

# A play-based investigation into children's coping pre and post vaccination: A view from the child and parent's perspectives (a pilot study).

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## The Problem

Imagine you are a 5-year-old, afraid of needles, being held down ... powerless.

Imagine you are a parent having to hold your 5-year-old child down.

It is painful for the child, the parent and you (health care professional)

What if there was a better way?

This Randomised Control Trial (RCT) may shed some light on preparing children for vaccinations

"... children speak play, and ...  
play is not an adjunct to the  
therapy it is the therapy"  
Dr Judi Parson <sup>(1)</sup>

Needle-related medical procedures (NRMP) may lead to pediatric medical traumatic stress <sup>(2)</sup>  
Needle phobia affects 19% of children aged 4 to 6 years and can result in children disengaging in necessary treatment <sup>(3)</sup>  
Age-appropriate play-based education initiatives may help reduce fear and improve coping in children having NRMP.

This research compares the coping abilities of children who experienced pre-procedural medical play therapy with children in a control group, during and after a NRMP

## Background

### What Therapeutic Powers of Play (TPoP) are activated when children (3-6 years) engage in procedural education for NRMP's including vaccination?

A systematic review used the Integrating Theory Evidence and Action (ITEA) framework <sup>(4)</sup>

- Most preparation is through direct teaching
- There is a focus on distraction
- Co-regulation may help children to navigate a threatening experience

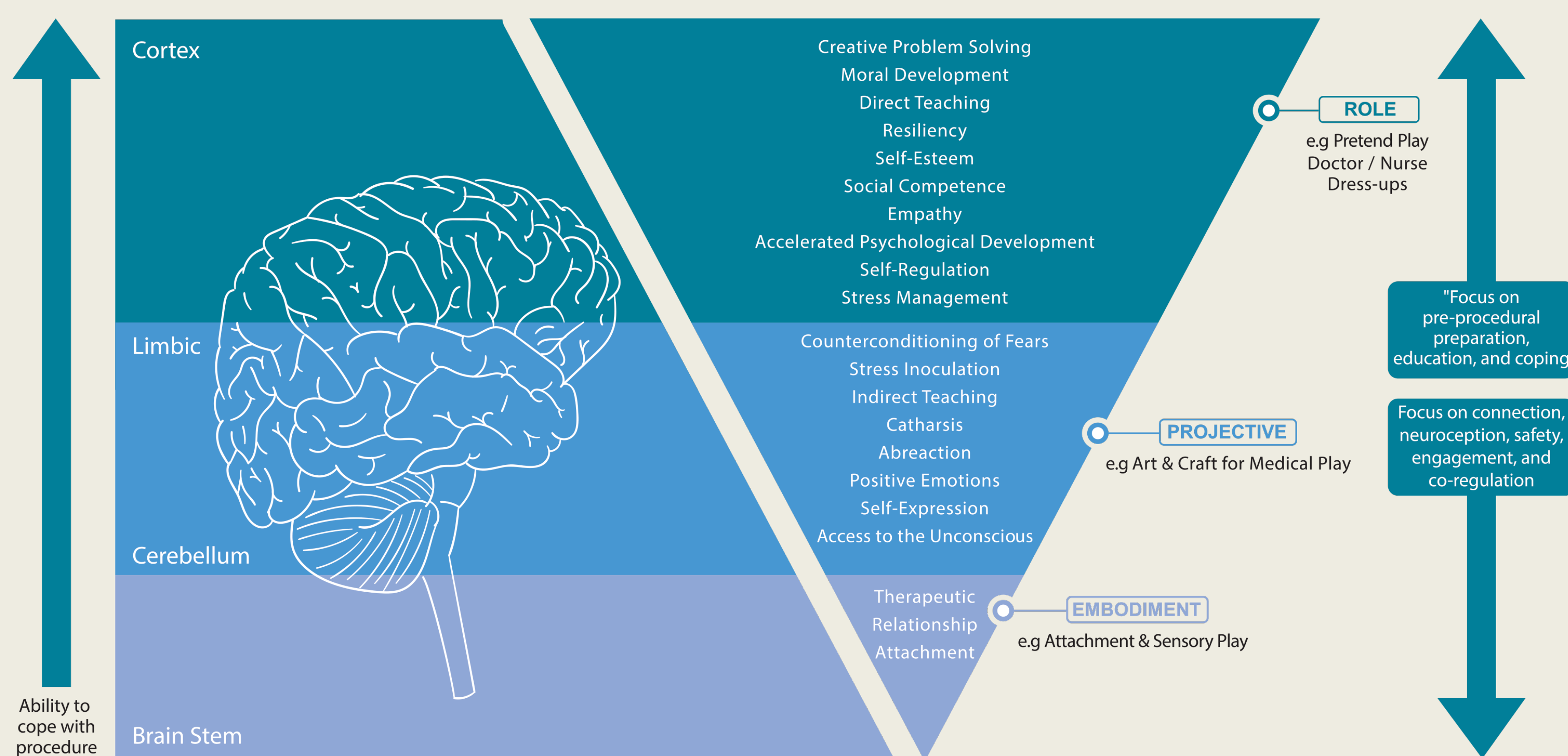
#### Findings evidenced:

