Hypnosis to manage distress related to medical procedures: a meta-analysis
Schnur JB, Kafer I, Marcus C, Montgomery GH

CRD summary
The authors concluded that hypnosis should be used to reduce the emotional distress associated with medical procedures. The results of this review should be interpreted with caution due to a number of methodological issues.

Authors' objectives
To assess the effectiveness of hypnosis in managing distress from medical procedures.

Searching
The authors searched PsycINFO and PubMed for all articles loaded until the end of February 2008. Search terms were detailed in the report. To be included in the review, articles had to be written in English.

Study selection
To be eligible, studies had to be published in a peer reviewed journal; have a full abstract available online; be a randomised controlled trial; have hypnosis as at least one of the intervention conditions; be related to a medical or dental procedure, other than childbirth; include a measure of distress or emotional well-being as an outcome variable; be a primary analysis; have sufficient data to calculate an effect size; and be an original publication. Trials describing suggestion as an intervention rather than hypnosis were also included.

In the included trials, patients underwent a variety of medical procedures, with some trials focusing on adults, some on children, and some covering both. The patient age range was 4.8 to 70.3 years and the sample size ranged from 20 to 200 patients. Timing and delivery of the intervention varied across the trials. A variety of distress outcomes were measured, with anxiety being the most common.

Four authors were involved in selecting trials and disagreements were resolved by consensus.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Interventions were coded as hypnosis or suggestion and control conditions were either standard care or attention. Hypnosis could be either live or recorded and the timing could be prior to a medical procedure, during the procedure, or both. The authors noted where effect sizes had to be imputed. They extracted between-group results to calculate the effect sizes for each intervention compared with control and for each distress outcome. Once the initial effect sizes were established, a mean effect size for each comparison for each trial was calculated, across the distress outcome variables.

Two authors independently extracted data for the review and discrepancies were resolved by consensus.

Methods of synthesis
Meta-analysis was conducted both without weights applied to the trials and with weights based on sample sizes, using a random-effects model. Tests of heterogeneity (Q statistic) were conducted and the results were used to investigate variables that might affect the overall effect size. Publication bias was assessed using Orwin's fail-safe N.

Results of the review
Twenty-six randomised controlled trials were included in the review (n=2,398 patients).

Hypnosis was found to have a statistically significant, large, beneficial effect on emotional distress from medical procedures. Using a random-effects model, the authors found a mean effect size of 0.88 (95% CI 0.57 to 1.19). Using a
funnel plot they calculated the number of trials with an effect size of 0 that were required to decrease the overall mean effect size to small (123 trials) or medium (28 trials). Statistical analysis showed that the trials were heterogeneous and that 87.14% of the variance was explained by factors other than chance.

The moderating factors were: hypnosis was statistically more effective for children than adults; the sample size was inversely correlated with the effect size, but this may have been driven by one particularly large, negative trial; the type of control condition did not significantly affect the effect size; hypnosis interventions were significantly more effective than suggestion ones; live hypnosis was significantly more effective than recorded hypnosis; hypnosis was significantly more effective when delivered prior to the procedure, or prior and during the procedure, rather than just during the procedure; and there was no difference in the effect size where it had to be imputed.

**Authors' conclusions**
The data strongly supported hypnosis as a non-pharmacological intervention to reduce emotional distress associated with medical procedures.

**CRD commentary**
This review had broadly defined inclusion criteria for the population, intervention, control, outcomes, and study design. Searching was based on two databases with no additional resources. It appears that only published material was eligible for inclusion, but the authors did not find evidence of publication bias. Trials were restricted to those published in English so relevant trials may have been missed. The authors included papers on suggestion that were found in the course of the search, but it is not clear if any additional papers on suggestion would have been found had the search been specifically designed to find them. More than one reviewer was involved in the selection of trials, which makes subjective inclusion decisions less likely. Attempts to minimise bias in the data extraction methods were described, but the authors do not appear to have assessed the quality of the included trials, which may have had an impact on the analysis of moderating variables. A narrative synthesis may have been more appropriate, given the clinical and statistical heterogeneity of the included trials.

The results of this review should be interpreted with caution.

**Implications of the review for practice and research**

**Practice:** The widespread adoption of hypnosis could improve the quality of life of millions of patients undergoing medical procedures.

**Research:** Future studies could investigate the finding that children were more responsive to hypnosis by ensuring that interventions delivered to both children and adults are similarly dosed. Research was needed to identify the most effective hypnosis delivery method for medical procedures and this should include any positive emotions experienced in addition to the reduction of negative emotions. Research could also focus on those clinical areas, which have so far been under-researched; examples were given in the report.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.