

Literature review of the evidence-base for the effectiveness of hypnotherapy

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Foreword

This Occasional Paper is a literature review of research into the effectiveness of hypnotherapy, and is intended as a resource for counsellors and psychotherapists. It demonstrates a contemporary review of the evidence for the effectiveness of hypnotherapy, applied to two common client presentations, chronic pain and anxiety.

The PACFA Research Committee recognises that it is important for counsellors and psychotherapists to have access to recent research evidence that demonstrates the effectiveness of a range of therapeutic approaches, to assist them in their practice.

It should be noted that this review is necessarily limited in its scope and covers two common conditions: chronic pain and anxiety where hypnotherapy has been effectively applied, which were investigated for evidence of outcomes. It examines ten quality studies of hypnotherapy published between 2008 and 2015, including meta-analyses, randomised controlled trials, randomised clinical trials, repeated measures, clinical trials and clinical reports.

This review has been provided to PACFA by the author, Eileen Davis, Senior Lecturer in the School of Counselling, Australian College of Applied Psychology.

The publication of the Occasional Paper does not imply that PACFA or its Member Associations endorse the particular treatment approaches which are the subject of the review.

The Committee endorses the American Psychological Association's definition of evidence-based practice, adopted in 2005, as "the integration of the best available research evidence with clinical expertise in the context of patient characteristics, culture and preferences", although counsellors and psychotherapists refer to client or consumer rather than 'patient'. The Common Factors research (Ahn & Wampold, 2001) has shown the centrality of the therapeutic relationship to therapeutic effectiveness, and the relatively minimal relevance of specific techniques.

The Committee recognises that there is significant research evidence to indicate the effectiveness of counselling and psychotherapy and that different methods and approaches show broadly equivalent effectiveness. The strength of evidence for effectiveness of any specific counselling and psychotherapy modality is a function of the number, independence and quality of available effectiveness studies, and the quality of these studies is a function of study design, measurements used and the ecological validity (i.e. its approximation to real life conditions) of the research.

The Committee also acknowledges that an absence of evidence for a particular counselling or psychotherapy modality does not mean that it is ineffective or inappropriate. Rather, the evidence showing equivalence of effect for different counselling and psychotherapy interventions justifies a starting point assumption of effectiveness.

The Committee is committed to supporting PACFA Members, Registrants and Member Associations to develop research protocols that will help the profession to build the evidence-

base to support the known effectiveness of counselling and psychotherapy. We hope that you will find this document, and others in this new series of Occasional Papers, useful in your practice. We welcome your feedback on this review, and the submission of further reviews for publication in this series.

PACFA Research Committee, 2016

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Abstract

The goal of this literature review is to provide a contemporary review of research on the effectiveness of hypnotherapy. Ten studies have been reviewed on the application of hypnotherapy to two common conditions: chronic pain and anxiety. The review found that the studies provided evidence for the effectiveness of hypnotherapy as a treatment to assist in the reduction of pain and anxiety. A stronger evidence base for hypnotherapy has developed over the past decade, and the review provides some key recommendations for future research in this area.

Literature Review

Historically, hypnosis has had a somewhat chequered past. Its practice has been associated with witchcraft and hysteria, and its reputation and credibility have suffered at the hands of stage hypnotists. Hypnosis was formerly known as mesmerism, named after Franz Mesmer (1734-1815), a Viennese physician. Mesmerism was renamed as animal magnetism (1766) when it was thought that magnets assisted clients to go into trance. This was later dispelled, and in 1843 Braid coined the term hypnosis (as cited in Lynn & Kirsch, 2006) which remains current today.

This review of hypnotherapy research and literature describes the characteristics, findings and conclusions of selected, rigorous studies on pain and anxiety. A comparison of studies and their findings is presented to determine their validity. Knowledge gaps in the literature are identified and recommendations made for future research.

The Greek word 'hypno' translates as sleep, though the present understanding of hypnosis is that it is not a sleep-like state. The most recent definition of hypnosis published by the American Psychological Association (APA) Division 30 is that hypnosis is "a state of consciousness involving focused attention and reduced peripheral awareness characterized by an enhanced capacity for response to suggestion" (Elkins, Barabasz, Council & Spiegel, 2015, p. 382).

Mende (2009, p. 182) states that "even though suggestional phenomena exist outside hypnosis, hypnosis is the only therapeutic technique making systematic, intentional usage of suggestions." Mende (2009) comments that fMRI-studies (functional magnetic resonance imaging) allow for a stronger sense of what hypnosis is not. Hypnosis is not a 'waking state', 'relaxation', 'sleep' or 'meditation'.

