

The perception and evaluation of other's pain in children

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Why is it important to perceive and understand pain cues in others ?

- Facial expression of pain is a strong social signal (Williams, 2002)
- There is evidence that rudiments of the capacity to perceive distress and to empathize with others are present at a very early age (Lepage & Théoret, 2007).

EMPATHY

- **Affective sharing:** Emotion in other's automatically activate the representation of this emotion in the observers
- **Cognitive/controlled process:** to control the autonomic response and take the context into account.

(Decety & Jackson, 2004)

The development of pain perception abilities in children

- Empathic reaction to another's pain presuppose the ability to detect pain cues...
- What do we know? (Deyo, Prkachin & Mercer, 2004)
 - 5-6 years old: they can detect facial expressions of pain
 - Sensitivity to pain intensity develops until 12 years old

Facial expressions Vs Hands in context?

- Is perceiving enough? Can children evaluate pain intensity with accuracy?

Objectives

- The purpose of this study is to determine if children between 6 and 12 years old can detect the presence of pain in facial expressions and from hands in painful context?
- If so, can they use a numerical scale to evaluate intensity?
- Is there is a link between the pain task and empathy?

Method

- **Participants N = 63**

- Three groups: mean age (sd)
 - First Grade : n = 21 6,74 (0,45)
 - Third Grade : n = 22 8,87 (0,52)
 - Sixth Grade : n = 22 11,64 (0,49)

- **Material**

- Interpersonal Reactivity Index (IRI) questionnaire (Davis, 1980)
 - The IRI version filled by a parent: 28 questions on empathy
 - 4 subscales:
 - Personnal Distress
 - Empathic concerns
 - Perspective taking
 - Fantasy

Method

- **Material**

- Pain Task

- 112 dynamic stimuli (3 pictures presented respectively, 1000, 200 and 1000 ms)

- Conditions: Hands and Faces

- For Hands : Pain and No Pain (neutral)

- For Faces: 4 pain levels *a priori* : No pain, low, moderate and high.

