forms of hypnosis were comparatively superior to classical hypnotherapy. However, in view of the fact that classical hypnosis was predominantly used (53.6%) in the studies included in this analysis, then mixed (32.1%) and only a few studies (14.3%) used modern hypnosis, the findings relative to the superiority of the latter may be the result of a statistical artifact, and consequently, the author's conclusions regarding this should be treated with caution.

Finally, the authors also pointed out that in the studies included in the analysis, hypnosis is mainly used for the treatment of symptoms disregarding other components that may help patients deal with psychosomatic problems, such as maintaining factors, cognitions, and emotions (Flammer & Alladin, 2007). Although the authors concluded that according to their meta-analysis, hypnosis is highly effective in the treatment of psychosomatic disorders, these results are inconclusive and should be judged with caution as mentioned above. Therefore, continued research should be conducted concerning the efficacy of hypnosis not only on the symptoms of psychosomatic disorders, but also on the other components that may be maintaining these kinds of disorders.

HYPNOSIS IN MEDICINE

Gastrointestinal Disorders

Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder characterized by recurring symptoms of abdominal discomfort or pain associated with an altered bowel habit, either constipation or diarrhea or both. It is the most common disorder found in the practice of gastroenterology. It has a complex etiology in which emotional stress, anger, and depression affect negatively by worsening the symptoms. IBS has a significant impact on those afflicted with regard to symptom severity, disability and impaired quality of life. Conventional medical treatments for this syndrome are not satisfactory for more than half of patients who continue suffering chronic symptoms. Therefore, the therapeutic impact of other kinds of treatments has been explored. So far, hypnosis as an adjunct to cognitive-behavioral therapy is the intervention that has demonstrated empirically to be more efficacious. Several studies have shown that treatments including hypnosis have an important impact that lasts for years in most patients suffering from IBS. Moreover, hypnosis helps improve intestinal symptoms, psychological wellness, quality of life, even for those patients who did not respond to standard medical treatments (Gonsalkorale, Houghton, & Whorwell, 2002; Gonsalkorale & Whorwell, 2005; Whitehead, 2006; Whorwell, 2006). Although the mechanisms through which hypnosis is efficacious in the treatment of IBS are not yet well known, research on the subject indicates that the effects of hypnosis are associated to changes in colorectal sensitivity and the improvement of psychological factors. However, the effects on gastrointestinal motility and the autonomous nervous system are not clear and require more research (Simrén, 2006).

It is worth mentioning the studies conducted by a team from the University of Manchester in United Kingdom on the use of hypnosis as an adjunct for the treatment of IBS, and whose professionals have integrated hypnosis successfully into the gastroenterology service at the University Hospital since 1980 (Gonsalkorale, 2006; Whorwell, 2006). The treatment protocol is structured in 12 sessions for a three-month period and most patients significantly improve both their gastrointestinal symptoms and their quality of life (Gonsalkorale, 2006).

Finally, a standardized treatment of 7 sessions with hypnosis has been developed, namely, the North Caroline Protocol. It is the only approach for IBS fully scripted to standardize and ensure the uniformity of patient care. The validity of the protocol has been evaluated and has been shown to benefit more than 80% of patients (Palsson, 2006).

Diabetes

A recent study (Xu & Cardeña, 2008) reviews the empirical literature on the effectiveness of hypnosis for diabetes management and proposes the rationale to develop a multimodal protocol with hypnosis to help patients with both psychological and physiological factors of this health problem.

Since diabetes itself can be considered as a stressor that aggravates the condition (Diment, 1991), hypnosis as an adjunct to counseling to reduce stress may be helpful in the management of both diabetes related anxiety and everyday life stress, and, thereby in the improvement of metabolic control in these patients (Diment, 1991). However, there are no large-scale studies examining the role of hypnosis in reducing stress in diabetic patients (Xu & Cardeña, 2008).

Weight control is an important factor in the management of diabetes since it is a well-established risk factor especially for T2D (Willett, Dietz, & Colditz, 1999). Even though research regarding the effectiveness of hypnosis in treating obesity is not yet conclusive, findings in several studies carried out are promising (Kirsch, Capafons, Cardeña, & Amigó, 1999; Pittler & Ernst, 2005; Vanderlinden & Vandereycken, 1994). Therefore, the use of hypnosis for weight loss in diabetic patients requires further investigation.

Diabetic patients suffer from impaired peripheral circulation especially affecting their feet. This is due to the damage of blood vessels caused by chronically high blood-glucose values. Furthermore, poor peripheral blood circulation makes the feet more prone to infection and wound healing more difficult (Xu & Cardeña, 2008). Hypnosis might be effective in increasing blood flow and in relieving the diabetic foot problem since the vascular system appears to be sensitive to psychological stimuli (Barber, 1983). In Galper, Taylor, and Cox's study (2003) hypnosis used together with thermal biofeedback resulted effective in relieving diabetic angiopathy. Therefore, the effects of hypnosis in diabetic foot care are promising but continued research is needed to fully evaluate its efficacy (Xu & Cardeña, 2008).