The APA Division 30 describes the process of hypnosis as hypnotic induction, which is a "procedure designed to induce hypnosis" (Elkins, Barabasz, Council, & Spiegel, 2015, p. 382). Consideration is given to the client's hypnotisability, which is "an individual's ability to experience suggested alterations in physiology, sensations, emotions, thoughts, or behavior during hypnosis" (pp. 382-383).

Yapko (2012, p. 6) provides a useful definition of hypnosis that connects hypnosis and therapy: "hypnosis is conceptualized and treated as a means of helping clients develop powerful personal resources that can be purposefully directed towards achieving their therapeutic goals." These "powerful personal resources" have not been specifically addressed in this literature review, however, this would be a valuable area for future research.

In general, it is disappointing to realise that the promotion and use of hypnosis may have been unnecessarily delayed due to the sensational history of hypnosis and the lack of evidence-based research. However, hypnosis has emerged over the last fifty years as an evidence-based therapy. The research is strong, as Weisberg (2008, p. 13) states:

A substantial body of research demonstrates the efficacy of hypnosis as part of the integrative treatment of many conditions that traditional medicine has found difficult to treat. For some disorders (such as irritable bowel syndrome) the evidence for the efficacy of hypnosis is so robust that it could be argued that it is unethical not to inform patients about this treatment modality. Better evidence exists now supporting the use of hypnosis to relieve discomfort associated with many diagnostic and invasive procedures.

Weisberg provides strong support for hypnosis as a treatment modality, and this is further supported by Spiegel's (2013, p. 348) research, which found that hypnosis has "special relevance to the assessment and treatment of anxiety disorders, including PTSD, because of its sensitizing role in enhancing the potential for mind–body control".

Search method

A computer-assisted literature search was conducted using the following databases: EBSCO Host including Academic Search Premier, PsycArticles, Psychology and Behavioral Sciences Collection, PsycBooks, PsycInfo; Sage Psychology Journals; Proquest Psychology Journals; ScienceDirect Social and Behavioural Sciences; and the Cochrane Central Register of Controlled Trials. Key words included hypnosis, hypnotherapy, hypnosis and pain; hypnotherapy and pain; hypnosis and anxiety; hypnotherapy and anxiety, hypnosis effectiveness, cognitive hypnotherapy, cognitive hypnotherapy and anxiety. The studies included in the literature review include meta-analyses; randomised controlled trials; randomised clinical trials; repeated measures; clinical trials; and clinical reports. Hypnosis and hypnotherapy are used interchangeably in the literature, and therefore no distinction between the two is identified in this review.

Wark (2008, p. 31) reviewed eighteen meta-analyses of hypnosis treatments and reported that there are "32 target disorders for which hypnosis is a possible or better treatment". Wark (2008) concluded that other clinical areas for hypnosis treatments could be explored in future research. Mendosa and Capafons (2009), however, suggest that caution is needed as Wark (2008) may have been overly optimistic. This review has searched for more evidence to support or refute Wark's (2008) findings.

Two areas that are the focus for this review are acute and chronic pain control and anxiety reduction. Over the last ten to twenty years, the use of hypnosis in pain control and anxiety has been frequently studied. Seven quality studies on chronic and/or acute pain, and three studies on anxiety, were chosen for this review, and were published between 2008 and 2015. Although the focus of this review is specifically on pain and anxiety, hypnosis treatments for pain and anxiety are known to have significant positive effects on other aspects of participants' lives, including relaxation, positive affect, and increased energy (Jensen & Patterson, 2014).

The selected studies on chronic and/or acute pain and hypnosis are chronologically presented in this review, and include: chronic widespread pain; labour and delivery pain; chronic lower back pain; procedure-related pain in children and adolescents; needle-related procedural pain and distress in children and adolescents with fibromyalgia; and chronic pain treated with hypnosis compared to other interventions. Studies on anxiety and hypnosis are chronologically presented

in this review, and examine the effectiveness of hypnosis on: exam anxiety; general anxiety and stress; and anxiety, depression, fatigue and sleepiness relating to haemodialysis.

