Clinical hypnosis with children: first steps toward empirical support
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Authors' objectives
To describe and appraise existing controlled studies of the efficacy of clinical hypnosis with children, in particular: to summarise the findings of controlled outcome studies of child clinical hypnosis; to assess the methodological strengths and weaknesses of this small literature; to evaluate child clinical hypnosis outcome studies against criteria advanced by Chambless and Hollon (see Other Publications of Related Interest) for empirically supported therapies (ESTs).

Searching
PsycLIT from 1974 and MEDLINE from 1984 were searched up to 1999. Related reviews were searched manually.

Study selection
Study designs of evaluations included in the review
Controlled studies employing a between-subjects design were eligible for inclusion in the review.

Specific interventions included in the review
Hypnotic interventions. To be eligible, a hypnotic intervention had to be compared with at least one alternative hypnotic or non-hypnotic intervention and/or a placebo, attention, or no-treatment control. The hypnotic interventions included: self-hypnosis alone; self-hypnosis with biofeedback; self-hypnosis with hypnosis; self-hypnosis with specific suggestion; trance with or without suggestions; hypnosis through imagination focus; and hypnosis with medication. The non-hypnotic control interventions included: discussion sessions; biofeedback alone; attention control; suggestions alone; medication, i.e. imipramine given for nocturnal enuresis; distraction and/or relaxation or deep breathing; anti-emetic medication alone (for nausea and emesis), and standard medical practice (for bone marrow aspiration and lumbar puncture). Further details on the nature of the different interventions, e.g. time per session, were provided in the review.

Participants included in the review
Children or adolescents no older than 18 years of age, were eligible for inclusion in the review; the actual age of the included participants ranged from 3 to 18 years. The participants included children who were being treated for:

learning problems, i.e. test anxiety, academic performance and the self-esteem of learning-disabled children;

basic physiological processes, i.e. peripheral temperature control and self-control of salivary immunoglobulin (Ig);

general medical problems, i.e. cystic fibrosis and nocturnal enuresis;

chemotherapy distress, i.e. nausea and emesis; and

acute pain, i.e. experimental pain via cold pressor, bone marrow aspiration and/or lumbar puncture and venipuncture.

Outcomes assessed in the review
The outcomes assessed in the review related specifically to the condition being treated. These were: test anxiety questionnaire (test anxiety); parent and child report of self-esteem (learning-disabled children); skin temperature changes (peripheral temperature control); salivary concentrations of Ig (self-control of salivary Ig); lung function, locus of control, health locus of control, self concept, trait anxiety and state anxiety (cystic fibrosis); dry nights per week (nocturnal enuresis); nausea and emesis; amount of medication used (nausea and emesis); self-reported pain (cold pressor pain); self- and observer-reported pain and fear (bone marrow aspiration); observer-reported and self-reported pain and anxiety (bone marrow aspiration and lumbar puncture); self- and parent-reported pain and anxiety, and observer-reported distress (venipuncture and bone marrow aspiration).
How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the reviewers performed the selection.

**Assessment of study quality**
Four key methodological criteria were used to evaluate the studies: random assignment to condition; treatment specification via a manual or its equivalent; hypnosis condition delivered in a 'hypnotic' context; and specification of the patients' characteristics. Some of these criteria were explicitly contained in the EST guidelines for evaluating studies of therapies, whereas other criteria were implied or discussed elsewhere relative to the EST (see Other Publications of Related Interest). The authors do not state who performed the validity assessment.

**Data extraction**
The authors do not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Data were extracted on: the type and focus of the study, the nature of the problem or condition, the age of the participants, the treatment conditions, the outcomes being assessed ('dependent variables') and the study results.

**Methods of synthesis**
How were the studies combined?
The data were not pooled statistically in a meta-analysis. The studies were combined narratively under the following subgroups: learning problems; basic physiological processes; general medical problems; nausea and emesis from chemotherapy; and acute pain.

How were differences between studies investigated?
No formal test of heterogeneity was carried out.

**Results of the review**
Fifteen studies were included in the review. Two studies (n=73) assessed learning problems, 2 (n=105) assessed physiological processes, 3 (n=110) addressed general medical problems, 3 (n=93) chemotherapy distress, and 5 (n=181) acute pain.

**Learning problems.**
Test anxiety: in one study, the self-hypnosis group achieved significantly greater reductions on the questionnaire measure of test anxiety at post-treatment and at 6 months, compared with controls.

Learning disabilities: one study found no significant differences between the intervention and control groups in gains on measures of academic achievement or self esteem.

**Basic physiological processes.**
Temperature regulation: one study found that all three intervention groups were able to produce significant changes in skin temperature, but there were no significant differences among the groups in amount of warming or cooling.

Immune functioning: one study found no significant pre- to post- intervention differences among the three experimental groups on IgG levels, although the relaxation plus suggestion group (but not the self-hypnosis or attention control groups) showed a significant increase from time 2 to time 3 for IgA levels.