Other areas in which hypnosis has been used with diabetic patients are the regulation of blood glucose (Vandenbergh, Sussman, & Titus, 1966) and compliance with treatment (Ratner, Gross, Casas, & Castells, 1990). However, there is not sufficient empirical research in these areas either.

To sum up, Xu and Cardeña (2008) propose the development of a multifaceted program for the treatment of diabetes including hypnotic suggestions for increasing compliance with medical, exercise, and diet programs in order to reduce stress and favor relaxation and for the thermal vascular regulation of distal limbs.

Preparation for Surgery

Many patients consider surgery as a source of psychological and physical stress and experience high levels of anxiety and somatic discomfort before, during, and after many medical procedures. Hypnosis has been used as an adjunct to psychological interventions to relieve anxiety related to these procedures, as an adjunct to pharmacologic analgesia, and to teach patients coping strategies before surgery. Moreover, hypnosis has been used to reduce analgesic medication doses pre- and post-surgery, bleeding, and hospitalization time, as well as to facilitate post-operative recovery and healing (Pinnel & Covino, 2000).

Blankfield (1991) reviewed the research conducted on the effects of hypnosis, suggestions and relaxation in surgery patients, and concluded that there is sufficient support regarding the efficacy of psychological interventions in the recovery of these patients.

In a study by Faymonville et al. (1997), the effectiveness of hypnosis was compared to conventional stress-reducing strategies to reduce perioperative discomfort during conscious sedation for plastic surgery. Results indicated that the hypnosis group not only needed less analgesia and less sedation, but also had greater relief from pain and anxiety before, during and after surgery. However, these findings have to be taken with some caution as the intervention was not defined as hypnosis to patients.

Montgomery, David, Winkel, Silverstein, and Bovbjerg, (2002) conducted a meta-analysis of published controlled studies that had used hypnosis with surgical patients. The authors' aims were to determine whether hypnosis has significant beneficial effects, whether hypnosis is relatively more effective for certain clinical outcomes, and whether the method of hypnotic induction (live versus audiotape) has an influence on hypnosis efficacy. Results indicated that on average 89% of surgical patients benefitted from hypnosis interventions compared to patients in control conditions. Relative to the second objective, the authors found that the beneficial effects of hypnosis were apparent in each of the six clinical outcome categories

chosen for the study, namely, negative affect, pain, pain medication needed, physiological indicators, recovery and length of procedure and hospitalization time. Furthermore, these benefits were found both in self-reports and objective measures in the last assessment. Regarding the induction method administered, there was no evidence of an influence on the outcomes. Hence, adjunctive hypnosis can be considered as effective in helping patients reduce adverse consequences of surgical interventions.

With regards to reducing medical procedure related anxiety, hypnosis along with guided imagery can help substantially before (Saadat et al., 2006), during, and after (Huth, Broome, & Good, 2004; Lang et al., 2000, 2006) the patient undergoes these procedures.

Lang et al. (1996) carried out a methodologically sound study in which a brief intervention including self-hypnosis and relaxation during radiologic procedures resulted in fewer procedural interruptions, seven times fewer units of medication and less self-administered analgesic medication than the patients in the control group without hypnosis.

Faymonville, Meurisse, and Fissette (1999) reviewed 1,650 cases of surgery in which hypnosis was used in a variety of procedures along with conscious sedation instead of general anesthesia. The authors found that hypnosis benefitted patients since they reported greater comfort and active participation, faster recovery, and a shorter hospital stay, compared to patients undergoing standard anesthesia protocols (Baglini et al., 2004; Faymonville et al., 1999).

A well-designed study conducted by Lang et al. (2000) compared patients undergoing cutaneous vascular and renal procedures treated with standard care, structured attention, and self-hypnosis relaxation. The results indicated that patients in the hypnosis group needed shorter times for operative procedures, and their hemodynamic stability was greater relative to patients in the attention control group. Furthermore, patients in attention and hypnosis groups required less medication than patients in the standard care condition.

Finally, Schnur, Kafer, Marcus, and Montgomery (2008) conducted a meta-analysis that so far represents the most extensive review of randomized trials on the effects of hypnosis to reduce emotional distress associated with medical procedures. The results indicate that nearly 82% of patients undergoing medical procedures who receive hypnosis show lower levels of emotional distress compared with patients in a control condition. These findings support the use of hypnosis as a non-pharmacologic intervention to reduce emotional distress in these patients.

