

Managing Pain in Children and Young People

A Clinical Guide

Third Edition



Edited By

**Alison Twycross • Jennifer Stinson
William Zempsky • Abbie Jordan**

WILEY Blackwell

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For Isabella, Joseph, Dexter, Io, Tallulah, Winston, Isodora, Zinnia and Elodie

For my daughters Hayley and Sara and my grandson Lowen

For Ava, Ophelia and Evangeline

For my OG pain colleagues Neil Schechter, Nancy Bright and Barbara Rzepski

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Foreword

I have had the extreme pleasure of working with hospitalised children and young people for over three decades. In my early years as a paediatric nurse at the bedside, I was struck by the pain that children and young people endured as part of their diagnosis and treatment and how helpless healthcare professionals and family members felt in trying to comfort them. We did not know the impact of pain on these children and young people, but we did have an intuitive sense that it was harmful both physically and emotionally and needed to be prevented, reduced or eliminated.

I was fortunate to be part of a growing body of research focused on generating pain assessment measures and prevention and evaluating treatment strategies that were pharmacological, behavioural, physical and environmental. Yet there were still broad gaps remaining on how to prevent and treat pain in children and young people. In addressing these gaps, we needed a diverse set of skills from basic and clinical sciences and pain-relieving strategies that integrated children, young people and families, healthcare professionals and organisational needs within the context of inter-professional pain care. The voice of individuals with lived pain experiences was also needed, as was the exploration of the underlying mechanisms of pain and its treatment.

In addition, the dawning comprehension that even though we were generating evidence on effective pain prevention and treatment strategies, we did not always effectively disseminate or implement this new knowledge into practice. This lack of understanding of implementation and dissemination as critical components of implementation science is perhaps our greatest challenge and the one that needs the most attention moving forward.

This book serves to present and synthesise new knowledge, re-igniting our commitment to solving the puzzle of pain in children and young people and to explore why treating and preventing pain matters. We will see what we have learned about the anatomy and physiology of pain and how this has influenced the clinical pain practices of assessment and treatment. There is a renewed focus on prevention, but where this is not possible, on the most up-to-date strategies on relieving acute nociceptive pain, procedural pain, neuropathic and visceral pain, chronic musculoskeletal pain, headaches and both acute and chronic postsurgical pain. As well, there is attention to special populations including neonates, children receiving palliative care, and children in low- and middle-income countries. Finally, the challenges of implementation and dissemination of new knowledge are addressed in summarising the effective ways of moving forward.

We have an abundance of evidence that underlies effective prevention and treatment of pain in children and young people. However, the failure to effectively implement and disseminate this evidence results in the continued pain and suffering of children. We need to consider not only the effectiveness of the pain-relieving intervention but the effectiveness of the implementation strategies across multiple populations and contexts. The new knowledge presented in this book will increase our awareness and knowledge of both pain prevention and treatment but also of how to best implement pain practice change that will improve child health outcomes.

Bonnie Stevens, RN, PhD

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Long Covid means I have had to take early retirement and so this will be the last edition of the book I am involved with. Given this, I would also like to thank Jennifer Stinson for being such a great writing partner over the years.

Alison Twycross

1

Introduction

Alison Twycross

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Welcome to the third edition of *Managing Pain in Children and Young People: A Clinical Guide*. In this edition we have done things a little differently. Our aim remains to pull together current evidence for managing pain in children and young people (CYP) in an easily accessible format. However, we wanted the book to be seen as relevant to students and to members of interdisciplinary teams involved in managing children's pain around the globe. To reflect this broader focus, the editorial line-up now includes a medic (physician), a psychologist and two nurses. We have also extended the range of contributors, again drawing on international expertise across the multidisciplinary team. A new chapter has been added to ensure the book is applicable to those working in low- to middle-income countries (Chapter 15).

The first few chapters set the scene for effective multimodal pain management by focusing on the following:

- Why managing pain in children and young people is important.
- The anatomy and physiology of pain.
- Pain as a biopsychosocial phenomenon.
- Pharmacology of analgesic drugs.
- Pain assessment.

Given the new International Classification of Diseases (ICD)-11 definition of chronic pain, we have decided to include three shorter chapters in this edition rather than one longer one. These chapters focus on the prevention and treatment of chronic postsurgical pain, musculoskeletal pain, and headaches.

Other chapters pull together the current evidence for the prevention and treatment of nociceptive pain, neuropathic and visceral pain, procedural pain, neonatal pain, and paediatric palliative care.

Despite the extensive research that has been carried out over the past 25 years, CYP still do not receive evidence-based pain care. To address this issue, the final chapter covers how to effectively move forward with knowledge dissemination and implementation.

