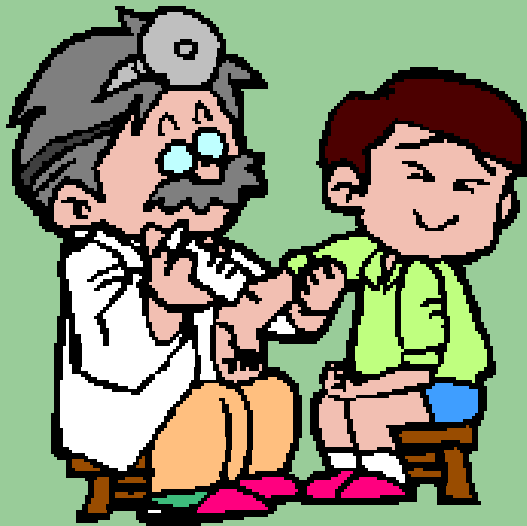


The Role of Anxiety in the Prediction, Experience, and Recall of Immunization Pain



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Why Study Needles?



Needles are:

- An almost universal experience during childhood
- One of the most common and feared medical procedures experienced by children
- A naturally occurring painful stimulus

Individual Differences in Pain

- Parents and health professionals report significant differences in the amount of pain demonstrated by children undergoing medical procedures involving needles
- Individual differences in pain are present early in development (Temperament? Anxiety? Genetics?)
- Anxiety= painful or apprehensive uneasiness of mind usually over an impending or anticipated ill (Merriam-Webster Dictionary)

The Present Study

- Subset of dissertation
- Relatively little literature involving pain prediction and pain recall in children
- Inclusion of self-report ratings of anxiety in a clinical sample of healthy children

Method

- Participants included 95 children (47 boys, 48 girls) 4- to 7-years-old (and their parents)
- All children received preschool booster shots:
 - Measles, Mumps, Rubella (MMR): n= 9
 - Diphtheria, Pertussis, Tetanus, Poliomyelitis (DPTP): n= 3
 - Both MMR and DPTP: n= 83
- Most children were accompanied by their mothers
- All immunizations were performed by registered nurses

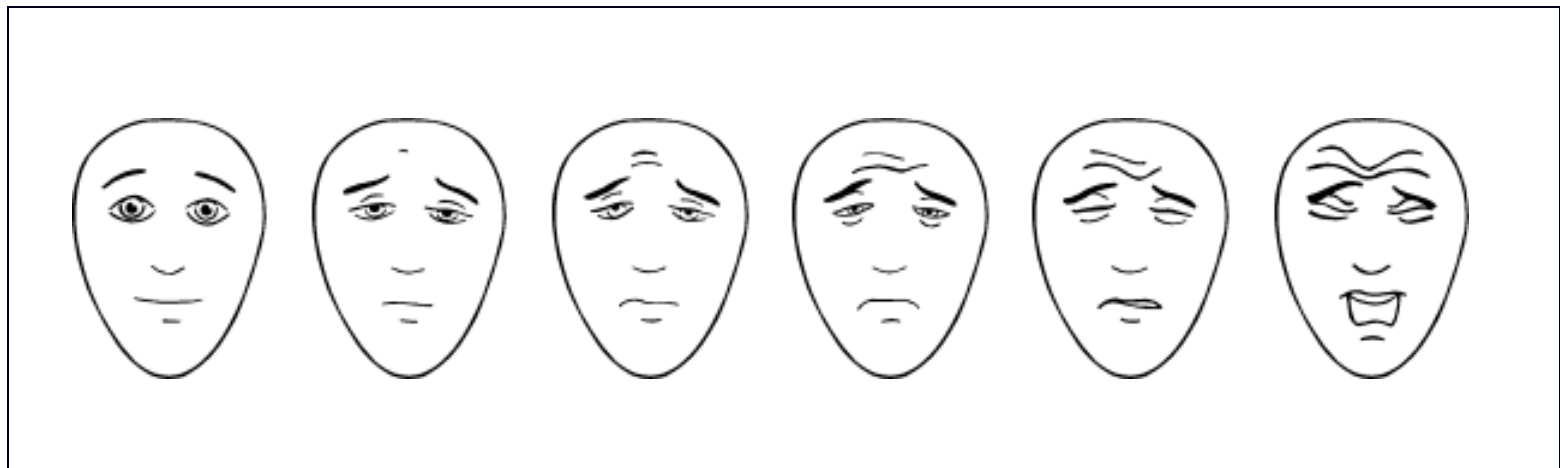
| | Parent | Child | Researcher | Nurse |
|-------------------------------|---|---|---|--|
| Before the needles | <ul style="list-style-type: none"> - Child's Anxiety, Hunger, Fatigue (VAS) - Own Anxiety (VAS) - Predicted Pain Intensity (FPS-R) | <ul style="list-style-type: none"> - Anxiety (CAPS) - Expected Pain (FPS-R) | | |
| Immediately after the needles | <ul style="list-style-type: none"> - Child's Experienced Pain Intensity (FPS-R) - Rating of comfort and familiarity with nurse (Likert scale) | <ul style="list-style-type: none"> - Experienced Pain Intensity (FPS-R) | <ul style="list-style-type: none"> - Behavioural Rating of Distress (CHEOPS) - Child's Experienced Pain Intensity (FPS-R) | <ul style="list-style-type: none"> - Child's Experienced Pain Intensity (FPS-R) |
| Six weeks after the needles | <ul style="list-style-type: none"> - Recalled Rating of Child's Pain Intensity (FPS-R) | <ul style="list-style-type: none"> - Recalled Rating of Pain Intensity (FPS-R) | | |
| Other | <ul style="list-style-type: none"> - Demographics - General temperament (EAS) - Pain sensitive temperament (STIP) - Measure of previous pain experience | | | |