In brief, taking into account the development of new surgical procedures that can be performed while the patient is awake, adjunctive hypnosis is a helpful intervention to reduce pain and psychological distress. Moreover, there is evidence that adjunctive hypnosis is superior to standard medical care in terms of quality of care as well as costs (Lang et al., 2006; Lang & Rosen, 2002).

Oncology

Hypnosis has been used with cancer patients to help them manage pain, reduce medical procedure related anxiety, and reduce postchemotherapy emesis and hyperemesis (Pinnel & Covino, 2000; Néron & Stephenson, 2007).

In a randomized controlled study conducted by Lyles, Burish, Krozely, and Oldham (1982), the efficacy of hypnosis for reducing nausea following chemotherapy treatments was examined. One group received progressive muscle-relaxation training and instructions to use guided imagery -in the detailed way hypnosis is used- to manage their anticipatory anxiety and reduce their postchemotherapy treatment nausea. Control groups consisted of a no-treatment condition and a therapist-contact group. The results indicated that cancer patients receiving relaxation training and guided imagery managed anxiety better and had significantly less severe and protracted nausea and vomiting at home after chemotherapy treatments.

Subsequently, Syrjala, Cummings, and Donaldson (1992) carried out a randomized study with bone marrow transplant patients to assess the efficacy of hypnosis in reducing postchemotherapy pain, nausea, and emesis. There were three control groups, namely, one receiving relaxation and cognitive restructuring, a second one receiving care as usual, and the last one with nonspecific attention. The authors found that patients in the hypnosis group significantly reduced their pain experience, whereas patients in the other groups did not differ in any other measure.

It is worth mentioning Spiegel and Moore's (1997) randomized trial whose results in a 10-year follow-up indicated that women with cancer who had received one year of weekly "supportive/expressive" group therapy significantly increased survival duration and time from recurrence to death.

Néron and Stephenson (2007) have put forth a treatment protocol for management of overt anxiety and phobic reactions in the radiotherapy suite, however, the empirical validation of the protocol needs to be conducted in future research.

In a study by Montgomery et al. (2007), patients who were scheduled for breast cancer surgery were randomly assigned to two groups. One received a 15-minute pre-surgery hypnosis session and the other a nondirective empathic listening session (attention control). The results showed that patients in the hypnosis group required less propofol and lidocaine, reported less pain intensity, pain unpleasantness, nausea, fatigue, discomfort, and emotional upset. The use of fentanyl, midazolam, and recovery room analgesics was similar in the two groups. Moreover, patients in the hypnosis group cost the institution $772.71 less per patient than those in the control group. The authors concluded that these findings support the use of hypnosis with breast cancer surgery patients.

Finally, in Schnur et al.'s (2008) study, patients presenting for an excisional breast biopsy were randomly assigned to two groups; one received a 15-minute pre-surgery hypnosis session, and the other a 15-minute pre-surgery attention control session. The groups were equivalent in terms of demographics, medical variables and pre-intervention distress assessed on the day of surgery. Post-intervention results indicated that patients in the hypnosis group had significantly lower mean values for pre-surgery emotional upset, depressed mood, and anxiety, and significantly higher mean values for relaxation than attention controls. Therefore, the authors concluded that a brief pre-surgery hypnosis intervention can be effective in controlling pre-surgical distress in women awaiting diagnostic breast cancer surgery.

Obstetrics

Hypnosis has also been used in obstetrics to facilitate delivery. According to Pinnel and Covino's review (2000), studies on this subject claim that patients treated with hypnosis had greater satisfaction with birth experience (Freeman, MacCauley, Eve, & Chamberlain, 1986); shorter labor (Brann & Guzvica, 1987; Jenkins & Pritchard, 1993); and they used significantly less analgesic medications than control patients (Jenkins & Pritchard, 1993).

A subsequent review carried out by Cyna, McAuliffe, and Andrew (2004) found several studies in which mothers who used hypnosis needed less analgesia and less pain medication. The authors conclude that, in view of the possible benefits of including hypnosis in obstetrics, continued well-designed research is needed to confirm these effects during labor.

There is also evidence that hypnosis facilitates pregnancy in women who are undergoing in vitro fertilization interventions (Levitas et al., 2006).

More recently, Brown and Hammond (2007) reviewed the benefits and effectiveness of hypnosis in obstetrics and labor and delivery. In the studies they examined, it was found that hypnosis helps reduce labor and delivery pain significantly and the need for medication during and after labor and delivery. Moreover, hypnosis proved to be an effective adjunct to the medical treatment of preterm labor in a case of quadruplets. The authors suggest a multicenter randomized, clinical trial regarding the use of hypnosis for further research in order to evaluate the efficacy of hypnosis in this area (Brown & Hammond, 2007).

Dermatological Diseases

There are several anecdotic studies on hypnotic interventions successfully treating a variety of dermatologic conditions such as, eczema, ichtyosis, warts, and psoriasis (Ewin, 1992; Zachariae, Øster, Bjerring, & Kragballe, 1996). The interventions for warts and psoriasis are the most extensively studied.