Pain control and hypnotherapy

Hawkins (2001, p. 69) finds that there is very clear evidence “of sufficient quality, for a number of high-quality review studies, to have concluded that hypnosis has demonstrable efficacy in the treatment of pain”. One high quality meta-analysis of hypnotically induced analgesia was conducted by Montgomery, DuHamel and Redd (2000). Montgomery et al.’s (2000) meta-analysis demonstrated the effectiveness of hypnosis for pain control. The authors concluded that “hypnotic suggestion is an effective analgesic based on analyses of 27 effect sizes and more than 900 participants. For 75% of the population, hypnosis provided substantial pain relief” (Montgomery et al., 2000, p. 141), and that “hypnotic suggestion was more effective in reducing pain than nonhypnotic psychological interventions” (pp.143-144), especially with cancer and burn patients.

Grondahl and Rosvold (2008) conducted a randomised controlled pilot trial on the use of hypnosis to treat “chronic widespread pain in general practice”. The participants were randomly divided into two groups of eight. Seven of the eight patients in the treatment group completed the hypnosis treatment. After the ten week trial, five patients in the control group chose to receive the hypnosis treatment for ten weeks. This study was interesting because, despite the small sample, the researchers obtained statistically significant results for the hypnotherapy condition.

Grondahl and Rosvold (2008, p. 128) conclude that “hypnosis treatment may have a positive effect on pain and quality of life for patients with chronic muscular pain. The effect seems to persist for at least one year”. The authors recommend research using hypnosis as the treatment option for other client presentations, including anxiety and depression.

Accardi and Milling (2009) reviewed studies that examined the effectiveness of hypnosis in reducing procedure-related pain for children and adolescents. Their study was included in this review because many studies relating to hypnosis and the treatment of pain have focused on adults. It is beneficial to study children and young people’s responses to hypnosis because of their potential to be more open to suggestion than adults.

The importance of effective pain management with children and adolescents is emphasised by Palermo, Eccleston, Lewandowski, Williams, and Morley (2010, p. 2), as chronic pain “affects 15–30% of children and adolescents..., and results in a measurable decline in children’s overall quality of life”. Accardi and Milling (2009) reviewed thirteen studies and concluded that hypnosis “was consistently found to be more effective than control conditions in alleviating discomfort associated with bone marrow aspirations, lumbar punctures, voiding cystourethograms, the Nuss procedure, and post-surgical pain” (p.328).

Research by Price and Barber (1987, as cited in Accardi & Milling, 2009, p. 335) demonstrated that hypnosis treatment is more effective in pain control when it is “provided continuously

throughout a pain stimulus". Hypnosis is more effective in reducing pain when it is provided concurrently with a medical procedure, rather than prior to the procedure.

Accardi and Milling (2009) focus on the potential for self-hypnosis to be very cost effective, as participants do not need to work continuously with hypnosis clinicians. However, they concluded that the evidence was mixed and that the effectiveness of self-hypnosis should be studied further.

Landolt & Milling (2011, pp. 1029-1030) reviewed the use of hypnosis for labour and delivery pain, and concluded that hypnosis tended "to outperform standard medical care and interventions that are non-hypnotic in nature in relieving pain...[and that] both hetero-hypnosis and self-hypnosis show considerable promise as interventions for managing labor and delivery pain." Thirteen controlled studies were included in the review. Landolt and Milling's (2011, p.1028) review supports Accardi and Milling's (2009) findings, as they concluded there was "a beneficial effect on pain" when hypnosis was provided during the labour and delivery, rather than prior to the birth. They recommend that self-hypnosis interventions are taught prior to the onset of labour so that women can use self-hypnosis during labour and delivery to reduce their pain. They also suggest that having a hypnosis practitioner present during labour will increase the beneficial effect.

Accardi and Milling (2009) identified some limitations of the research studies in their review. They stated that there was a need to randomise the allocation of participants to treatment and control groups, and to provide a manual which fully describes the interventions or scripts to be used. It was felt that if the participants chose the hypnosis treatment group that they could be more potentially predisposed to reporting positive outcomes. The manual was recommended for consistency of scripts used for hypnosis and self-hypnosis.

A Cochrane Collaboration review by Uman, Birnie, Noel, Parker, Chambers, McGrath and Kisely (2013, p. 17) concluded there is "strong evidence supporting the efficacy of distraction and hypnosis. More specifically, trials support the use of distraction for reducing pain, and hypnosis for the reduction of both pain and distress". The authors previously reviewed twenty-one studies and included an additional eighteen studies for this review. They state in the original review that "... of all of the interventions assessed hypnosis had the largest significant effect sizes across several outcomes" (Uman et al., 2013, p. 16). In their most recent systematic review, Uman et al. (2013, p. 17) again concluded that "overall, hypnosis had the largest effect sizes for reducing pain and distress during needle-related procedures". Hypnosis had been compared to distraction and cognitive behavioural therapy.

