

Development of an Interdisciplinary Pediatric Pain Rehabilitation Program: The First 1000 Consecutive Patients

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Abstract

Objective: To describe the development of a clinically and financially successful interdisciplinary pediatric pain rehabilitation program at a large tertiary academic medical center and present demographic and clinical information on the first 1000 patients.

Patients and Methods: All patients who were consecutively admitted to this program between October 1, 2008, and March 31, 2015 were included in this review. The patients ranged in age from 9 to 24 years. The program is a 3-week, hospital-based outpatient treatment program that requires substantial parental involvement. At admission and discharge, patients completed the Center for Epidemiologic Studies of Depression Scale for Children, the Functional Disability Inventory, and the Pain Catastrophizing Scale for Children. Opioid use was also assessed.

Results: At admission, patients reported substantial pain-associated disability and depressive symptoms; they had elevated pain catastrophizing scores, and 16% were taking opioids. Primary sites/types of pain included head, abdomen, and generalized. Functional disability scores decreased significantly, from 27 to 9 after the program ($P < .001$). Depression scale scores improved from 27 to 14 ($P < .001$). Pain catastrophizing scores decreased significantly, from 26 to 14 ($P < .001$), at discharge from the program. All but 4 patients successfully tapered off of all opioid use by the conclusion of the program.

Conclusion: Participation in a multidisciplinary pediatric pain rehabilitation program can be successful, with significant decreases in disability, depression symptoms, and pain catastrophizing, as well as discontinuation of opioid use.

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Chronic pain is common in pediatric patients. Approximately 25% to 37% of children and adolescents report frequent and severe pain.^{1,2} Some of these patients have pain-related disability, absences from school and social activities, and disrupted eating routines, sleep, and mood.^{2,3}

An interdisciplinary approach to pain rehabilitation was developed more than 40 years ago and has been studied extensively in adults.⁴⁻⁷ These programs have provided significant lessening of pain severity, improvements in physical functioning and mood, and discontinuation of opioid use across various pain diagnoses and locations.⁸⁻¹⁰ Given their proven clinical and cost effectiveness,^{7,11} these programs are now considered the treatment of choice for adults who have chronic pain.

Interdisciplinary rehabilitation programs to provide similar pain management strategies for children and adolescents have been developed only recently.¹²⁻¹⁷ Despite awareness that children and adolescents need access to intensive treatment programs, availability is limited.¹⁸

This article describes the development of an interdisciplinary pediatric pain rehabilitation program and reviews the first 1000 consecutive patients treated. Functioning and psychological distress of the patients were assessed at admission and discharge from the 3-week program. Patients were expected to experience improvement on these measures at discharge. Young adults in a subsample treated in this program were expected to have similar improvement.

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PROGRAM DEVELOPMENT MODEL

In 2008, a pilot pediatric pain rehabilitation program was conducted in response to growing demand for treatment of adolescents who have chronic pain. Initial attempts to treat teenagers in an adult interdisciplinary pain rehabilitation program were suboptimal because the adolescents required developmentally appropriate teaching, activities, goals, and parent involvement. The 3-week program described here provided intensive, outpatient, hospital-based treatment for adolescents and young adults who had severe chronic pain and other chronic physical symptoms such as fatigue. The program resides within a large, tertiary, academic medical center, which allows ongoing collaboration and support from colleagues across medical, surgical, and psychiatric subspecialties. Psychiatric and medical comorbidities could often be addressed within this interdisciplinary structure.

The program is based on an empirically supported interdisciplinary treatment structure initially designed for adults who have chronic pain. Programs with this structure grew out of the early behavioral (respondent and operant) models of managing chronic pain.^{19,20} These factors, along with cognitive behavioral therapy (CBT) that targets patients' beliefs, attitudes, and expectations, provide the basis for interdisciplinary pain rehabilitation programs that address adaptation to chronic pain and the use of self-management strategies.²¹ The success of adult pain rehabilitation programs seems to result from the interdisciplinary approach, as well as a focus on restoring functioning rather than alleviating pain.^{20,21} In developing the pediatric program, we anticipated that these elements would similarly benefit children, adolescents, and young adults, but programming was modified to be more developmentally appropriate, and parents were included to increase the likelihood that patients would maintain progress at home. Research has long stressed the importance of parents in reinforcing behavior in children.^{22,23}

Young adults are included in this program if they were not yet living independently because of their chronic health problems. In an effort to report on all 1000 consecutive patients admitted to the program, data for these young adults and a small pilot group of latency-age children are included here.

PROGRAM STRUCTURE

The program's interdisciplinary treatment team is co-led by a pain physician and a pain psychologist and included colleagues in physical therapy, occupational therapy, advanced practice nursing, registered nursing, recreational therapy, chaplaincy, and dietetics. The programming runs Monday through Friday, from 8:00 AM to 5:00 PM, over a 3-week period. When patients and parents first arrived, they participated in 2 days of comprehensive assessment by pain psychologists, nurses, and physical and occupational therapists. From these assessments, individualized goals were developed to increase functioning, and potential barriers to treatment were identified, such as comorbid depression, anxiety, and/or learning struggles. Then patients and parents worked on treatment goals within a group setting, with individual meetings with various health care professionals as needed. They attended groups that provided a curriculum of structured CBT, physical therapy, occupational therapy, relaxation strategies, and biofeedback.

A parent was required to accompany each child and to attend classes with and without the child over the course of the 3 weeks and received approximately 60 hours of CBT skills training and intervention. Research has revealed that parents of children with chronic pain experience high levels of anxiety and depression themselves, as well as parenting stress and poorer quality of life.²⁴⁻²⁶ On admission of their child to the program, parents reported substantial levels of depression, pain catastrophizing, and feelings of being overprotective parents. The goals of the parenting program included reducing psychological distress in parents and improving effective parenting of their chronically ill children. The children learned more effective strategies for managing pain and other physical symptoms, while improving their ability to function.

Although ample evidence suggests that parents of a child who struggles with pain are distressed^{24,27} and that parent behaviors predict functional disability in children with pain,^{28,29} only one study has examined a parent intervention within the context of intensive pediatric pain rehabilitation.³⁰ This study revealed positive changes in parent behavior regarding their children's pain and

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