Psoriasis is a benign, acute or chronic inflammatory skin disease that is hypothesized to have psychoneuroimmunologic involvement. In two reviews of the literature, several case reports and an experimental study were found supporting the benefits of psychological interventions in the treatment of psoriasis (Winchell & Watts, 1988; Zachariae et al., 1996).

On the other hand, there are anecdotal reports stating that hypnotic interventions result in reduced itching and discomfort caused by warts, and in structural changes and reduction of skin lesions (Pinnel & Covino, 2000). Imagery has also been associated to wart removal. In a study by Spanos, Stenstrom, and Johnston (1988), a cure rate of 50% in the participants who received hypnotic suggestions for wart elimination was found, which was significantly higher than in the placebo and no-treatment control conditions. Moreover, participants who lost most of their warts were those reporting more vivid suggested imagery and higher expectation for treatment success (Spanos, Stenstrom, & Johnston, 1988).

Therefore, imagery and hypnosis appear to be cost-effective methods to reduce or remove warts (Lynn & Kirsch, 2006).

Asthma

Asthma is an inflammatory disease of the airways that produces bronchoconstriction, shortness of breath, wheezing, congestion, and bronchospasm. Studies with asthmatic patients have compared the effectiveness of treatments with hypnosis and bronchodilators, and have evaluated the effectiveness of suggestions for relaxation, desensitization, distraction, and increased self-control on a number of outcome measures, such as utilization of medical services, self-report of symptom reduction, and return to work (Pinnell & Covino, 2000).

The largest randomized, controlled and prospective study was carried out by the British Tuberculosis Association (Research Committee of the British Tuberculosis Society, 1968). The effectiveness of hypnosis and progressive muscle relaxation was compared in 252 asthmatic patients. The results indicated that the patients in the hypnosis group reported to have significantly less wheezing and medication usage at the end of treatment, and, according to their physicians (who were blind to their treatment condition), improved more than the patients in the relaxation group. It is striking that a gender effect in the hypnosis group was observed in which women reported greater symptom reduction than men. The same result was also obtained in the study about stable asthma conducted by Ben-Zvi, Spohn, Young, and Kattan (1982).

On the other hand, findings from Ewer and Stewart (1986) and Ben-Zvi et al.'s (1982) studies support the effects of hypnosis in the improvement of pulmonary functioning in asthmatic patients, but only in those high and medium in hypnotizability respectively.

Recently, Brown (2007) reviewed controlled studies of hypnosis as an evidence-based therapy and concluded that hypnosis is "*possibly efficacious*" for treatment of symptom severity and illness-related behaviors and is "*efficacious*" for managing emotional states that exacerbate airway obstruction. Likewise, hypnosis is "*possibly efficacious*" for decreasing airway obstruction and stabilizing airway hyper-responsiveness in some patients, but there is not enough evidence that hypnosis affects asthma's inflammatory process. Therefore, it is necessary to replicate these results with larger samples and better experimental designs, paying careful attention to the types of suggestions administered. Remaining issues, such as the relative contribution of expectancies, hypnotizability, hypnotic induction, and specific suggestions should be addressed in future research (Brown, 2007).

Immunology

A variety of studies have reported the ability of hypnosis to increase immune function (Bakke, Purtzer, & Newton, 2002; Kiecolt-Glaser, Marucha, Atkinson, & Glaser, 2001; Wood et al., 2003). However, due to the fact that small sample sizes and few immune parameters have been used in the assessment of treatment outcomes, these results should be extended and replicated. Likewise, according to Neumann (2005), the particular aspects of the hypnotic phenomena that account for these effects on immune function are still unclear, as well as whether they are of sufficient magnitude and durability to influence the health of patients in the long term. Nevertheless, in view of the fact that it is not common that psychological interventions have effects on strict physiological measures, findings of even a small effect size on immune function have important clinical implications (Montgomery & Schnur, 2004).

Hypertension

Hypertensive patients need to take medications for adequate blood pressure control. Hypnosis as an adjunct to cognitive-behavioral therapy has been used for treating patients suffering from hypertension (Lynn et al., 2000). In a pilot study, Raskin, Raps, Luskin, Carlson, and Cristal (1999) compared three groups of hypertensive inpatients. The first group learned self-hypnosis, the second one received the same attention and time, but without any specific relaxation procedure and the third group was assessed without having received any intervention. Follow-up results indicated that patients in the hypnosis group showed the greatest decrease in diastolic pressure followed by the attention alone group, and the control group. These findings suggest that adding hypnosis to standard medical treatment for hypertension may benefit patients.

