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Identifying the Precursors to Joint Attention: The Subtleties of Attention and Caregiver Contributions

Prior supportive work

- Many researchers have indicated JA emerges between 9-15 months in typical development
- In infant siblings
 - difficulty in visual processing,
 - sensitivity to direction of eye gaze and facial expression,
 - inhibitory control and flexibility in switching attention
- Young children with ASD have “social orienting impairments” (Dawson)- indicated as a precursor.. has not been given enough attention

HYPOTHESIS

•WE POSIT that this nuanced early dance serves as the seedbed for eventual development of robust joint attention within the caregiver-child dyad.

•OUR MISSION- To document subtle precursors or “antecedents” for joint attention in children with ASD and elucidate the caregiver contributions that can support these subtleties in attention toward becoming robust joint attention capacities.

•What are the first behaviors, no matter how subtle, we can observe that indicate a child is responsive to the caregiver’s affective interactions and that are setting the foundation for more overt behaviors that are termed “joint attention”?

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WHY dissect this early dance?

- The necessity of developing and validating appropriate screening tools with adequate sensitivity and specificity for autism in children before 1 year is the main clinical problem currently confronting the scientific community (Maestro et al. 2002)
- Identification will support more finely tuned assessment protocols, affording more finely tuned intervention and more finely tuned measurement of progress
- **Look at a child's capacities instead of their challenges.**

Influences upon Design/Method

- Caregiver constructs and child constructs-interest in capturing a “dyadic systems view” (Beebe 2009)
- Bidirectional contributions are observed as moment-to-moment social signals that necessitate change and “collaborative dialogue” (Lyons-Ruth, Bronfman, and Parsons, 2008)
- This dialogue, at first subtle = “antecedent of attention”
- “Microanalytic analysis” may illuminate more subtle differences existing within infant-led interactions in infants of a younger age (Rozga, Hutman, Young, Rogers, Ozonoff, Depretto and Sigman, 2011)

Development of Coding Schemas/Manuals

- Developed to integrate known information regarding JA and to elaborate upon known “markers” associated with both challenges and strengths in young children with ASD- we can propose a new construct- PRECURSORS to JOINT ATTENTION
- Code videos looking at shifts/increase in frequency of behaviors
- Code when child is engaged in a particular behavior-what was the parent doing at that particular time - DYADIC CODING- demonstrate behavioral response

CHILD CONSTRUCTS

1) AROUSAL: PAUSES OWN ACTION-

2) ALERTING AND ATTENDING: POSTURAL CHANGE IN CHILD'S BODY - *THE WHERE*

3) ALERTING AND ATTENDING: VISUAL ATTENTION MOVES MOMENTARILY AWAY FROM OBJECT- *THE WHERE-*

4) ALERTING AND ATTENDING: AUDITORY ATTENTION MOVES MOMENTARILY AWAY FROM OBJECT- *THE WHERE-*

5) ATTENTION -> ORIENTING RESPONSE: LOCALIZES THE SOURCE OF SOUND AND/OR MOVEMENT IN SPACE AND DEMONSTRATES CLEAR ATTENTIONAL SHIFT-*THE "WHAT"*

CHILD CONSTRUCTS cont.->

6) ATTENTION :CHILD ANTICIPATES & PREDICTS: THE ACTION OF THE CAREGIVER WITH THE OBJECT OF THE CAREGIVER'S FOCUS OF ATTENTION (can be the caregiver's hand such as in a tickle game)- *THE "WHAT"*

7) INITIATES COMMUNICATIVE INTENT TO CAREGIVER:TO JOIN ATTENTION WITH CHILD'S FOCUS OF INTEREST INITIATING JOINT ATTENTION- *THE WHO* (display of emotional resonance, recognition, inviting)

8) GESTURALLY OFFERS/ENLISTS ACTIVE INCLUSION OF CAREGIVER IN OBJECT/ACTIVITY OF FOCUS- *THE WE-INTENTION SUPPORTED BY SENSORY AFFECTIVE MOTOR ACTION*

CAREGIVER CONSTRUCTS

- 1) PAUSES
- 2) USE OF FACIAL EXPRESSION
- 3) USE OF GESTURE
- 4) USE OF POSITIONING
- 5) USE OF SOUND &/OR LANGUAGE
- 6) USE OF TOUCH
- 7) USE OF MOVEMENT
- 8) JOINING THE CHILD

CODING Procedure...the BEAUTY and POWER of MICROANALYSIS

- Real time followed by Slow-Motion analysis of 1 min (real-time) caregiver child interactions during initial FEAS
- selected clips were presented to the coders in slow motion, to a play back speed of approximately 500% resulting in 1 second of real time footage expanding to 5 seconds of slow motion time.
- Child and Caregiver Constructs coded separately with ability to match timing of behavioral reciprocity/attentional antecedents
- Correlations are being investigated



