



THE ASSOCIATION OF JOINT ENGAGEMENT AND SOCIAL INTERACTION

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INTRODUCTION

BACKGROUND:

- Joint attention and social interaction are social skills that measure the children's shared interests in their environment. Research have shown that children with autism engaged in fewer joint attention with another person and have lower interest for other people (Mundy *et al.*, 1990; Mundy *et al.*, 1986)
- Children with autism who had more synchronized behaviors with their caregivers had "developed superior joint attention and language" than did the children with less synchronization (Siller & Sigman, 2002)
- Few studies have examined social interaction and its relation to diagnostic outcomes. Furthermore, the association between social interaction and joint engagement has not been evaluated.

OBJECTIVES:

- Determine whether there is a relationship between joint engagement and social interaction and whether risk status for autism regulates that relationship

HYPOTHESES:

- A positive correlation between joint engagement and social interaction, regardless of diagnosis
- Children with autism will demonstrate less joint engagement and fewer social interaction compared to typically developing children.

METHOD

PARTICIPANTS:

- 48 children (29 males & 19 females) were recruited as participants
 - 24 children with autism (ASD)
 - 24 typically developing children (TD)
- Participants were followed longitudinally until 36 months of age.

BEHAVIORAL MEASURES:

- Joint Engagement:** 4 minute free-play interaction between parent and child with various toys (administered at 18 months only)
 - Engagement
 - Joint Engagement:* child and parent attending to the same activity with shared focus of attention
 - Parallel:* both child and parent are attending, but are not attending to the same object
 - No Object:* neither child or parent are attending to anything
 - Can't Tell:* Bad camera angle, child is misbehaving/too fuzzy
 - Communication
 - Maternal Initiations:* parents directs child's attention to another object
 - Child Initiations:* child directs parent's attention
 - Child Responses:* child responses to parent's attention
- Social Interaction:** dyadic interaction between child and examiner during an assessment of nonverbal communication behaviors (administered at 12 months and 18 months)
 - Turn Taking: examiner presents child with a ball, then behaviors are measured during this turn-taking game
 - Initiates turn taking:* the 1st time the child rolls ball back to examiner before examiner
 - Tease:* child throws ball somewhere else with eye contact
 - Response to turn taking:* child throw/roll ball back to the examiner (not the 1st time)
 - Tickles: behaviors that occur during pauses between tickle trials
 - Act:* child acts after tickle indicating want for more tickles
 - Eye contact:* child makes eye contact with examiner after tickle
 - Appeal:* Child combines act with eye contact after tickle

RESULTS

GROUP DIFFERENCES

- Diagnostic groups differed significantly on social interaction variables measured at 12 months
 - Response to turn-taking
 - Acts during tickles
 - Appeals during tickles
- 18-month social interaction variables were not significantly related to diagnostic outcome