A more recent study (Gay, 2007) used hypnosis to reduce the participants' hypertension and compared the results to a control group without treatment. After one year of follow-up, results revealed that hypnosis is efficacious in reducing blood pressure in short, medium, and long terms.

Hypnosis in Othorhynolaringology

According to the literature, hypnosis may be a beneficial method for the relief of tinnitus (the perception of sound in the human ear in the absence of corresponding external sound) although more research is needed to establish its efficacy. Following are some of the studies reporting the effects of hypnosis.

Attias, Shemesh, Shoham, Shahar, and Sohmer (1990) compared the efficacy of self-hypnosis in patients suffering from tinnitus with two control groups, one who received a brief auditory stimulus to the ear with tinnitus and the other, a waiting-list group, who did not receive any formal treatment. The authors found that 73% of patients of the self-hypnosis group reported the disappearance of tinnitus during treatment sessions as compared with 24% in the brief auditory stimulus group. Furthermore, the hypnosis group was the only one showing significant improvement in symptom profiles in a long-term (2 months).

Attias et al. (1993) compared the efficacy of self-hypnosis, masking, and attentiveness to the patient's complaints in the relief of tinnitus. It was found in the results that self-hypnosis significantly reduced tinnitus severity since patients in the self-hypnosis group improved significantly in 7 out of 10 disturbing symptoms compared with the other conditions.

Ross, Lange, Unterrainer, and Laszig (2007) examined the therapeutic effects of hypnosis on subacute and chronic tinnitus within a controlled prospective, longitudinal study including 393 patients. Results at the end of the treatment revealed highly significant improvements in patients, namely, 90.5% of the patients with subacute tinnitus and 88.3% of the patients with chronic tinnitus decreased their score in the Tinnitus Questionnaire. Effect sizes in the treatment groups were superior to those in the waiting-list control groups. Likewise, an improvement in health-related quality of life was found in treatment groups. The authors concluded that hypnosis can be significantly helpful in reducing the annoyance of tinnitus as well as in enhancing health-related quality of life in a 28-day treatment.

In a non-randomized prospective longitudinal study, Maudoux, Bonnet, Lhonneux-Ledoux, and Lefebvre (2007), 49 patients with chronic tinnitus received a hypnotic intervention. The results showed that all patients reported being able to modulate their tinnitus through self-hypnosis and the scores in a tinnitus questionnaire decreased significantly for all of them. Even though these results should be replicated and compared with a control group, this clinical trial indicates that hypnosis is a promising technique in the treatment of tinnitus.

Hypnosis in Odontology

Hypnosis has a variety of applications in dentistry. A comprehensive review carried out by Chaves (1997) indicates that hypnosis can not only help patients relax and deal with stressful dental procedures and phobic anxiety to injections and other dental interventions, but it also can be very helpful in the following areas of dental practice: improved tolerance for orthodontic or prosthetic appliances; modification of maladaptive oral habits; reduction of the use of chemical anesthetics, analgesics and sedation; supplementation or substitution for surgical premedication; control of salivary flow and bleeding; therapeutic intervention for chronic facial pain syndromes such as temporomandibular disorders; a complement to the use of nitrous oxide; and enhanced compliance with personal oral hygiene recommendations (Chaves, 1997).

There are both anecdotal and empirical studies supporting the benefits of hypnosis as an adjunct technique in dentistry, although it should not be considered as a substitute for local anesthesia. The areas with less empirical support are the use of hypnosis to improve tolerance for orthodontic or prosthodontic appliances, and as a supplement or substitute for surgical premedication. On the basis of available evidence, further research in these areas is justified (Lynn & Kirsch, 2006).

Most research has been focused on the use of hypnosis to reduce anxiety, treat phobias and relieve chronic pain syndromes. In a study conducted in Hungary (Fabian, 1995) examining 45 odontological patients, hypnosis proved to be a useful adjunct method to reduce anxiety for 84.4% of the patients.

More recently, in a prospective comparative clinical study, Eitner et al. (2006) evaluated the effectiveness of hypnosis in a study with 45 highly anxious and non-anxious patients who had to undertake maxillofacial surgery. They were assessed using subjective experience and the following objective parameters: EEG, ECG, heart rate, blood pressure, blood oxygen saturation, respiration rate, salivary cortisol concentration, and body temperature. The results both during and subsequent to the surgery showed that hypnosis helped patients significantly reduce systolic blood pressure and respiration rate, and changes in the EEG were also

registered. Moreover, the subjective level of relaxation increased at the same time as the neurophysiologic anxiety reactions (vital parameters) decreased. The authors concluded that hypnosis influenced both the psychological and the physiological reactions of dental anxiety during surgery and the results had long-term effects in future treatments (Eitner et al., 2006).