However, most of the research Uman et al. (2013) reviewed was completed by the same research group and therefore they recommend that other researchers undertake research on the effectiveness of hypnosis for comparison purposes. Although a relevant recommendation, it is important not to undermine the value of the findings of this 'same research group'. Uman et al. (2013) believe that the level of 'hypnotisability' of participants would also be a valuable variable to consider. This is an important recommendation.

Jensen & Patterson (2014) reviewed recent research findings for hypnotic approaches for chronic pain management. Although Jensen & Patterson (2014) reviewed clinical trials, rather than randomised controlled trials or meta-analyses, which may be seen as a lower level of evidence, they are included in this review because the included research studies into pain management and hypnosis are extensive, and span the period of 2001 to 2014. Jensen and Patterson (2014, p. 167) conclude that “[c]linical trials show that hypnosis is effective for reducing chronic pain, although outcomes vary between individuals”. Adachi et al. (2014, p. 2) suggest that some caution is needed in accepting Jensen and Patterson’s findings, as previously they had conducted only “a narrative review of the literature”. However, the clinical trials reviewed by Jensen and Patterson provide stronger evidence than a narrative review as Jensen & Patterson (2014, p.168) used ‘responder analysis’ as they believed that “average group differences tell us little about the variability of treatment response among the individuals who receive the treatment”.

Jensen and Patterson (2014) also discovered that the hypnosis treatments provide additional benefits to pain relief. The authors concluded that clinicians should “(a) include suggestions for both immediate and long-term pain relief, (b) include suggestions for benefits in addition to pain reduction, and (c) use the knowledge about the multiple benefits of hypnosis to enhance treatment outcome expectancies”. (p.170) Additional benefits gained from hypnosis included “sense of well-being, a greater sense of control, improved sleep, and increased satisfaction with life” (p.174). These additional benefits add significant value to the use of hypnosis in the clinical setting.

Adachi, Fujino, Nakae, Mashimo and Sasaki (2014) conducted a meta-analysis of the active clinical use of hypnosis for chronic pain. The authors claim that, to date, their meta-analysis is the only review that focuses solely on chronic pain. Adachi et al. (2014) concluded that there was insufficient evidence regarding the effectiveness of hypnosis, over other interventions, in the treatment of headaches, however:

- When compared with nonspecific interventions including a wait-list control and a treatment as usual, hypnosis shows good efficacy for managing overall chronic pain;
- Hypnosis led to larger effect sizes when compared to other psychological interventions, including CBT, for managing non-headache chronic pain (Adachi et al., 2014, p. 21).

Adachi et al. (2014, p. 18) concluded that hypnosis can be seen as “an effective psychotherapy” for chronic pain. Despite the inconclusive results around headaches, there are positive implications for the application of hypnosis to the treatment of chronic pain conditions.

Tan, Rintala, Jensen, Fukul, Smith and Williams (2015) discovered that providing participants with two sessions of training in self-hypnosis as well as a self-hypnosis practice audio tape may be equivalent to eight sessions of hypnosis treatment. The authors felt that this would have financial as well as clinical implications.

Tan et al. (2015, p. 277) concluded that self-hypnosis was more effective than biofeedback in providing “greater reductions in pain intensity”. The authors also concluded that it was possible

to provide individual suggestions for clients within self-hypnosis and that this caters for individual differences of clients and their conditions. Tan et al. (2015, p. 279) found strong support for self-hypnosis treatment as “a viable first-line treatment for the management of CLBP [chronic low back pain]”.

In conclusion, the evidence for the effectiveness of hypnosis in controlling chronic and acute pain is very positive and promising. Refer to Appendix 1 for summary tables displaying the design of these research studies; intervention; duration of intervention; number and characteristics of participants; characteristics of intervention; outcome measures; and intervention effect size.

Anxiety

Baker, Ainsworth, Torgerson and Torgerson (2009) evaluated the use of hypnosis to reduce exam anxiety. Although Baker et al. (2009) are knowledgeable in the fields of education and psychology, there is an obvious lack of expertise and limited understanding of hypnosis. For example, hypnosis is defined using a dictionary definition. However, the authors aimed to determine whether the reviewed studies provided statistically significant evidence of hypnosis being effective in reducing exam anxiety, as opposed to demonstrating their knowledge of hypnosis. Baker et al. (2009) concluded that hypnosis was moderately effective in the reduction of exam anxiety. However, they caution that the review was not helpful in determining the “optimum ‘dose’ of hypnotherapy or the method of delivery”. (Baker et al., 2009, p. 36). Further research was recommended.

