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Child Postoperative Pain: Impact of Child Temperament and Parent Mood on Pain After Surgery

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INTRODUCTION

- Around 80% of children undergo moderate to severe pain after surgery (Rabbitts, Zhou, Groenewald, Durkin, & Palermo, 2015). While the pain from the procedure itself may lead to a significant amount of pain, various psychosocial factors contribute to exacerbations of this pain (Reid, Chambers, McGrath, Finley, 1997).
- A child's inborn personality traits and style of interaction with his/her environment are known as temperament. Children who are less sociable and more distress-prone (e.g., crying, tantrums) are more likely to have higher anxiety levels before and after surgery (Reid, Chambers, McGrath, Finley, 1997).
- Children with higher anxiety are less likely to utilize more adaptive coping strategies such as seeking social support (Quinonez, Santos, Boyar, & Cross, 1997). Additionally, postoperative pain levels increase for those with higher anxiety levels (Reid, Chambers, McGrath, Finley, 1997).
- Parent pain ratings do not always reflect true child pain. A parent's emotional state may change how they perceive child pain. For example, parents who have more negative moods or are more distressed tend to report their child's pain as worse (Reid, Chambers, McGrath, Finley, 1997).
- Parents play a crucial role in treatment after surgery for their child. A parent's mood exerts a strong influence on a child's pain recovery (Rabbitts, Zhou, Groenewald, Durkin, & Palermo, 2015). Parents who are more on edge or are depressed have a negative impact on a child's pain after surgery (Palermo & Eccleston, 2009).
- Given this, the purpose of this study is to see how the intensity of child temperament factors affect postoperative pain. We predict that lower sociability and greater levels of distress will be associated with higher levels of pain. Further, we predict that parent mood will moderate the relationship between child temperament and postoperative pain.

METHOD

- **Participants**
 - 112 children between the ages 2-13 who underwent elective surgery at the Children's Hospital of Orange County (CHOC)
- **Procedures**
 - Prior to the child's surgery, parents were asked to complete online surveys through Qualtrics survey software at CHOC, where the parent reported their mood and their child's temperament factors.
 - Parents were also emailed Qualtrics survey links to complete surveys at home reporting on child pain on postoperative Days 1, 3, and 7.

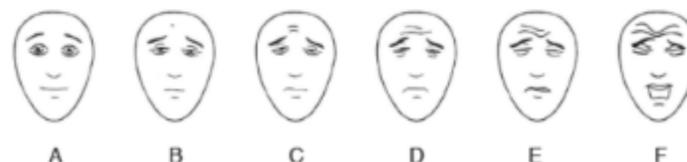
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MEASURES

- **Emotionality, Activity, Sociability Temperament Survey -** recorded by the parent using the EAS Temperament Survey (Reid, Chambers, McGrath, Finley, 1997)
Used 2 subscales:
 1. **Emotionality** – measure of distress
 - e.g. "child cries easily"
 - Consists of 5 items
 2. **Sociability** – measure of preference for being with others rather than being alone
 - e.g. "child makes friends easily"
 - Consists of 5 items

(1 = not characteristic or typical of child, 5 = very characteristic or typical of child)
Scores are added for the five items on each scale and divided by 5.
- **POMS Scale** – Profile of Mood States of 9 negative affect adjectives assessing parent negative mood within the last 24 hours (Terry, Lane, Fogarty, 2003)
 - Used **3 negative affect** subscales which includes anger, anxiety, and depression
Ex. Negative Affect – **Anger**
e.g. "Hostile" or "Resentful"
 - Scores of responses to each subscale are added within each subscale and are then added to create one negative mood variable
 - Using an intensity rating scale (0 = not at all, 4 = extremely)
- **Parent Postoperative Pain Measure (PPPM) scale** – 15-item Postoperative Pain Measures reported by the parent (Chambers et al. 1996)
 - Administered days 1 (N = 50) , 3 (N = 40), and 7 (N = 33) after surgery
 - Number of items marked as "yes" were summed and a score of 6 signifies significant pain
 - Consists of a list of behaviors that child may or may not have exhibited (yes/no)
 - e.g. "Whine or complain more than usual?", "Cry more easily than usual?"
- **Child Pain: Faces** - a self-report measure of pain intensity used by the child (Hicks et al. 2001)
 - Visual pain scale scores the sensation of pain through different faces (0 = No Pain (A), 10 = Very Much Pain (F))
 - *Question asked:* Mark the letter that corresponds with the face that is selected.



RESULTS

- There was no main effect of child temperament factors on child pain or parent pain measures ($ps > 0.05$). In other words, emotionality or sociability were not significantly associated with parent pain measures or child pain after surgery.
- The effect of a child's emotionality on pain measured by the parent does not depend on a parent's negative mood, Day 1: $b = -0.03, t = 1.31, p > 0.05$, Day 3: $b = 0.00, t = 0.093, p > 0.05$, Day 7: $b = 0.00, t = 0.01, p > 0.05$.
- The effect of a child's sociability on pain measured by the parent does not depend on a parent's negative mood, Day 1: $b = -0.15, t = -0.50, p > 0.05$, Day 3: $b = 0.00, t = 0.654, p > 0.05$, Day 7: $b = 0.00, t = 0.01, p > 0.05$.
- The effect of a child's emotionality on child self-reported pain after surgery does not depend on a parent's negative mood, Day 1: $b = 0.04, t = 0.06, p > 0.05$, Day 3: $b = -0.01, t = -1.30, p > 0.05$, Day 7: $b = 0.03, t = -0.01, p > 0.05$.
- The effect of a child's sociability on child self-reported pain after surgery does not depend on a parent's negative mood, Day 1: $b = 0.02, t = 0.08, p > 0.05$, Day 3: $b = 0.00, t = 0.217, p > 0.05$, Day 7: $b = -0.01, t = -0.746, p > 0.05$.

CONCLUSION

- In the current study, we did not find associations between child temperament and child postoperative pain after surgery. Additionally, parent mood did not moderate the relationship between child temperament and pain.
- Previous research has shown that child temperament affects child pain in the hospital. It is possible that the impact of child temperament and parent mood on pain is less potent once the child comes home from surgery.
- While there was a fair sample size on Day 1, the sample size did decrease significantly over the next seven days which may have contributed to the non-significant findings. Pain in children was also low at home after surgery among all three days. This lack of variance may have led to the non-significant associations as well.
- Future research is needed to examine these findings in a larger sample size of children. Further investigation on the influence of temperament and mood on child pain is important to discover optimal methods of treating pain in children. Given the significant impact of postoperative pain on these children after surgery, progress in children's pain management after surgery is crucial.