Temporomandibular disorders (TMD) are among chronic pain disorders treated in Odontology and are considered as a biopsychosocial dysfunction. According to the literature, they are caused by parafunctional clenching and grinding (occurring without awareness) generated by psychological stress, since these patients are prone to respond to stressors with more intense facial muscle activity (Simon & Lewis, 2000). Conventional treatments of TMD involve a dental and physical medicine approach including occlusal appliance therapy, physical therapy, and anti-inflammatory agents. However, it is estimated that approximately 23% of patients do not respond to these treatments whatsoever (Clark, Lanham, & Flack, 1988).

Thus, some behavioral techniques have been considered for treating TMD and have shown to benefit the patients (Dworkin, 1997). Given the established effectiveness of hypnosis for chronic pain, it has been used for treating TMD. Simon and Lewis' (2000) study evaluated the efficacy of hypnosis as a treatment for patients who were recalcitrant to conservative treatments for TMD. The results suggest that hypnosis is a potentially valuable treatment for these disorders. After the treatment, patients reported a significant decrease in pain frequency, duration, and intensity. Furthermore, patients showed a significant reduction in the frequency of their outpatient medical visits, as well as a significant improvement in their overall daily functioning. Even though these findings do not allow drawing absolute conclusions about hypnosis efficacy, treatment gains are not likely to be due to spontaneous improvement, since there were no changes found in the waiting-list group. Additionally, patients reported even less frequent TMD pain symptoms 6 months after the treatment and treatment gains were maintained at the 6 month follow-up (Simon & Lewis, 2000).

Hypnosis with Children

In view of the fact that children are thought to be more hypnotically suggestible than adults and that there is a great deal of empirical research supporting the benefits of hypnosis in treating medical and psychological problems in adults, it seems plausible to think that clinical hypnosis should have the same or even more benefits in treating children. However, research regarding the efficacy of hypnosis with children is still in an early stage of development. Thus, in the literature there are plenty of uncontrolled outcome studies and case materials which play a role in indicating the most relevant areas on which to focus future research (Milling & Constantino, 2000). To date, there is a study that fulfills Chambless and Hollon's (1998) criteria and establishes that hypnosis is a "*possibly efficacious*" treatment for nocturnally enuretic children (Edwards & van der Spuy, 1985).

On the other hand, hypnosis has been used to treat a wide range of pediatric problems. In Milling and Constantino's (2000) review, existing controlled studies published thus far are described. With regards to children's learning problems, test anxiety has been treated with hypnosis. A study by Stanton (1994) compared a group of students using self-hypnosis with an education control group receiving the same attention time and strategies to reduce test anxiety. The self-hypnosis group achieved significantly greater reductions on the questionnaire measure of test anxiety at the end of the treatment as well as at the 6 month follow-up (Stanton, 1994).

There are some reports by clinicians describing successful results using hypnosis to enhance the academic performance of children suffering from learning disabilities (Crasilneck & Hall, 1985; Johnson, Johnson, Olson, & Newman, 1981), although further controlled studies are required to establish its efficacy.

As in the case of the findings regarding the influence of hypnosis on the immune system in adults, there is a study (Olness, Culbert, & Uden, 1989) suggesting that hypnotic interventions contribute to more resilient immune functioning in children by reducing the effects of stress.

The application of hypnosis in respiratory problems in children has been focused on cases of cystic fibrosis, a genetic disorder that causes dysfunction in the exocrine system and affects the lungs, producing severe respiratory distress. Belsky and Khanna (1994) compared a group of children with cystic fibrosis treated with self-hypnosis with a control group. The results revealed that the self-hypnosis group showed a greater improvement in pulmonary function, self-esteem, state anxiety, health and locus of control compared to the control group.

Another study addressing respiratory problems is the three-year experience reported by Anbar and Hummell

(2005) in a pediatric center for pulmonary problems using self-hypnosis to ameliorate anxiety, asthma, chest pain, dyspnea, habit cough, hyperventilation, and vocal cord dysfunction. The authors found that 82% of the patients reported improvement or resolution of their symptoms.

In cases of childhood cancers, chemotherapy is one of the treatments of choice, but it has many unpleasant side effects such as nausea and vomiting that lead many children to become noncompliant with their chemotherapy regimens (Milling & Constantino, 2000). Hypnosis has been used to relieve these symptoms. Zeltzer, Dolgin, LeBaron, and LeBaron (1991) developed an innovative, imagination-focused form of clinical hypnosis for helping children with cancer. These authors conducted a study in which a group treated with imagination-focused hypnosis was compared with a group treated with distraction and relaxation techniques, and a control group that received an equivalent amount of intervention time spent in conversation. After the treatment, results showed that children reporting a shorter duration of nausea were those in hypnosis and distraction/relaxation conditions. Additionally, children treated with hypnosis reported a significantly shorter duration of vomiting than those in the control group. Overall, these results suggest that imagination-focused hypnosis produced the greatest relief from the side effects of chemotherapy (Zeltzer et al., 1991).