Hammond (2010, p. 271) specifically reviewed the effectiveness of hypnosis in reducing anxiety, and found there was a ‘tremendous volume’ of research which proves that hypnosis is very effective in the treatment of state anxiety “associated with cancer, surgery, burns and a variety of medical/dental procedures” (Hammond, 2010, p. 271), including the reduction of anxiety “associated with a variety of surgical, medical and dental procedures (e.g., incisional biopsy, venepuncture, having radiological and imaging procedures, dentistry or oral surgery)” (p. 269).

Hammond (2010) found some positive effects of hypnosis treatment for headaches, in opposition to the conclusions of Adachi et al. (2014). Hammond (2010) recommended that credentialed clinicians provide hypnosis treatments.

Untas, Chauveau, Dupre-Goudable, Kolko, Lakdja and Cazenave (2013) examined the effects of hypnosis on anxiety and other mental health conditions for people undergoing haemodialysis. They concluded that the hypnosis treatment decreased anxiety in a similar way to studies by Hammond (2010) and Yapko (2010). Although the study had no control group, they argued that “the baseline week before the hypnosis session gives a reliable measure supporting the positive effect of the intervention” (Untas et al., 2013, p. 480). Untas et al. (2013, p. 480) recommended that the hypnosis treatment be administered while patients are having dialysis in order “to enhance patient global care in nephrology”. This study provides further support for the hypnosis treatment being applied at the time of medical procedures to be most effective.

Recommendations for future research

Some clear recommendations have arisen from the studies examined in this literature review, which align with this author's clinical experience. Several of the studies (for example, Adachi et al., 2014; Accardi and Milling, 2009; Jensen and Patterson, 2014; and Patterson, 2004) comment on the financial benefits of incorporating hypnosis, particularly self-hypnosis, into the treatment of pain management. These recommendations will provide direct benefits for patients and financially stretched health care systems.

Future hypnosis treatment trials are recommended, using a combination of two to three hypnosis sessions taught by credible and experienced practitioners, and coaching clients in self-hypnosis using a taped script, to be practised daily for the length of the trial. Studies not using a standard script have been criticised because of the difficulties in comparing results and replicating studies (e.g. Wark, 2008). This may have led to a tendency to overgeneralise findings even though there may have been uncertainty about the type of hypnosis intervention used. The recommendation here would be for the script or scripts to be developed by an experienced hypnotherapist to ensure consistency as well as clinical effectiveness.

Researchers will need to make decisions about the style of hypnotic suggestions used in their studies. There are two main styles of suggestions, traditional (direct), and permissive (indirect) suggestions. Direct suggestions focus clearly on pain management by encouraging participants to reduce the level of pain experienced. Indirect suggestions use metaphors and have a more narrative, and sometimes guided imagery approach, to encourage participants to reduce the level of pain experienced. Although there has been research comparing these two styles (for example, Yapko, 2012), the different outcomes for clients seem to relate to their individual preference rather than the style of suggestion used.

Some studies, for example, Grondahl and Rosvold (2008) and Hammond (2010), refer to the long-term positive effect of hypnosis treatments and in particular the use of self-hypnosis. 'Conditioning' or practice over a longer term, or what could be called 'practiced effect', can be researched in terms of levels of hypnotisability (for example, Jensen and Patterson, 2014). Generally in the reviewed research there is an acknowledgment of the impact of low, medium and high hypnotisability. Future research could discover if low and medium hypnotisable participants are able to achieve the same or similar positive impact of hypnosis, through practice, that highly hypnotisable participants achieve very early in the hypnosis treatment. Individual differences in hypnotisability obviously need to be taken into consideration. Time series studies over three to twelve months are needed to study practiced effect or conditioned response.

Sample size is also relevant for a quantitative research approach. It is important to have treatment and control groups of at least 30 participants (allowing for some drop-out) who are randomly allocated to either the treatment or control group. There was some indication by Hammond (2015) and Bernardy, Füber, Klose and Häuser (2011) that if participants tend to self-select to enter the hypnosis treatment group then expectations of success tends to be higher, and, of course, while this indicates the power of client preference, it has the potential to impact

the validity and reliability of results. The aim, of course, is to control as many variables as possible to ensure that the result can be attributed to the effectiveness of hypnotherapy. The researcher would need to aim to capture important subjective components to clinical hypnotherapy which impact on its effectiveness. This would include, for example, the hypnotherapist, the commitment of the participant to practise hypnosis and self-hypnosis, and the previous experience of the participant of hypnosis or meditation.