DEMO- REAL-TIME ANALYSIS (COURTESY “YOUTUBE”)

INSERT REAL-TIME

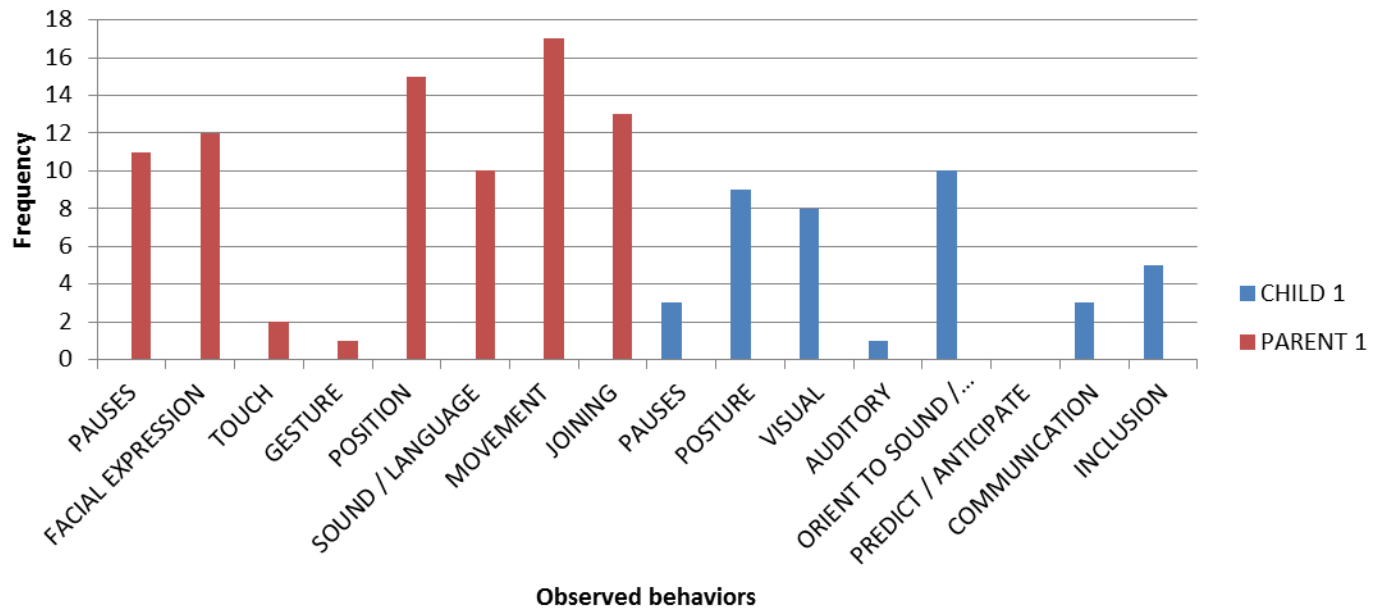
DEMO- MICROANALYSIS

INSERT SLO-MO CLIP (Same from YOUTUBE)

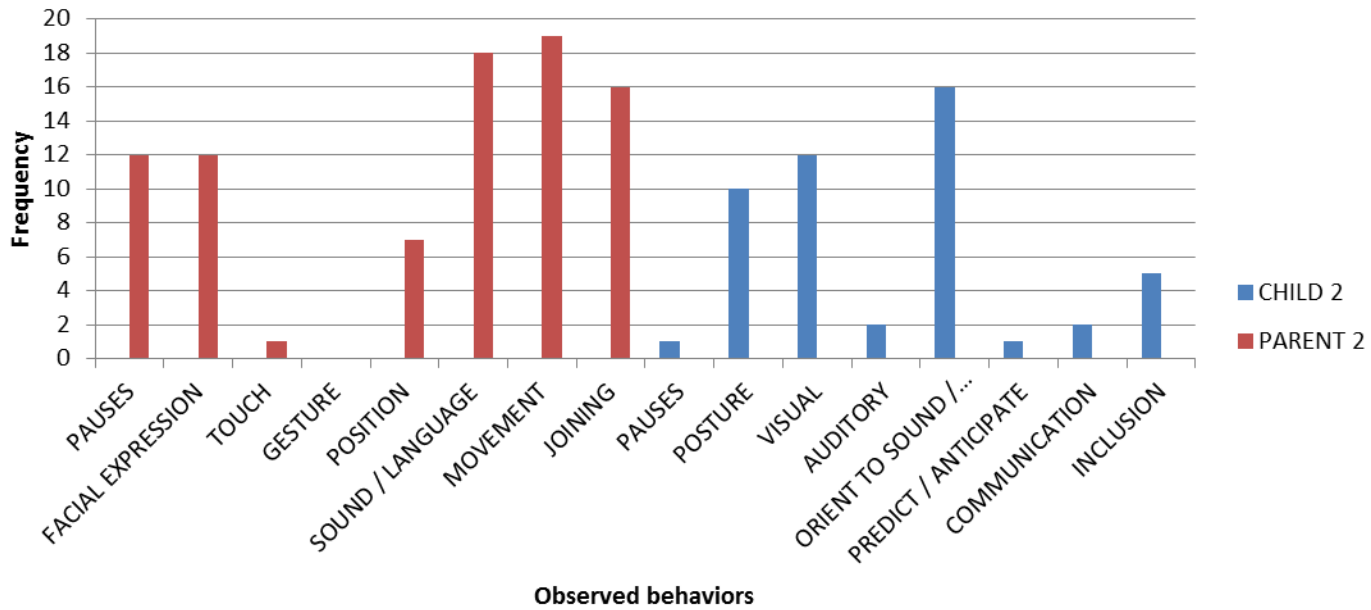
WHAT preliminary coding is telling us...SNEAK PEEK