Visual Analogue Scale (VAS)

At the present moment, how would you rate your *child's* level of ***anxiety***?



Faces Pain Scale- Revised (FPS-R)

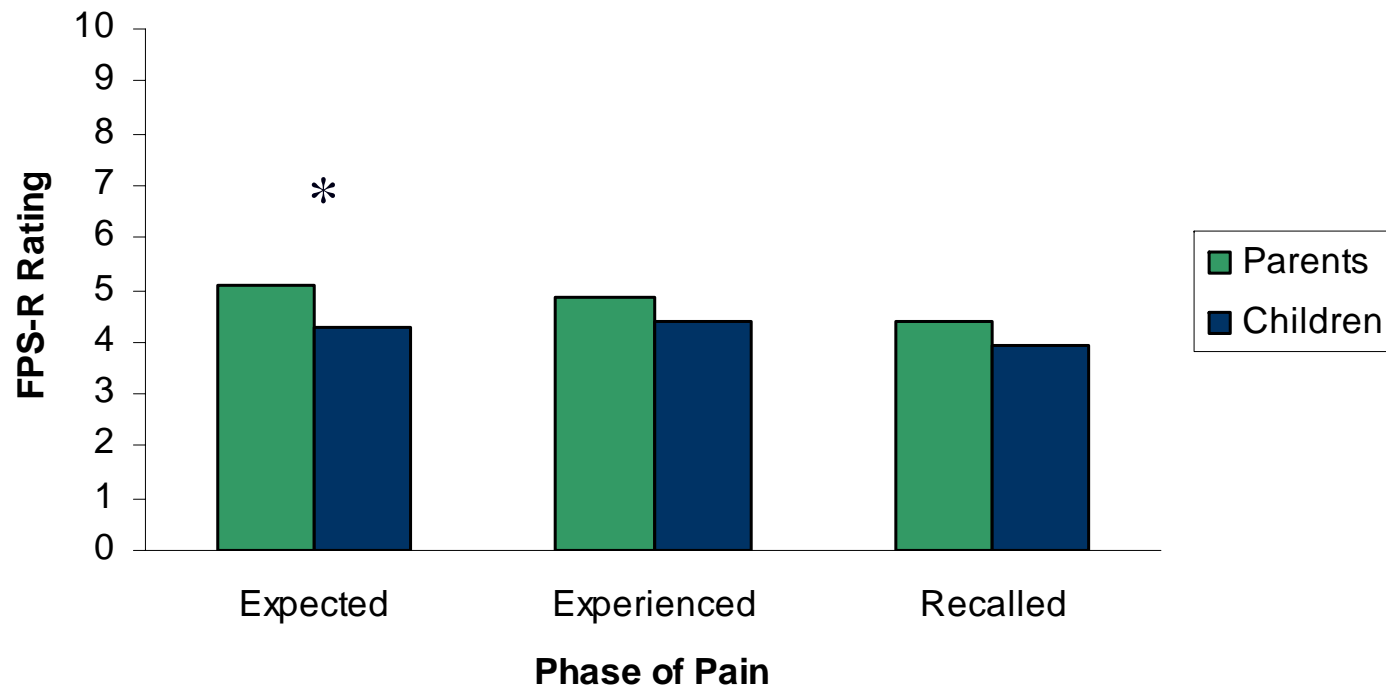


Hicks et al. (2001), *Pain*, 93, 173-183



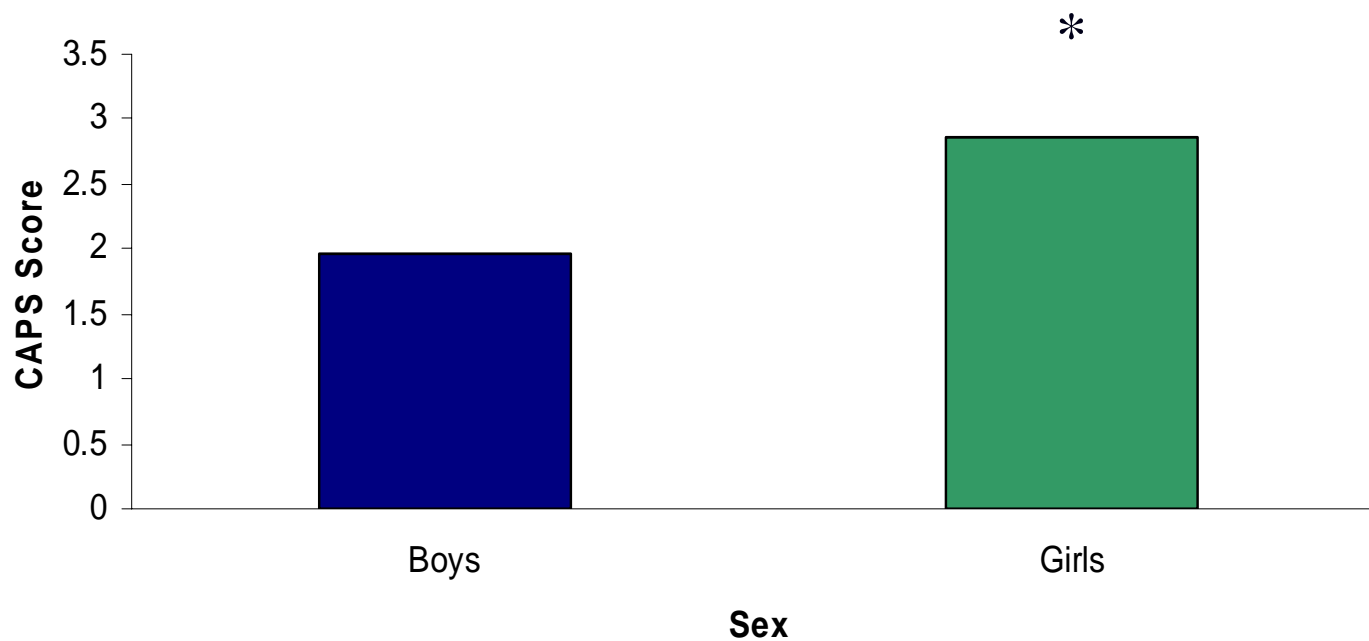
Results

Pain Ratings (Faces Pain Scale-Revised)