This review demonstrates that the use of hypnosis for acute and chronic pain has been researched more frequently than for anxiety. However, some studies for pain management also extend to additional benefits for the participants in reducing other symptoms such as anxiety, depression and sleep disturbance (see Accardi and Milling, 2009; Bernardy et al., 2011; Grondahl and Rosvold (2008); and Jensen and Patterson, 2014).

Most of the reviewed research studies examined individual hypnosis treatment for participants. Some involved the use of tape recordings (Adachi et al., 2014; Baker et al., 2009; and Tan et al., 2015), some used practitioners of hypnotherapy, and some a combination of these (Jensen and Patterson, 2014; and Landolt and Milling, 2011).

Accardi and Milling (2009) and Untas et al. (2013) found that the use of hypnosis during a medical procedure was more effective than hypnosis used before the procedure. This is an important consideration for future research, especially for pain control. Post-hypnotic suggestions may be given to assist clients after the clinical sessions. Further research could examine the effectiveness of post-hypnotic suggestions, as these could be routinely included as an important part of scripts for hypnosis and self-hypnosis.

Conclusion

Hypnosis is effective for pain control and the reduction of anxiety. The reviewed studies provide clear and significant evidence that participants who receive hypnosis for painful medical procedures, for the pain control of chronic or acute pain, and for the reduction of anxiety, gain moderate to large positive benefits and effects. These positive benefits have been consistently shown to continue over at least six to twelve months.

Milling (2008, pp. 174-175) argues that hypnosis “researchers are addressing new and important issues such as the biological substrates of hypnotic analgesia and virtual reality hypnosis. All in all, these are exciting times for the field and the study of hypnotic pain reduction may well have entered a golden era of research”. The findings of this literature review suggest that this ‘golden era’ has begun, providing evidence for the effectiveness of hypnosis for pain and anxiety reduction and control. The field is open for further research on these and other areas where hypnosis has also been clinically observed to be effective.

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Appendix 1: Summary tables of literature review studies

Table 1: Hypnosis and Pain Control

Author/s, Year of Publication & Study Name	Design	Name of intervention	Duration of intervention	No and characteristics of participants	Characteristics of intervention	Outcome measures	Intervention effect size
Grondahl, J R. & Rosvold, E. O. (2008). Hypnosis as a treatment of chronic widespread pain in general practice: A randomized controlled pilot trial.	Randomised control study	Standardised hypnosis treatment focusing on ego-strengthening, relaxation, releasing muscular tension and increasing self-efficacy.	10 weeks	16 patients with chronic widespread pain (CWP)	Eight patients were randomly placed into a treatment group (seven completed) and a control group. After the control period, five of the patients in the control group also received treatment. In total 12 patients completed the treatment sessions. The intervention group went through a standardised hypnosis treatment with ten consecutive therapeutic sessions once a week, each lasting for about 30 minutes.	Questionnaire – 25 items pre- and post- intervention Data analysis (T-tests) with SPSS version 12. P-value was set to $p \leq 0.05$	Some effect from small numbers, but statistically significant results were obtained.
Accardi, M. C. & Milling, L. S. (2009). The effectiveness of hypnosis for reducing procedure-related pain in children and adolescents: a comprehensive methodological review	Between-subjects or mixed model design review	Hypnotic or hypnotic-like intervention for pain was compared with at least one alternative intervention, or a placebo, attention, standard care, or no-treatment control condition in reducing procedure-related pain - 13 clinical pain studies were chosen	Not stated	Range from 10 to 80 children (under 19 years old) in the 13 studies	Hypnosis versus control conditions; distraction; or cognitive-behavioural intervention	PBRS-r scale, rating of anxiety (nurse- related), pain (patient-rated) and fear (patient-rated)	There were some inconclusive results gained in studies with either low numbers or no control group. A significant positive effect on reported pain was observed from the self-reports of participants in the hypnosis treatment group.
Landolt, A. S. & Milling, L. S. (2011). The efficacy of hypnosis as an intervention for labor and delivery pain: A comprehensive methodological review	Comprehensive methodological review included: between- subjects or mixed model design with a summary of controlled studies on the efficacy of	Hypnosis	160-240 hours	77 pregnant women – hypnosis group 3249 pregnant women in control group	Hypnosis versus standard medical care - Four 40 to 60 minute hypnosis training sessions after 35 weeks gestation Hypnosis versus supportive counselling - two 90-minute training sessions at 32 and	Pain measures – combination of reporting on the use of Epidural analgesia, Analgesic medication, Nurse and Self rating of pain	Smallest study had 16 participants, but significant results were achieved for the reduction of pain in labour and delivery for women who had the hypnosis preparation.