Jacknow, Tschann, Link, and Boyce (1994) compared the effectiveness of hypnosis with standard medical treatment (i.e., antiemetic medications) for reducing chemotherapy distress. Children in the hypnosis condition learned self-hypnosis with imagination techniques along with progressive muscle relaxation and direct suggestions for emesis control, whereas those in the control conditions spent an equivalent amount of time conversing with a therapist. Medication was administered in a base dosage of antiemetic medication plus additional medication as needed for children in the control condition and only on an as-needed basis for children in the hypnosis group. At the end of the intervention, episodes of nausea and vomiting were equivalent in both conditions, however, children in the control condition required significantly more antiemetic medication than did children in the hypnosis group. Furthermore, at 1 to 2 months after diagnosis, children in the hypnosis group experienced significantly less anticipatory nausea than those in the control group. This study together with the one by Zeltzer et al. (1991) supports the benefits of hypnosis both in a traditional and imagination-oriented mode for ameliorating chemotherapy side effects in pediatric oncology patients (Milling & Constantino, 2000).

More recently, Richardson et al. (2007) conducted a meta-analysis reviewing the efficacy of hypnosis for cancer chemotherapy-induced nausea and vomiting (CINV) in children. Meta-analysis results revealed a large effect size of treatment with hypnosis when compared with treatment as usual, and the effect was comparable to that obtained through cognitive-behavioral therapy. Although continued methodologically rigorous research is required, the authors conclude that hypnosis may be a clinically valuable intervention for anticipatory and CINV in children.

With regards to pain relief in children, studies to evaluate the effectiveness of hypnosis have been focused on pain and distress caused by invasive medical procedures, such as bone marrow aspirations and lumbar punctures. Kuttner, Bowman, and Teasdale (1988) compared the relief provided by the use of hypnosis during bone marrow aspiration with distraction and a control condition. The results showed significantly greater reductions in observer-rated pain and anxiety in the hypnosis and distraction groups for older children and in the hypnosis group for younger children. However, there were no differences in self-report measures of pain and anxiety. Despite being somewhat contradictory, these results tend to suggest that hypnosis was the intervention which produced the greatest relief across age ranges.

Zeltzer and LeBaron (1982) evaluated the effectiveness of imagination-focused hypnosis for relieving the distress caused by bone marrow aspiration and lumbar punctures. The results showed that hypnosis compared with distraction was significantly more efficacious in reducing pain and anxiety during these medical procedures.

On the whole, these studies suggest that hypnosis may provide significant relief to children who have to undergo painful and stressful medical procedures (Milling & Constantino, 2000).

In a study conducted by Lobe (2006), it was evaluated whether perioperative hypnosis reduces the length of hospitalization and alters the need for postoperative analgesics in patients undergoing the Nüss procedure (video thoracoscopic correction) for pectus excavatum. Children suffering from pectus excavatum experience shortness of breath, exercise intolerance, and chest pain.

Results of Lobe's study revealed that patients in the hypnosis group spent an average of 2.8 days in the hospital compared with 4.6 days in the non-hypnosis group. Moreover, children in the hypnosis group required less parenteral narcotic use and controlled postoperative discomfort only using oral analgesics (Lobe, 2006).

Uman, Chambers, McGrath, and Kisely (2006) reviewed the literature supporting the efficacy of psychological (cognitive-behavioral) interventions to help children manage or reduce pain and distress produced by needle-related procedures. The authors concluded that hypnosis is the most promising strategy based on pain self-report measures.

Liossi, White, and Hatira (2006) carried out a prospective controlled trial to compare the efficacy of a local analgesic with a combination of the local analgesic plus hypnosis in the relief of lumbar puncture-induced pain and anxiety in children with cancer. The authors found that patients in the hypnosis plus local analgesic group reported less anticipatory anxiety, less procedure-related pain and anxiety, and demonstrated less distress during the procedure compared with their counterparts in the local analgesic alone group.

A systematic review of the effectiveness of hypnosis for procedure-related pain and distress in children with cancer (Richardson, Smith, McCall, & Pilkington, 2006) concluded that hypnosis is a clinically valuable intervention for the relief of procedure-related pain and distress, although additional research is needed.