Multimodal Pain Management

Pain is a biopsychosocial phenomenon (see Chapter 4) and often has a spiritual element (Friedrichsdorf and Goubert 2020). Given this, the prevention and treatment of pain requires a multimodal approach (Figure 1.1). To make

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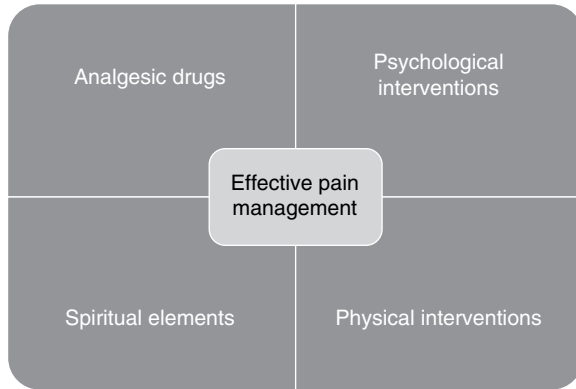


Figure 1.1 Components of effective multimodal pain management.

this explicit, one of the changes we have made to this edition is to integrate the evidence for physical and psychological pain-relieving interventions into the chapters focusing on

the prevention and treatment of pain. A brief description of physical and psychological pain-relieving interventions is provided in Tables 1.1 and 1.2. Physical and psychological strategies used with neonates are outlined in Chapter 13.

World Health Organization Pain Ladder

An integral part of multimodal pain management is the use of analgesic drugs to prevent and treat pain. The World Health Organization (WHO) (2020) has devised a two-step pain ladder to help guide decision-making in this context (Figure 1.2). The 2020 WHO ladder takes into account the fact that codeine is no longer recommended for use in CYP (Box 1.1).

Table 1.1 Physical pain-relieving interventions.

Active physical interventions	
Activity pacing and energy conservation	<ul style="list-style-type: none"> ■ Pacing involves reaching a balanced pattern of varied activity that is achievable on good and bad days without causing ‘crashes’ or increases in symptoms ■ The Royal College of Occupational Therapy provides useful advice about how to pace: https://www.rcot.co.uk/conserving-energy ■ Energy conservation is identified as a strategy for chronic pain management in the Canadian Pediatric Pain Management Standards (HSO 2023)
Physiotherapy and daily exercise	<ul style="list-style-type: none"> ■ Identified as a key strategy for chronic pain management by the Scottish Government (2018) and in the Canadian Pediatric Pain Management Standards (HSO 2023) ■ Seen as a key component of managing chronic pain in CYP (Caes et al. 2018; Harrison et al. 2019) ■ Involves individualised exercise programmes aimed at increasing muscle strength and flexibility ■ Likely to be more effective when combined with psychological therapies, e.g. cognitive behavioural therapy, and goal setting (Caes et al. 2018)
Relaxation	<ul style="list-style-type: none"> ■ Identified as a strategy for acute and chronic pain management in the Canadian Pediatric Pain Management Standards (HSO 2023) ■ The Scottish Government (2018) suggests relaxation is a low-risk intervention that should be considered in the management of chronic pain in CYP
Yoga	<ul style="list-style-type: none"> ■ Some evidence to support its use in chronic pain management (Harrison et al. 2019)

Table 1.1 (Continued)

Passive physical interventions	
Acupuncture	<ul style="list-style-type: none"> ■ Identified as a strategy for acute pain management in the Canadian Pediatric Pain Management Standards (HSO 2023) ■ The Scottish Government (2018) recommends the use of acupuncture for CYP with back pain or headache
Ice and heat	<ul style="list-style-type: none"> ■ Thermal applications identified as a strategy for chronic pain management in the Canadian Pediatric Pain Management Standards (HSO 2023)
Massage	<ul style="list-style-type: none"> ■ Identified as a strategy for chronic pain management in the Canadian Pediatric Pain Management Standards (HSO 2023)
Transcutaneous electrical nerve stimulation (TENS)	<ul style="list-style-type: none"> ■ Identified as a strategy for acute pain management in the Canadian Pediatric Pain Management Standards (HSO 2023) ■ The Scottish Government (2018) suggests that TENS is a low-risk intervention that should be considered in the management of chronic pain in CYP
Sensory and brain-based strategies	
Graded motor imagery and mirror therapy	<ul style="list-style-type: none"> ■ The process of thinking and moving without actually moving ■ Has been shown to be particularly effective when moving the injured body part is too painful (Ramsey et al. 2017)
Tactile stimulation or desensitisation	<ul style="list-style-type: none"> ■ Desensitisation techniques help to restore normal sensitivity and include varied exercises to increase tolerance to the feel of different tactile and thermal sensations on the affected body part (Ayling Campos et al. 2011) ■ The start of desensitisation can be difficult, as CYP experience increased discomfort during the application of sensory techniques (Ayling Campos et al. 2011) ■ No evidence to support its use in practice

Table 1.2 Psychological pain-relieving strategies.