* $t(67) = -2.14, p \leq .05$

Sex Differences in Anxiety

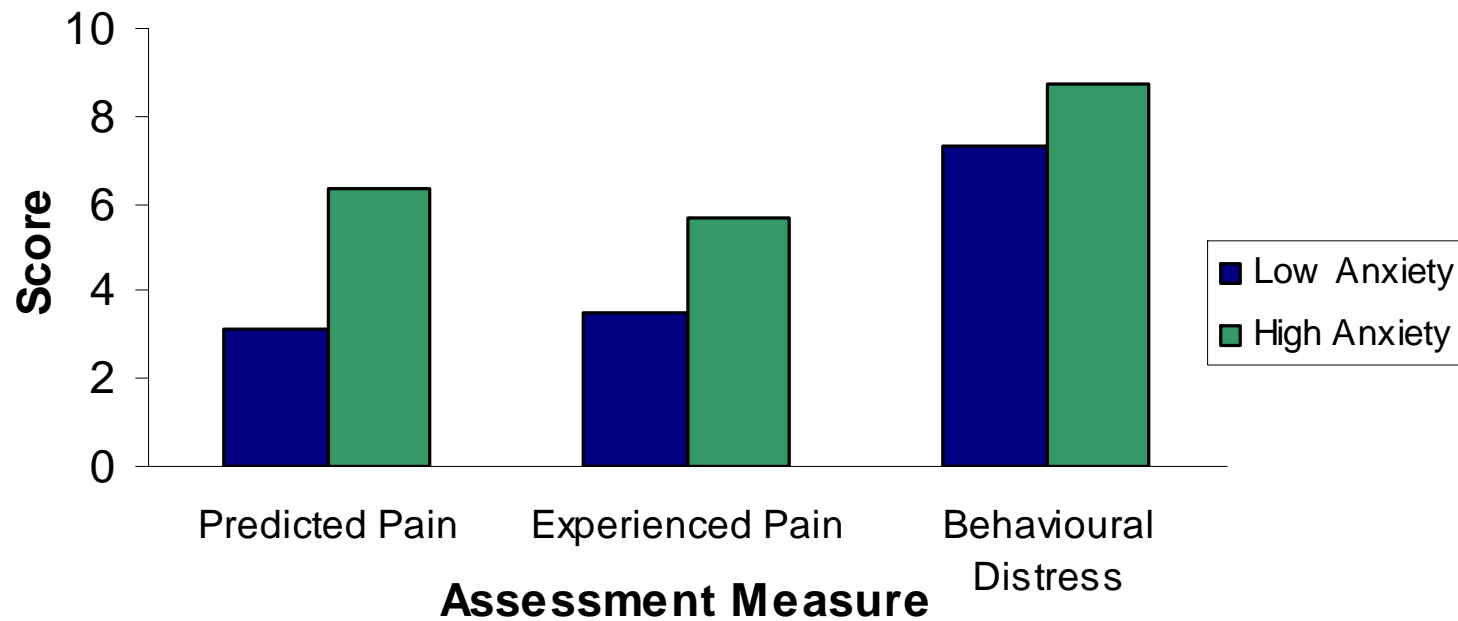


* $t(91) = -3.26, p \leq .01$

Results (Continued)