- Two key TPoP (theory) - therapeutic relationship & attachment - are needed first to facilitate relational safety.

#### Action:

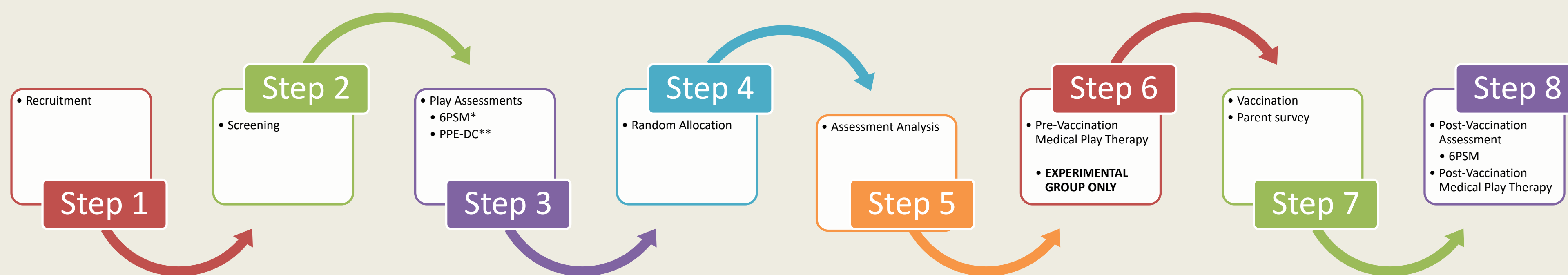
- The model to the right provides a framework to meet the child where they are developmentally situated.
- It emphasizes the importance of a hierarchical decision-making framework to support connection, neuroception, safety, engagement and co-regulation prior to procedural education and preparation taking place.
- The model shows a hierarchy of the TPoP and aligns with brain development.

## Study 1 – Systematic Review- ITEA



## Study 2 - RCT

### Design



### Results

#### Does pre-procedural medical play therapy impact on a child's coping?



##### Participants

24 children 3-6 years old.  
11 children in the control group (treatment as usual)  
13 children in the experimental group (pre-vaccination play therapy)  
11 female and 13 male participants.



##### Pre-vaccination medical play therapy (see Step 6)

The children in the experiential group attended a community based medical clinic based in regional Australia for the pre-procedural medical play therapy session.