In the parent-child dyads, parents' use of pausing, facial expression, position, movement and joining, resulted in high frequencies of postural change, attention to visual input, and orientation to movement in the children. Although both parents showed high frequencies of sound / language use, the children exhibited low behavioral responses to auditory and communicative input.

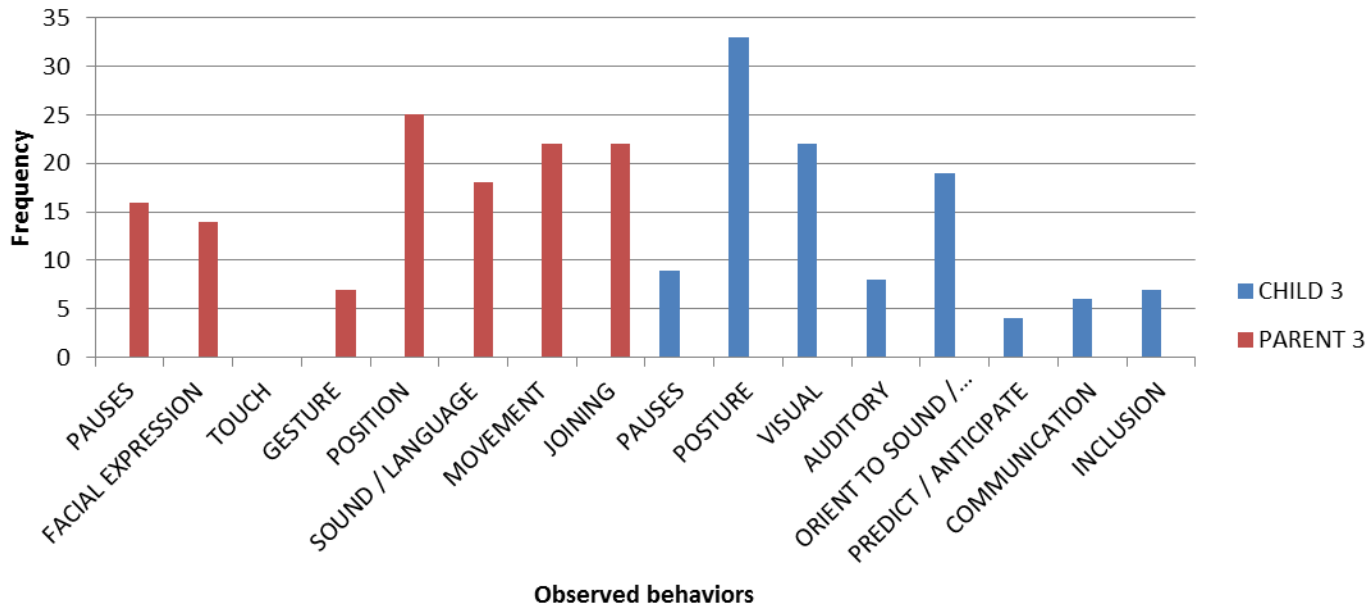
DYAD 1



DYAD 2



DYAD 3



WHERE we go from here...

- Further refinement of manuals
- Training of coders for opportunities to assist in future studies-
 - Large typically developing infant cohort
 - Pilot study w/blind coders small cohort children with challenges
 - PRE-POST DIR intervention studies measuring progress in precursor JA
- Clinical training with use of coding/microanalysis techniques

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THANK YOU!!!