A controlled, randomized trial conducted in pediatric urology by Butler, Symons, Henderson, Shortliffe, and Spiegel (2005) was designed to examine whether relaxation and analgesia facilitated with hypnosis could reduce distress and procedure time for children undergoing voiding cystourethrography (VCUG). This radiologic procedure in children can be painful and frightening. It is clearly desirable to avail of techniques for the reduction and management of anxiety, distress and pain which will result in a greater compliance to the initial assessment, as well as to the follow-ups, and therefore, increase treatment efficacy. The authors compared a routine care control group with a group receiving self-hypnosis training. Findings indicated moderate to large effect sizes both in objective and subjective measures in the hypnosis group. Furthermore, significant benefits for the hypnosis group compared with the control group were found in the following areas: parents of children in the hypnosis group reported that the procedure was significantly less traumatic for their children compared with their previous VCUG procedure; observational ratings of distress levels during the procedure were significantly lower for children in the hypnosis group; medical staff reported that the procedure was significantly more difficult to conduct in children in the routine care group; and total procedural time was significantly shorter (by almost 14 minutes) for the hypnosis group. These findings have important clinical repercussions and additional research improving the design limitations is recommended.

Vlieger, Menko-Frankenhuis, Wolfkamp, Tromp, and Benninga (2007) conducted a randomized controlled trial to examine the effectiveness of gut-directed hypnotherapy in the treatment of children with functional abdominal pain (FAP) or irritable bowel syndrome (IBS). The authors compared children suffering from either of these problems; one group was treated with standard medical therapy and 6 sessions of supportive therapy and the other with 6 sessions of gut-directed hypnotherapy. The results showed that hypnotherapy was highly superior with a significantly greater reduction in pain scores compared with the control group. At 1 year follow-up, 85% of the patients in the hypnosis group had accomplished successful treatment compared with 25% of patients in the standard medical therapy group. The authors concluded that gut-directed hypnotherapy is highly effective in treating children with longstanding FAP or IBS.

Finally, a recent review of the clinical applications of pediatric hypnosis (Gold, Kant, Belmont, & Butler, 2007) identifies and appraises studies published on the role of clinical hypnosis in the management of specific pediatric medical and psychological conditions. Despite the wide range of possible applications of pediatric hypnosis and many reported successes, most research to date comprises case reports and small, uncontrolled group studies. Therefore, given that hypnosis is considered as a promising tool to help manage a variety of pediatric conditions, continued research using randomized, controlled methodologies as well as adequate sample sizes is essential in order to establish its efficacy.

CONCLUSIONS

Overall, the evidence reviewed indicates that hypnotic treatments are a potential adjunctive to other interventions which help patients manage and improve a wide range of psychological and medical problems, as well as their

quality of life. It is noteworthy that the research reviewed regarding hypnosis efficacy has used hypnosis either as the only intervention or as an adjunct to psychotherapy. By and large, as Flammer and Bongartz's (2003) meta-analysis indicates, the efficacy of hypnosis when it is used alone without any other explicit psychotherapeutic intervention has shown a medium efficacy of hypnosis for ICD-10 codable disorders and a low efficacy for the use of hypnosis in support of medical procedures (Flammer & Bongartz, 2003). Therefore, the most promising empirical evidence of the efficacy of hypnosis has hitherto been found when it is used as an adjunct to psychological and medical interventions. Yet, few studies fulfill rigorous methodological criteria for evaluating the status of hypnosis as an efficacious adjunct treatment, although it noticeably increases the efficiency of those procedures to which it is added (Lynn & Green, 2000; Schoenberger, 2000). Thus, hypnotic procedures are considered *efficacious* in pain management and emotional elements of asthma; *probably efficacious* as an adjunct in treating depression, certain sleep disorders, weight reduction, smoking cessation, asthma, enuresis in children, and preparation for surgery. In other areas such as irritable bowel syndrome, even though there are long-term positive results and two protocols, one of them standardized, there are no studies fulfilling Chamless and Hollon's criteria to categorically state that it is a *possibly efficacious* procedure. In Odontology there are no conclusive studies supporting its efficacy, or at least no more conclusive than in other areas with little empirical evidence.

Additional research with larger sample sizes and improved experimental designs is required to establish the efficacy of hypnosis in those areas in which its use has shown to be promising, and especially in other areas in which the evidence for the efficacy of applied hypnosis is based more on personal experience than on controlled research, such as in sexology, sport psychology, education, etc.

To sum up, findings to date are significant enough to warrant more research and encourage clinicians to incorporate hypnosis into their clinical repertoire of efficacious and efficient procedures. Therefore, it is difficult to understand the persistence of excluding hypnosis from the Spanish Public Health Service. It would be more reasonable to exclude hypnotherapy when the use of hypnosis is understood to be the only intervention (for instance, as some lay-hypnotherapists try to disseminate, for curing cancer or disorders in which retrovirals are used…), and to accept clinical hypnosis as an interesting and very efficacious adjunct to medical and psychological interventions. The empirical evidence clearly indicates that hypnosis, especially in the health field, increases the efficacy of the interventions, as well as their efficiency with regard to both the client/patient's satisfaction and the saving of time and money which involves benefits for the Administration. According to our viewpoint, it is a deontological matter to give patients information about the benefits they can obtain through the use of hypnosis, in addition to advocating for its use in the Public Health Service setting.

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