**General medical problems.**
Cystic fibrosis: one study showed that, compared with the control group, the treatment group achieved significantly
greater improvements in lung function, self-esteem, state anxiety, and health and locus of control. Enuresis: one study reported that by the end of treatment, the number of wet nights per week for the induction-plus-suggestion and suggestion-only groups had decreased significantly relative to the other conditions. Across a 6-month period, all three treatments produced significantly greater reductions in wet nights than the control condition, indicating that suggestions for dry nights in or out of the context of hypnosis may be useful. Another study found that across the 3-month treatment period, the proportion of positive responders did not differ between the two groups, but at 6 months' post-treatment follow-up, there was a significant difference between the two treatments; this was accounted for by the substantial number of children in the medication (imipramine) group who had relapsed without medication.

Nausea and emesis from chemotherapy.

Compared with the control condition, one study reported significantly shorter duration of vomiting in the hypnosis condition (imagination-focused hypnosis), and significantly shorter duration of nausea in both the hypnosis and distraction/relaxation conditions. A second study found that both interventions (imagination-focused and attention diversion) were found to produce significant reductions in nausea and vomiting, but there was no difference between the two treatments in the amount of relief obtained. A third study found that following the intervention (self-hypnosis with imagination and control of anti-emetic medication, plus additional medication as needed), episodes of nausea and vomiting were equivalent between the two conditions, but the controls used significantly more anti-emetics than the children in the hypnosis group.

Acute pain.

Experimental pain: in one study, children in the hypnosis condition experienced significantly more pain reduction than the controls (no intervention). Invasive medical procedures, e.g. bone marrow aspiration: one study found that for both self-hypnosis and attention-control groups, self-reported pain decreased significantly whereas observer pain did not. However, there was no difference between hypnosis and the attention-control condition in pain or fear reduction.

Another study found that older children in the hypnosis and distraction conditions achieved significantly greater reductions in observer-rated pain and anxiety than the control (standard medical care) group. Among younger children, those in the hypnosis condition achieved significantly greater reductions in observer-rated distress than those in the other conditions. Self-report measures of pain and anxiety suggested neither intervention was more successful than standard medical practice. A fourth study found that hypnosis was significantly more effective than distraction in reducing pain and anxiety during bone marrow aspiration, and only hypnosis significantly reduced both pain and anxiety during lumbar punctures. A final study found that for self-reported pain and anxiety, highly suggestible children in the hypnosis treatment reported significantly less pain and anxiety following interventions than did those in the distraction condition, or less suggestible children in both conditions. The parents' reports of pain reduction were similar.

Authors' conclusions
Conclusions drawn from the review literature regarding the efficacy of child clinical hypnosis must be tempered by the methodological status of the studies. Research on clinical hypnosis with children is in an early stage of development. The child hypnosis literature is predominantly composed of anecdotal case histories and uncontrolled research studies. The few controlled investigations of clinical hypnosis with children suggest much promise for treating certain problems, most notably enuresis, chemotherapy-related distress, and acute pain owing to invasive medical procedures. However, it is rather too early in the development of the research knowledge base to be able to say that any child hypnosis intervention has attained the milestone of meeting EST criteria for an efficacious therapy. However, based upon encouraging preliminary evidence, it seems that clinical hypnosis with children has taken its first steps towards empirical support.

CRD commentary
The review question and the study selection criteria were stated clearly. The literature search was restricted to PsycLIT and MEDLINE only, it was unclear if any language restrictions were imposed, and the descriptions of the additional manual searches were also somewhat limited. Therefore, some relevant material may have been missed. The authors provided no information on the methodology employed for the literature selection, validation or data extraction procedures. No statistical pooling of the data was attempted. The decision to combine the data narratively within
subgroups based on the problem being treated was understandable, given the obvious heterogeneity of the studies in terms of the age ranges of the participants, the problems being treated, the range of different interventions employed and the outcomes being assessed. The authors provided insufficient information on the methodology of the studies reviewed and their findings to determine whether statistically significant findings were being reported or not.

The authors’ conclusions seem appropriately cautious given the methodological limitations of the studies they reviewed.

Implications of the review for practice and research
Practice: The authors state that the few controlled investigations of clinical hypnosis with children suggest much promise for treating certain problems, most notably enuresis, chemotherapy-related distress, and acute pain owing to intensive medical procedures.

Research: The authors state that additional research clearly specifying treatment and patient variables will be necessary to establish child hypnosis as an EST for these and other childhood problems. In particular, studies of clinical hypnosis for child psychopathology are required. Child hypnosis researchers may wish to consider individual differences among youngsters that could influence the outcome. Additional research examining the link between suggestibility and treatment outcome is needed.

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Other publications of related interest

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Record Status
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