Author/s, Year of Publication & Study Name	Design	Name of intervention	Duration of intervention	No and characteristics of participants	Characteristics of intervention	Outcome measures	Intervention effect size
	hypnosis for reducing labour and delivery pain.				34 weeks gestation – hypnosis group taught the use self-hypnosis and glove anaesthesia Supportive counselling group was instructed about childbirth. (p.1025)		
Uman, L. S., Birnie, K. A., Noel, M., Parker, J. A., Chambers, C. T, McGrath, P. J. & Kisely, S. R. (2013). Psychological interventions for needle-related procedural pain and distress in children and adolescents (Review)	Randomised controlled trials	Hypnosis	In general, one session before procedure with practitioner including training the children in hypnosis and hypnotic techniques.	176 -193 children receiving various types of injections	Interventions included: three-step Ericksonian procedure; hypnosis and self-hypnosis; use of suggestions, e.g. 'developing a sense of mastery and control' regarding needle experiences; patient well-being; analgesic suggestions including glove anaesthesia. Post-hypnotic suggestions. Favourite stories including 'hypnotic suggestions and reframing'.	For each intervention the following seven outcomes were separately assessed. a) Pain: self-reports. b) Pain: observer global reports. c) Pain: behavioural measures. d) Distress: self-reports. e) Distress: observer global reports. f) Distress: behavioural measures. g) Physiological measures: each physiological outcome (e.g. heart rate, blood pressure) (Uman et al., 2013, p.8)	Five or more participants in a study were included by authors. Strong evidence supporting the efficacy of ... hypnosis for needle-related pain and distress in children and adolescents. (Uman et al., 2013, p. 2)
Jensen, M. P. & Patterson, D. R. (2014). Hypnotic approaches for chronic pain management: Clinical implications of recent research findings	Clinical Trials	Hypnosis and self-hypnosis	Six plus sessions of hypnosis over 12 months plus daily practice of self-hypnosis or 10 sessions of self-hypnosis training.	47- 82 patients with migraines or with diagnoses related to physical disability which included chronic pain	Self-hypnosis was taught to participants with the aim of helping them reduce daily pain intensity.	Responder analysis Patients provided a description of positive and negative effects of hypnosis over treatment time.	Responder analysis was used rather than group averages, when statistically significant effects were found. Authors believed this would offset skewed results when sample size was small.
Adachi, T., Fujino, H., Nakae, A., Mashimo, T. & Sasaki, J. (2014). A meta-analysis of hypnosis for chronic pain problems: A comparison between hypnosis, standard care, and other psychological	Meta-analysis	Hypnosis	3 to 12 sessions – each lasting between 30 to 90 minutes	22-157 participants with chronic pain including: fibromyalgia, headache, ...irritable bowel syndrome, multiple sclerosis, non-cardiac chest pain, orofacial pain, osteoarthritis pain,	Within the majority of the 12 studies participants listened to tapes for the hypnosis interventions. These interventions included: progressive muscle relaxation; self-hypnosis; and visualising a safe, comfortable place.	Numerical rating scale (NRS) or used 5- to 11-point Likert scales or Visual analogue scale (VAS) to quantify pain. Questionnaires assessed psychological symptoms (e.g., the Self-Rating Depression Scale, Zung, 1965; the State-Trait Anxiety Inventory,	Effect size analysis indicated that hypnosis was more effective than other psychological interventions for a non-headache group.(Adachi et al.,2014, p.18)

