Review: psychological interventions reduce the severity and frequency of chronic pain in children and adolescents


QUESTION: In children and adolescents with chronic pain and associated distress and disability, are psychological interventions effective for reducing the frequency and severity of pain?

Data sources
Studies were identified by searching the Cochrane Controlled Trials Register, Medline (1966–99), PsycLIT (1987–99), EMBASE/Excerpta Medica (1980–99), and the Social Sciences Indices (1981–99). Bibliographies of relevant articles were reviewed, and experts in the field were contacted for additional studies.

Study selection
Studies were selected if they were randomised controlled trials (RCTs) comparing a clearly defined psychological treatment (even when this treatment was concomitant with other non-psychological treatments given as standard care) with a control condition (wait list and self monitoring) for chronic pain in children or adolescents.

Data extraction
Data were extracted on study setting, sample size, demographic characteristics of the sample and caregivers, therapist characteristics, details of the interventions, study quality, and outcomes. The main outcome was pain experience denoted as a Pain Index, a function of patient diary records of pain frequency, duration, and intensity. A reduction in the Pain Index of ≥50% from baseline was equivalent to a clinically significant improvement, with subsequent classification of the outcome as improved or unimproved.

Main results
13 of 18 RCTs that met the selection criteria were included in the meta-analysis. Psychological treatments included relaxation (11 RCTs), relaxation with biofeedback (4 RCTs), cognitive behavioural therapy (9 RCTs), and cognitive behavioural family intervention (1 RCT). 12 RCTs took place in clinic settings and 6 in school settings. Treatment contact time was relatively brief, with a mean duration of 3 h (range 45 min to 9 h, 20 min). Meta-analyses were done using a random effects model. More patients in the treatment group than in the control group had a ≥50% reduction in the Pain Index from baseline (table).

Conclusion
In children and adolescents with chronic pain and associated distress and disability, psychological interventions reduce the frequency and severity of pain.

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For correspondence:
Dr C Eccleston, Pain Management Unit, University of Bath, UK.
c.eccleston@bath.ac.uk

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Psychological interventions v control (wait list, information, and self monitoring) in youth with chronic pain*

<table>
<thead>
<tr>
<th>Outcome at ≥3 hours</th>
<th>Weighted event rates</th>
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<tbody>
<tr>
<td>Intervention</td>
<td>Control</td>
<td>RBI (95% CI)</td>
<td>NNT (CI)</td>
<td></td>
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<tr>
<td>≥50% reduction in pain from baseline</td>
<td>60%</td>
<td>15%</td>
<td>203% (103 to 354)</td>
<td>3 (2 to 3)</td>
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*Abbreviations defined in glossary; RBI, NNT, and CI calculated from data provided by author using a random effects model.

COMMENTARY

Psychological interventions for relieving chronic pain have been shown to be effective in adults1–2, but systematic reviews of these strategies for children are needed. In this thorough and systematic meta-analysis of 13 RCTs, Eccleston et al assessed the effectiveness of various psychological interventions for chronic pain in children. The results suggest significant benefits of reduced severity and frequency of pain, especially for children with recurrent headaches, which was the presenting complaint in 12 of the 13 studies. Benefits were found in studies of both clinic based and school based interventions. Unfortunately, insufficient evidence exists about the efficacy of these treatments for other persistent chronic pain conditions in children. Also lacking is evidence about the ability of these treatments to influence other important healthcare outcomes such as quality of life for both patients and their families. It was unclear if any of the trials included an economic analysis.3 Given that treatment efficacy did not differ by setting, it would be important to know if administration of these treatments is more cost effective in certain settings such as schools.

Psychological interventions are multimodal in nature and combine pain education with training in various cognitive and behavioural coping skills. These strategies are aimed at regulating children’s pain perceptions and behaviour. This rigorous review provides valuable information on the benefits of these relatively simple and easy to use psychological treatments (principally relaxation and cognitive behavioural therapy) for children with recurrent pain. The study results are relevant to nurses who work in paediatric primary (school) and tertiary care settings. The effectiveness of simple psychological interventions for headache that can be implemented by non pain specialists in school settings raises the possibility of whether such interventions could also be applied by nurses as a method of secondary prevention to reduce the development of chronicity in this population.

Jennifer Stinson, RN, CPNP, MSc
Clinical Nurse Specialist / Nurse Practitioner
Chronic Pain Program, The Hospital for Sick Children
Toronto, Ontario, Canada


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