

# Pain rehabilitation in the time of COVID-19: Use of telehealth for pediatric intensive interdisciplinary pain treatment

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## Background

- Pain rehabilitation programs, also known as Intensive Interdisciplinary Pain Treatment (IIPT), offer treatment that can reduce healthcare utilization/costs, improve functioning and quality of life.<sup>1-3</sup>
  - Treatment is commonly provided in person, either inpatient or outpatient.
- The COVID-19 pandemic impacted the delivery of pediatric pain management treatment, particularly for IIPTs.<sup>4</sup>
  - Telehealth became commonplace, following shelter-in-place state mandates
  - This presented unique challenges for IIPTs given that such programs require daily, coordinated care with multiple providers.<sup>5</sup>
  - Preliminary research demonstrated that virtual pediatric pain care is effective.<sup>6</sup>
  - More research is needed to examine the efficacy of virtual pediatric IIPT.<sup>6-7</sup>

## Aims

- This project examined the utility of telehealth as a method of delivering IIPT in a pediatric setting during the COVID-19 pandemic.
- This study aimed to compare outcomes for youth treated in an IIPT in-person prior to the pandemic and those treated primarily via telehealth during the pandemic to determine if telehealth is a comparable method of delivering care.

## Methods

- Setting:** The Pediatric Pain Rehabilitation Program (PReP) is an intensive day-treatment outpatient pain management intervention, providing interdisciplinary rehabilitative therapy to improve quality of life for children living with chronic pain.
- Participants:**
  - N = 40; (Pre-pandemic group n=24; Pandemic group n=16).
  - Ethnicity: 75% Non-Hispanic; 12.5% Hispanic; 12.5% Unknown/Declines to State
  - Race: 62.5% Caucasian; 12.5% Asian; 12.5% Other; 12.5% Unknown/Declines to State
  - Age: Range = 8-18, Average age for pre-pandemic group (M=13.79) and pandemic group (M=13) was comparable.
  - Sex: Pre-pandemic group, 87.5% female; Pandemic group, 68.75% female.
  - Average Weeks In Program: 7.04
- Approach:**
  - A retrospective review was conducted for youth in IIPT from 2018 to 2021.
  - Participants completed the Pediatric Collaborative Health Outcomes Information Registry (Peds-CHOIR) at the start of IIPT and at conclusion of treatment.
  - Outcome variables included average pain, mobility, pain interference, fear of pain, pain acceptance, pain catastrophizing, and self-efficacy.
  - Exploratory analyses examined means for youth treated before the pandemic compared to those treated during pandemic.

## Results

- The average length of stay in weeks for the pre-pandemic group and pandemic group was similar (see Figure 1).
- The pre-pandemic group demonstrated higher initial scores at the start of IIPT, indicating poorer baseline pain and function.
- Proxy results for both groups demonstrated similar end point scores (see Figure 1).
- Results demonstrated that youth in both groups had similar improvements across most outcome measures (see Figure 1).
- Average change scores (i.e., improvement) from baseline to post-treatment in the pre-pandemic group compared to average change scores in the pandemic group revealed no significant differences across most measures, with the exception of scores in pediatric pain interference, pediatric chronic pain acceptance, and fear of pain (see Figure 1).

## Results: Pre & Post Treatment



## Discussion

- Treatment in IIPTs for youth with chronic pain has typically occurred in-person requiring families to relocate within close proximity for daily treatment.
- This study demonstrated that an alternative method of delivering services during the pandemic resulted in similar improvements comparing baseline and post-treatment across most domains on self-report measures, particularly on proxy measures.
- Some domains demonstrated greater improvements for in-person treatment, which may be reflective of unequal sample sizes, though further research is warranted.
- Although in-person IIPT continues to be the gold standard of care, telehealth may allow flexibility to provide critical care while reaching a broader population, thus reducing health disparities (i.e., psychosocial, familial, school/work, housing, and financial burdens).

## References

- [1] Evans, J. The cost effectiveness of intensive interdisciplinary pediatric chronic pain rehabilitation. *J Pediatr Psychol*. 41(8):849-56. [2] Maynard, C. S., et al. (2010). Interdisciplinary behavioral rehabilitation of pediatric pain-associated disability: retrospective review of an inpatient treatment protocol. *J Pediatr Psychol*. 35(2):128-137 [3] Logan, D. E., et al. (2012). A day-hospital approach to treatment of pediatric complex regional pain syndrome: Initial functional outcomes. *Clin J Pain*. 28(9):766-74. [4] Killackey, T., et al. (2021). COVID-19 Pandemic Impact and Response in Canadian Pediatric Chronic Pain Care: A National Survey of Medical Directors and Pain Professionals. *Canadian Journal of Pain*, 5(1), 139-150. [5] D'Alessandro, L. N., et al. (2020). Rapid mobilization of a virtual pediatric chronic pain clinic in Canada during the COVID-19 pandemic. *Canadian Journal of Pain*, 4(1), 162-167. [6] Birnie, K. A., et al. (2021). Best practices for virtual care to support youth with chronic pain and their families: a rapid systematic review to inform health care and policy during COVID-19 and beyond. *Pain Reports*. 6(2), e935. [7] Eccleston, C., et al. (2020). Managing patients with chronic pain during the COVID-19 outbreak: considerations for the rapid introduction of remotely supported (eHealth) pain management services. *Pain*. 161(5), 889-893.

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Figure 1

The mean difference from baseline to end of Tx is not significantly different between groups  
The mean difference from baseline to end of Tx is significantly different between groups (P<0.05)