- Numerical Pain intensity scale : 0 = No pain to 10 = The worst pain imaginable

- **How much pain do you see in these pictures?**









Aucune
Douleur

Douleur la plus
intense possible







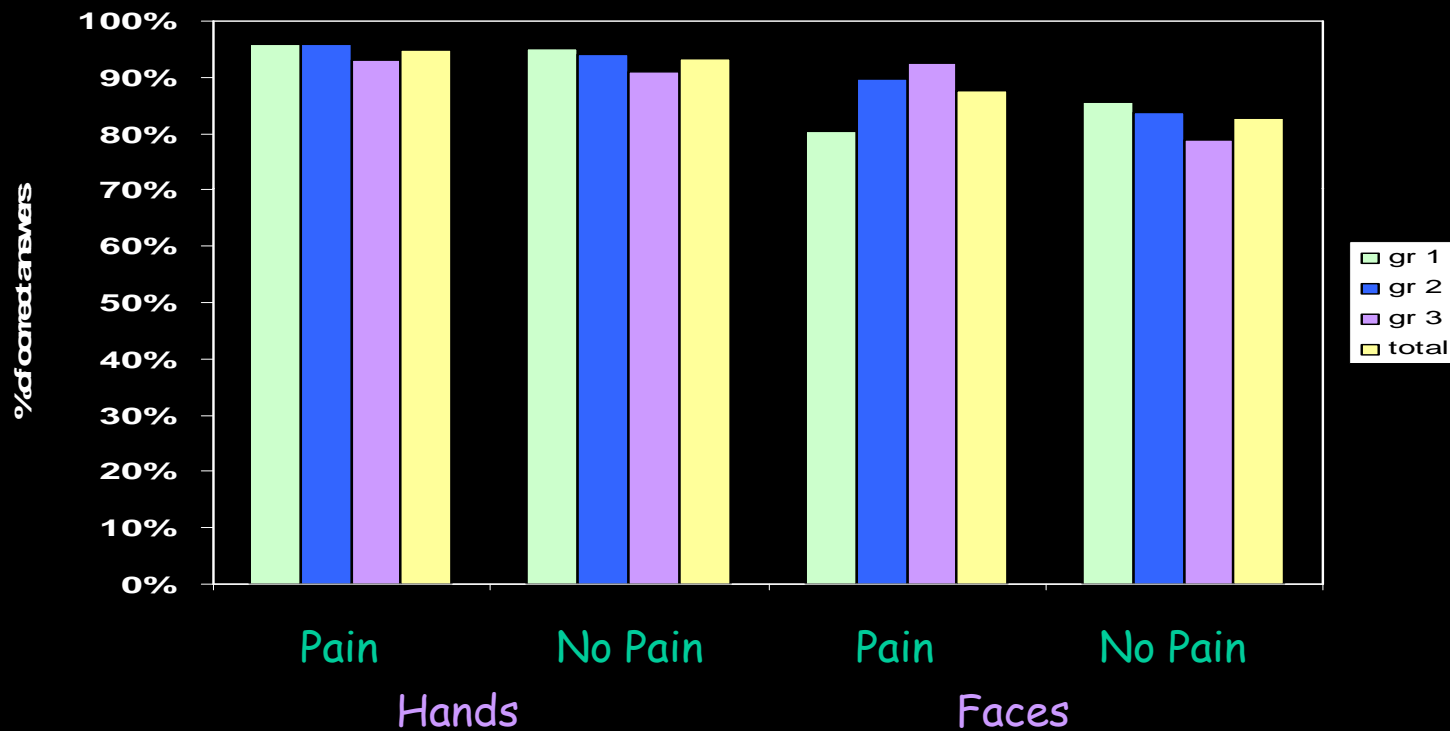


Aucune
Douleur

Douleur la plus
intense possible

Results: Pain Task

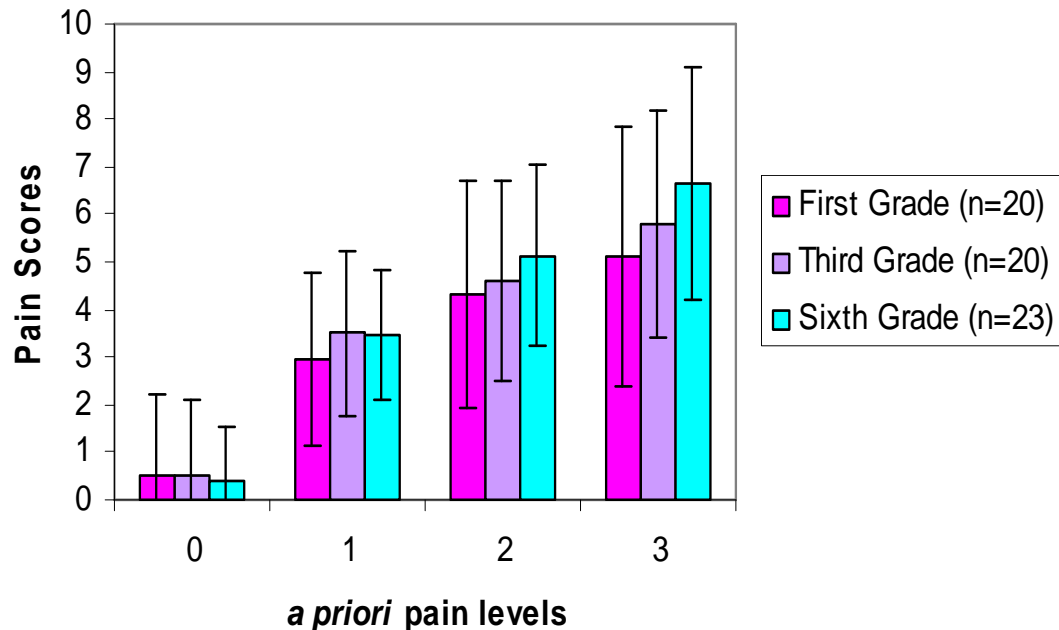
% of correct answers



Correct answers : *No Pain = 0* *Pain = 1 to 10*

Results Pain Task - Faces

Means pain scores (0-10) attributed to Faces stimuli



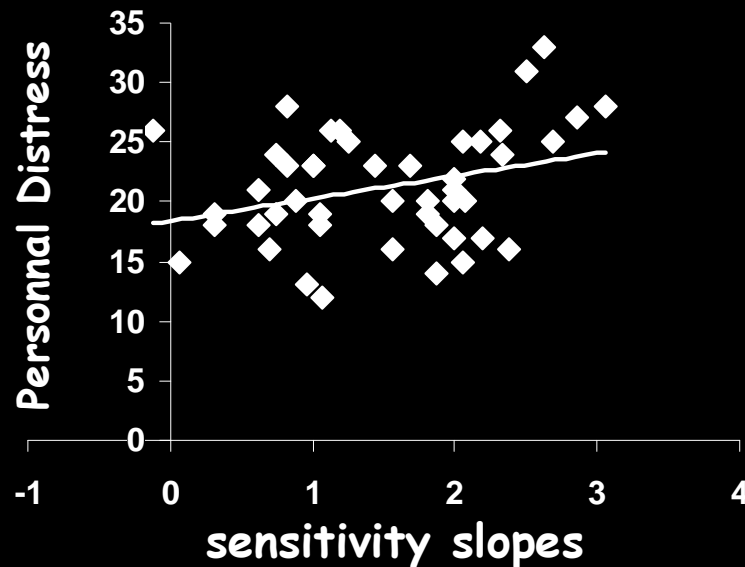
ANOVA
(Pain levels 3 X 3 groups)

- Pain effect ($p < 0$)*
- Group effect ($p = .272$)
- Interaction: ($p = .170$)

* Contrasts = all levels differ from each others at 0.05.

Results: correlations sensitivity to pain and Empathy

- Pain level's slopes = indicate sensitivity to pain intensity
 - Mean scores attributed to faces (Levels 1, 2 and 3) are used to calculate one slope per participant



Correlation between
participant's slopes and
IRI scale's and total
scores

Personal Distress correlate (+)
($r = 0.312 = \text{low}$)

Conclusions

- Can children detect the presence of pain in facial expressions and from hands in painful context?
 - Yes: Hands and Faces stimuli were equally perceived by all groups, as shown by high percentage of correct answers.
- If yes, can they use a numerical scale to evaluate intensity?
 - Yes: the numerical scale is used by all groups to describe different pain levels (Faces levels 1, 2 and 3).
- Is there is a link between the Pain Task and Empathy?
 - Yes: Sensitivity to different pain levels shown in facial expression positively correlate with the Personal Distress IRI scale.