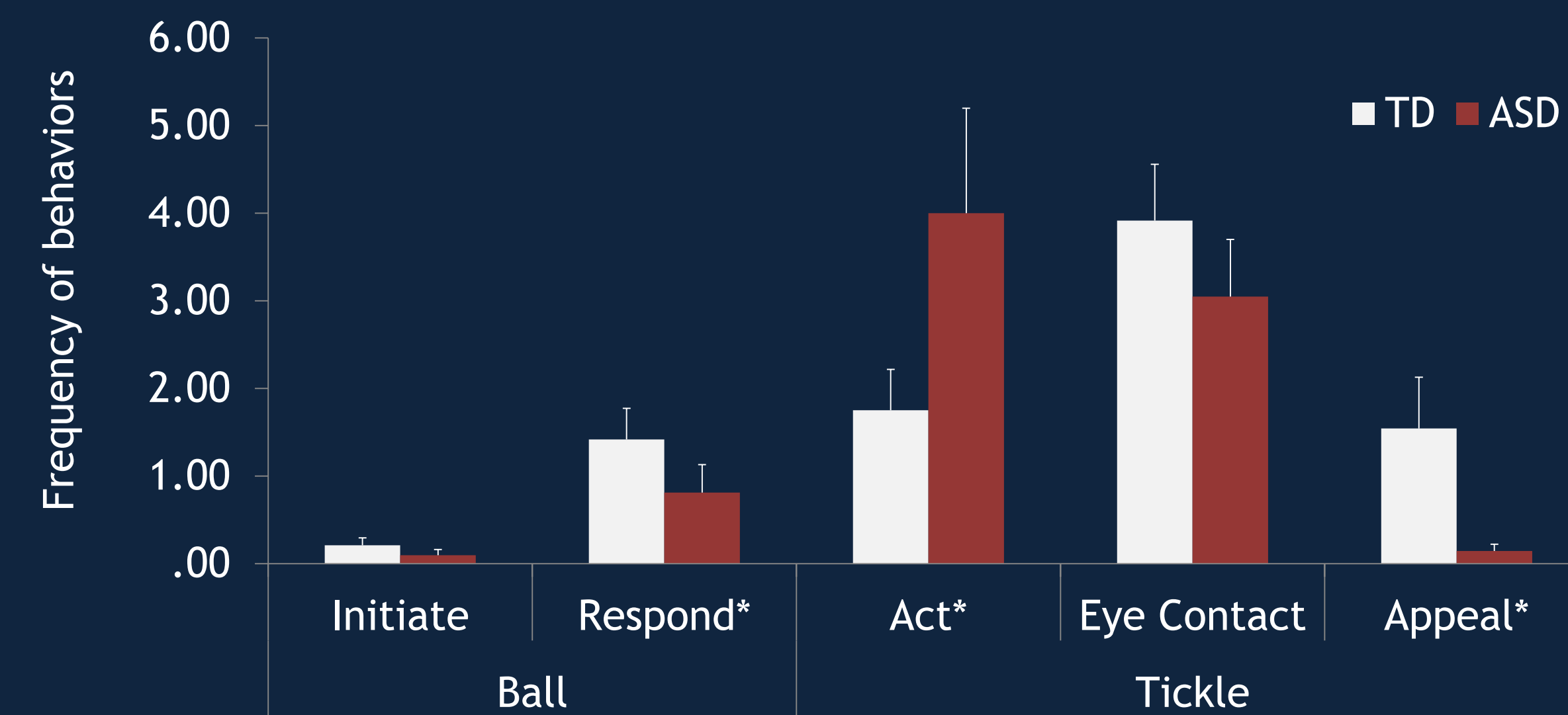


Figure 1. Social Interaction Measures by Diagnostic Group at 12 months
*Indicates significant group differences ($p < .05$)