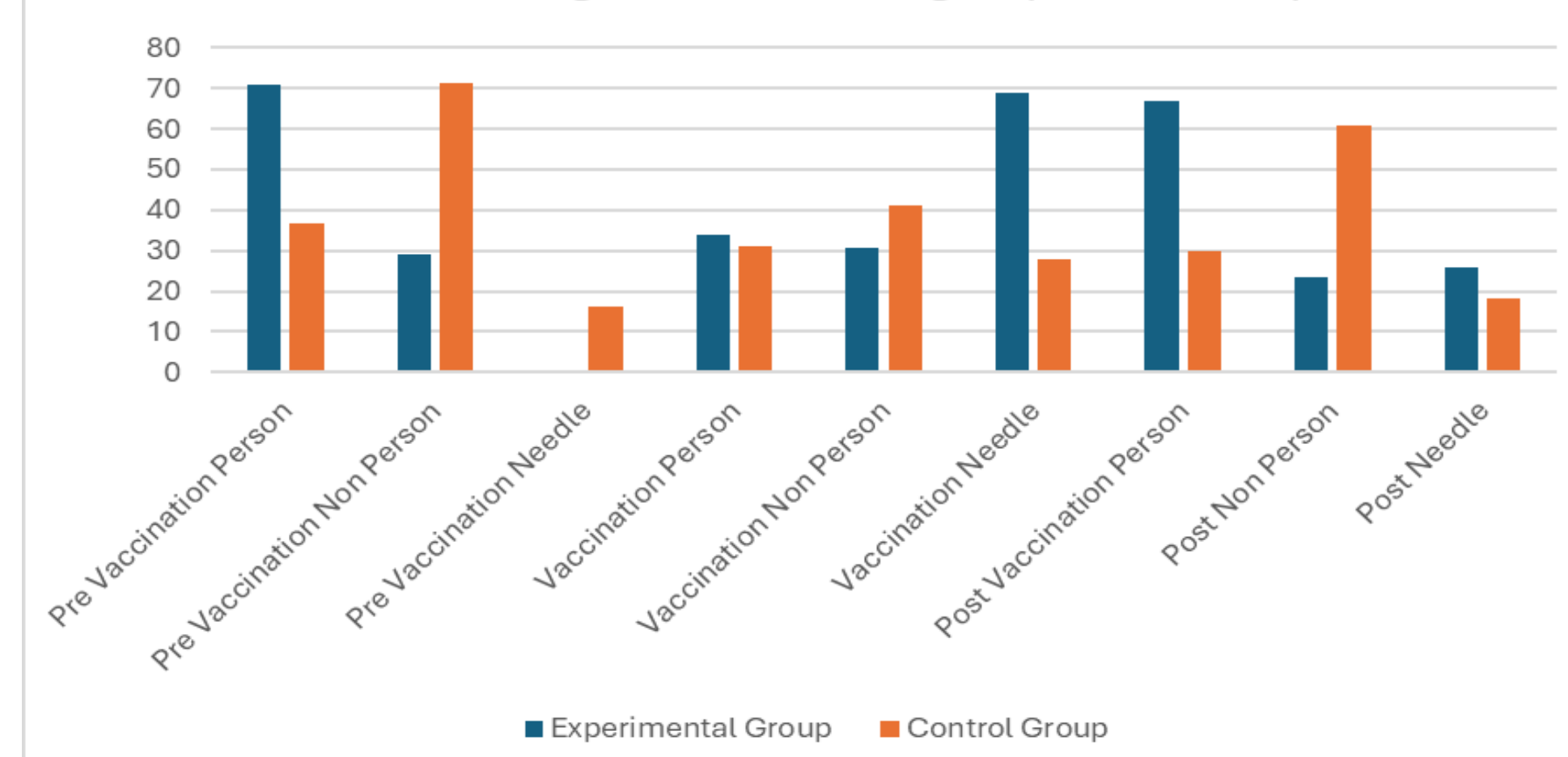
#### Inclusion of eye tracking technology

Eye-tracking technology was used to provide objective, real-time data on pupil dilation and fixation, offering insight into potential fear responses during the vaccination procedure.

This approach was consistent with the study's emphasis on obtaining the child's view to investigate emotional and cognitive processing through observable behavioural indicators.



#### Fixation Percentages across both groups at 3 time points



#### Key Findings

Children are:

Curious

Seek Information

Experience pupil dilation before (79%), during (73%) and after vaccination (64%)  
Engage in medical play at their pace when socially connected and ready

## Call to Action

- Do you meet the child where they are at developmentally through play?
- Could you consider neurosequential preparation for procedures to support co-regulation for the child?
- How would you feel asking the child if they'd prefer to see the procedure to feel in control?

## References

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- (3) Healy, P., Lu, C., Silk, J. S., Lindhiem, O., Harper, R., Viswanathan, A., & Babichenko, D. (2023). An Exposure-Based Video Game (Dr. Zoo) to Reduce Needle Phobia in Children Aged 3 to 6 Years: Development and Mixed Methods Pilot Study. *JMIR Serious Games*, 11, e42025. <https://doi.org/10.2196/42025>
- (4) Hitch, D., Pepin, G., & Stagnitti, K. (2014). The Integrating Theory, Evidence and Action (ITEA) method: a procedure for helping practitioners translate theory and research into action

**Pictures:**  
Scream Cartoon Painting: Dawn Hudson, License: CCO Public Domain  
Photos of children provided with parental permission.

#### Key

\*6PSM – Six Part Story Making  
\*\*PPE-DC – Pretend Play & Enjoyment Developmental Checklist.