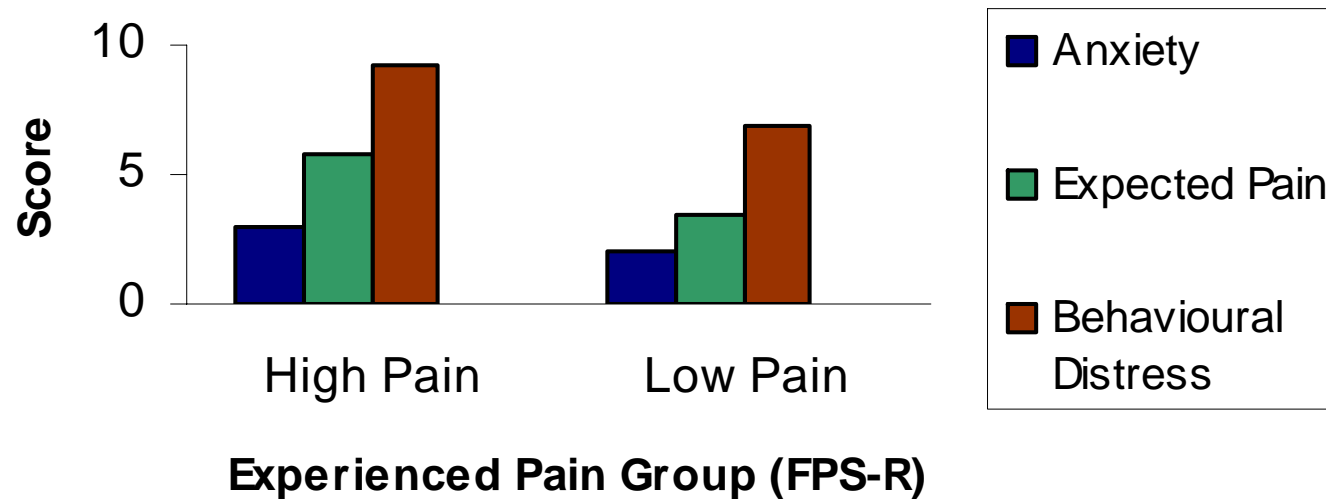
- Children's anticipatory anxiety scores:
 - Decreased with age
 - Positively related to their predicted pain intensity, experienced pain intensity, and the intensity of pain they recalled approximately six weeks after the needles
- Parents' self-reported anxiety, and their ratings of children's anxiety, correlated with their predictions of children's needle pain

Group Differences in Anxiety*



* $p \leq .02$ for all group comparisons

Group Differences in Clinically Significant Pain



- $p \leq .01$ for all group comparisons
- Same patterns for children's self-report and parental perception of pain

Clinical Implications and Directions for Future Research

- Individual differences can be identified that are related to variation in children's pain prediction, experience, and recall. Therefore:
 - Based on temperament/anxiety, can specific children (or parents) be targeted for intervention?
 - Do parents reassure anxious children more? Does this lead to more pain?
 - Do different temperaments elicit different behaviour from parents/staff?

CAMPIS-R (Blount et al., 1997)

Parent/Staff COPING

promoting:

- Nonprocedural talk to child
- Humour to child
- Commands to use coping strategies

Parent/Staff DISTRESS

promoting:

- Reassuring comments
- Apologies
- Criticism
- Giving control to child
- Empathic comments

CAMPIS-R (Blount et al., 1997)

Parent/Staff COPING

promoting:

- Nonprocedural talk to child
- Humour to child
- Commands to use coping strategies

Used less often with
difficult to engage
children?

Parent/Staff DISTRESS

promoting:

- Reassurance
- Apologies
- Criticism
- Giving control to child
- Empathic comments

CAMPIS-R (Blount et al., 1997)

Parent/Staff COPING

promoting:

- Nonprocedural talk to child
- Humour to child
- Commands to use coping strategies

Parent/Staff DISTRESS

promoting:

- Reassurance
- Apologies
- Criticism
- Giving control to child
- Empathic comments

Used more often with highly anxious children?

Summary of Findings

- Immunizations were expected to be, and were, moderately painful events for many children
- Anticipatory anxiety was higher for girls and younger children
- Anticipatory anxiety was positively correlated with children's expected, experienced, and recalled pain
- Children considered to be highly anxious before the needles provided significantly higher expected pain and experienced pain intensity ratings

Summary of Findings

- Children who experienced clinically significant levels of needle pain scored higher on anticipatory anxiety and expected pain
- Learning about the interaction between children's individual differences variables and adult behaviour during medical procedures will be an important domain for future study

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QUESTIONS AND COMMENTS