Strategy	Description
Acceptance and commitment therapy (ACT)	<ul style="list-style-type: none"> ■ A type of psychotherapy that promotes acceptance to deal with negative thoughts, feelings, symptoms or circumstances ■ ACT also encourages increased commitment to healthy constructive activities that uphold CYP's values or goals ■ More information is available at Glashofer (2022)
Biofeedback	<p>The Institute for Chronic Pain (2017) describes biofeedback as:</p> <ul style="list-style-type: none"> ■ Enabling individuals to learn how to change physiological activity for the purposes of improving health and performance ■ Using precise instruments to measure physiological activity, e.g. brainwaves, heart function, breathing, muscle activity and skin temperature ■ Using this feedback to support the desired physiological changes ■ Over time, these changes endure without continued use of an instrument (Schwartz and Andrasik 2016) ■ More information about biofeedback can be found in this video: https://www.facebook.com/watch/?v=638866001271911&extid=NS-UNK-UNK-UNK-IOS_GK0T-GK1C&ref=sharing

(Continued)

Table 1.2 (Continued)

Strategy	Description
Cognitive behavioural therapy (CBT)	<ul style="list-style-type: none"> ■ MIND (2022) describes CBT as a type of talking therapy that teaches coping skills for dealing with different problems (pain, mood, etc.) ■ CBT is not a single type of treatment; rather it is a class of multi-component therapies based in the cognitive behavioural theoretical model (Palsson and Ballou 2020) ■ CBT focuses on how your thoughts, beliefs and attitudes affect your feelings and actions ■ Can be delivered face to face or online (Fisher et al. 2019) ■ More information about CBT can be seen in this video: https://www.youtube.com/watch?v=9c_Bv_FBE-c
Distraction	<ul style="list-style-type: none"> ■ Great Ormond Street Hospital (2020) define distraction as: An approach that helps a child or young person cope with an invasive procedure or if they are facing a difficult experience in the hospital. It can also be helpful if a child is in pain or discomfort. ■ More information is available on their website: https://www.gosh.nhs.uk/conditions-and-treatments/procedures-and-treatments/distraction/ ■ Nowadays digital distraction is often used, e.g. virtual reality or video games (Gates et al. 2020)
Exposure-based therapies	<ul style="list-style-type: none"> ■ A type of CBT ■ Based on the concept that avoidance behaviours can exacerbate symptoms ■ Through exposure CYP are encouraged to face sensations and situations that cause them pain or make them fearful, therefore alleviating their distress (Person and Keefer 2021)
Hypnotherapy	<ul style="list-style-type: none"> ■ Relies on a special mental state (hypnosis) induced with the help of verbal guidance from the therapist to facilitate receptivity to therapeutic suggestions ■ While the patient is in a receptive state, the therapist uses <i>deepening techniques</i> and then delivers post-hypnotic suggestions that help facilitate changes in emotions, thoughts and physical symptoms (Palsson and Ballou 2020)
Mindfulness	<ul style="list-style-type: none"> ■ Involves focusing on bringing attention to the present moment (Harrison et al. 2019)
Psychotherapy (counselling)	<p>Psychotherapy can help someone in pain to:</p> <ul style="list-style-type: none"> ■ Express their feelings and process them in a safe and supportive relationship ■ Gain deeper insight into the issues they face ■ Talk about things in a confidential environment that they might not feel able to discuss with anyone else ■ Find better ways to cope with feelings and fears ■ Change the way they think and behave to improve their mental and emotional well-being ■ Improve relationships in their life, including with themselves ■ Make sense of any clinical diagnoses they have been given by understanding what has happened to them ■ Heal from trauma ■ For more information, see https://www.psychotherapy.org.uk/seeking-therapy/what-is-psychotherapy/
Sleep hygiene strategies	<ul style="list-style-type: none"> ■ Many young people with chronic pain report disturbed sleep (Badawy et al. 2019) ■ Sleep hygiene is an important component of managing chronic pain ■ More information can be found on the following two websites: <ul style="list-style-type: none"> ■ https://www.gosh.nhs.uk/conditions-and-treatments/procedures-and-treatments/sleep-hygiene-children/ ■ https://www.sleepfoundation.org/sleep-hygiene