ASSOCIATIONS WITH PARENT-CHILD PLAY INTERACTIONS AT 18 MONTHS

1. Dyadic Engagement

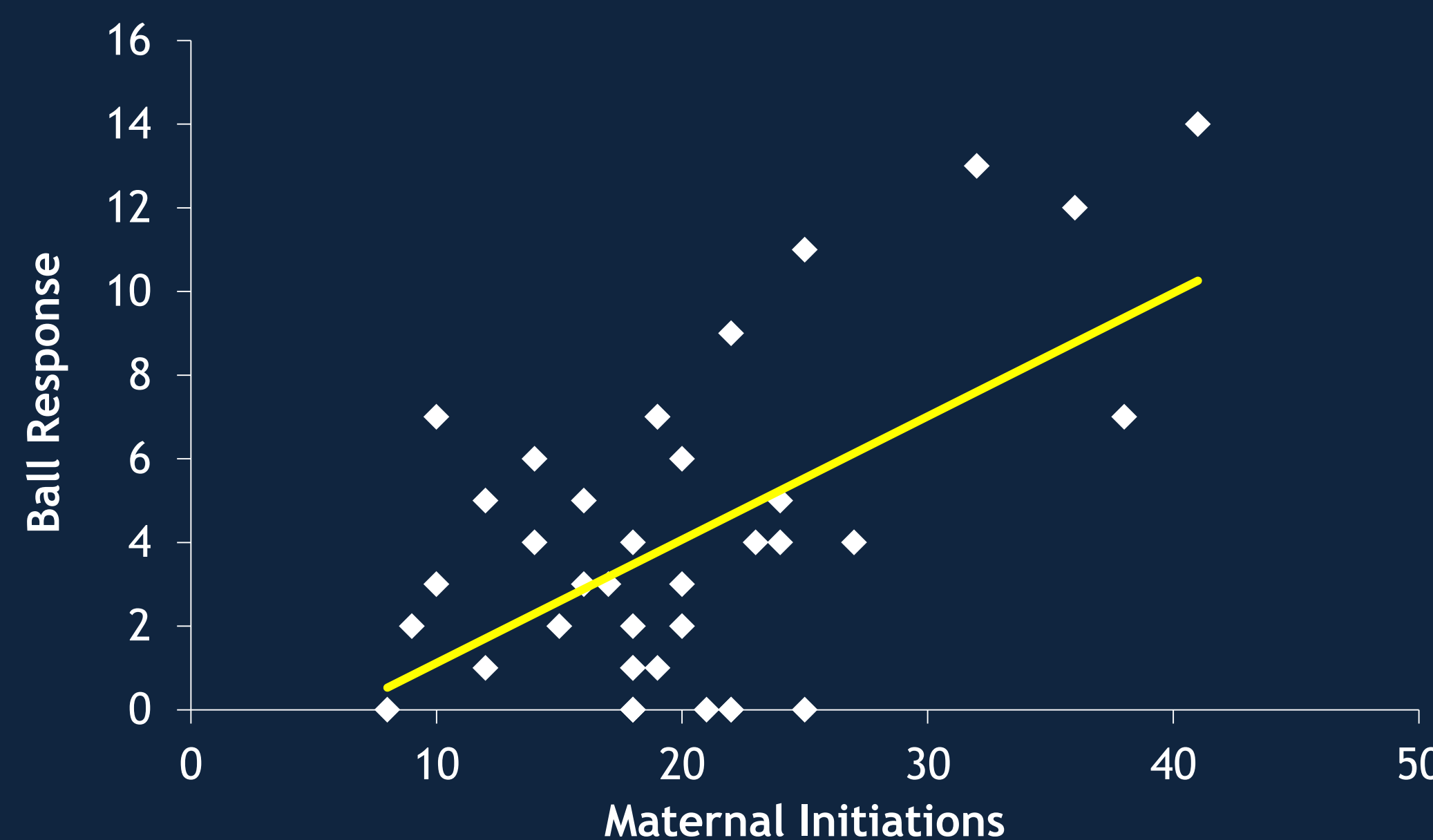
- Time child was jointly engaged with mother during play at 18 months was not related to social interaction variables at 12 months
- Mother-child engagement and turn-taking measures were more negative for children with autism ($\beta = -16.9$) than for typically developing children ($\beta = -4.4$)
- Mother-child joint engagement was related to Acts for tickles at 18 months ($r = -.48, p = .002$)

2. Maternal behaviors during play with child

- Maternal Initiations were related to the following 18-month social interaction variables:
 - Initiates turn-taking ($r = .56, p < .001$)
 - Response to turn-taking ($r = .57, p < .001$)
 - Appeals during tickles ($r = .32, p = .049$)

3. Child behavior during play with mother

- Child responses were related to Acts for tickles at 18 months ($r = -.32, p < .05$)



DISCUSSION

CONCLUSION:

- Social interaction behaviors differed between diagnostic groups at 12 months, not at 18 months
- Social interaction were better predictors of children's diagnostic outcome compared to risk status
- Negative correlation between joint engagement and social interaction
 - The social environment that the child is in can predict whether the child will elicit the appropriate behavior. If the situation is unpredictable, children with autism will not carry out the expected behavior (Weiss & Harris, 2001). Having free play with the parent is a more predictable situation than having presented a ball during an assessment from a stranger. Children with autism might react slower in the latter situation because they are not sensitive to those social cues.
 - Joint engagement is a triadic interaction, requiring the child and parent to engage in one activity. Children who are better at triadic engagement will demonstrate less turn-taking because they are more proficient at deploying triadic attention.
 - Social interaction is a dyadic interaction, requiring less of the child's attention. Thus children who perform dyadic turn-taking will be less interested in sharing their attention with someone else.
 - Since triadic engagement is related to language development, it is not surprising that children who are later diagnosed with autism will demonstrate more dyadic turn-taking and less triadic engagement.

IMPLICATIONS:

- Since children with autism were similar to their typically developing peers at 18 months, this suggests that having children diagnose for autism at an earlier age is critical. Further research is needed to understand why 12-months is a vulnerable age during children's development.
- Joint engagement and social interaction measures influence later social responsiveness in different ways (Dissanayake & Clifford, 2009)
- Caregivers should promote social, triadic engagement when playing with their child in order to develop and improve their child's language acquisition

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