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interventions.				spinal cord injury, temporomandibular disorders, and other forms of chronic pain). (Adachi et al., 2014, p.4)		Spielberger, Gorsuch, & Lushene, 1970; the 90-item version of Symptom Check List, Derogatis, Lipman, & Covi, 1973). (p.5) Hypnotizability and treatment expectancy were mostly reported. Other outcome indicators included pain interference, pain coping strategy, quality of life, sleep quality, perceived control over pain, and capacity for mental imagery (Adachi et al., 2014, p.5)	
Tan, G., Rintala, D. H., Jensen, M. P., Fukul, T., Smith, D. and Williams, W. (2015). A randomized controlled trial of hypnosis compared with biofeedback for adults with chronic low back pain	Randomised, single-blind, four-group design study	Standard relaxation induction followed by 7 suggestions in the first 2 sessions of treatment. The hypnotic suggestions focused on deep relaxation, sensory substitution, pain intensity reduction, imagined anesthesia, decreased pain unpleasantness, managing breakthrough pain and post-hypnotic suggestions for effective self-hypnosis. Each subject was allowed to pick 2 favourite suggestions to individualize their hypnotic scripts repeated to them for sessions 2–8. (Tan et al., 2015, p.274)	8 weeks	100 veterans with chronic low back pain	The four treatment conditions were (1) eight therapist-guided sessions of self-hypnosis training without recommendations for practice (HYP-8); (2) eight therapist guided sessions of self-hypnosis training with recommendations for practice (HYP-PRAC-8); (3) two therapist-guided sessions of self-hypnosis training with recommendations for practice (HYP-PRAC-2) plus six brief, weekly telephone calls; and (4) eight sessions of sEMG biofeedback-assisted relaxation training (BIO-8) that served as the control group.	Outcome measures completed at pre- and post-treatment and at 6-month follow-up included a modified version of the Brief Pain Inventory (Tyler et al., 2002) to assess pain intensity and pain interference and the Pittsburgh Sleep Quality Index (Buysse et al., 1989). Outcome predictors included global hypnotizability assessed at pre-treatment using the 5-item Stanford Clinical Hypnotizability Scale (Hilgard and Hilgard, 1994) and amount of self-hypnosis practice assessed by participant diaries. (Tan et al., 2015, pp.273-274)	Although there were clinically meaningful reductions in pain intensity, there was a high dropout rate in the 4 treatment conditions. With the hypnosis groups combined compared with the biofeedback group, it was found that the paired <i>t</i> -tests for within-group improvements in all three outcome measures from pre- to post-treatment. There were large effect sizes (Cohen's <i>ds</i>) for pain intensity and interference for the ALL-HYP group and medium effect sizes for the BIO-8 group (as per Cohen, 1988). For sleep quality, the effect sizes were medium for both groups. (Tan et al., 2015, p.274)

Table 2: Hypnosis and anxiety

Author/s, Year of Publication and Study Name	Design	Name of intervention	Duration of intervention	Number and characteristics of participants	Characteristics of intervention	Outcome measures	Intervention effect size
Baker, J., Ainsworth, H., Torgerson, C. ,&Torgerson, D. (2009). A systematic review and meta-analysis of randomised controlled trials evaluating the effect of hypnosis on exam anxiety.	Systematic review of randomised controlled trials	Hypnotherapy	Varied – 4 to 14 weeks	At least 12- 50 participants with exam anxiety - undergraduate students of a similar age and background (in four studies participants were medical or nursing students). (Baker et al., 2009, p.34)	Range of: one to four sessions with practitioner and/or self-hypnosis tape for practice after sessions; to fourteen ninety minute sessions plus daily 15 minute self-hypnosis practise.	Results of the five studies were pooled using fixed-effect model Anxiety scales were included.	Smallest group- 24 participants- had statistically significant result.
Hammond, D. C. (2010). Hypnosis in the treatment of anxiety- and stress-related disorders	Clinical report	CBT and Hypnosis (cognitive–behaviourally oriented hypnosis) and CBT and self-hypnosis	Varied – 4 to 6 weeks	14-337 participants with anxiety and stress-related disorders, including anxiety associated with cancer, surgery, burns and medical/ dental procedures	Use of self-hypnosis in the treatment of anxiety and stress-related disorders, including anxiety associated with cancer, surgery, burns and medical/dental procedures.	Incidence of acute anxiety episodes and ratings of both positive and negative emotions, which were collected prior to and post-intervention. Physiological measures, e.g. heart rate.	The smallest group had 14 participants. The self-hypnosis group... most positive results overall for quality of life measures...; less psychological distress...; less physical distress and lower levels of anxiety... and depression... compared with standard care. (Hammond, 2010,p.269)
Untas, A., Chauveau, P., Dupre-Goudable, C., Kolko, A., Lakdja, F., & Cazenave, N. (2013). The effects of hypnosis on anxiety, depression, fatigue, and sleepiness in people undergoing hemodialysis: A clinical report	Clinical report	Hypnosis	One hour for 15 days	Twenty-nine hemodialysis patients	Hypnosis session was adapted to each patient. General areas addressed: myths; determining a resourceful, secure and relaxed place (Guided imagery); hypnotic induction; specific suggestions to reduce distress and fatigue and to increase relaxation, well-being, safety, and energy; and posthypnotic suggestions re patient’s feelings of energy beyond the session and his or her ability to use self-hypnosis.	The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)	Low sample size and lack of a control group have impacted on this study. However, statistically significant results were found for the hypnosis treatment.