

Maternal Language with Infants at High-Risk for Autism Spectrum Disorder

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Summary

This study will examine how maternal language influences the quality of interaction (i.e. synchrony) between mothers and their infants during 15-minute free-play sessions and how greater maternal distress will influence maternal language within the population of high-risk infants who have an older sibling diagnosed with autism spectrum disorder.

Outline

- Key concepts:
 - High-risk siblings
 - Dyadic synchrony
 - Maternal distress
- Hypothesis
- Methods
- Importance

KEY CONCEPTS

Autism Spectrum Disorder (ASD)

- Wide range of impairments:
 - Social functioning
 - Social communication
 - Repetitive behaviors
 - (American Psychiatric Association, 2013)



Autism Speaks



Kathy Marshak

High-Risk Siblings

- Siblings of children with autism are at increased risk for developing autism
 - (Costanzo, 2015; Ozonoff et al., 2009)
- Heritability estimates for ASD range from 37% to higher than 90%
 - Based on twin concordance studies
 - (American Psychiatric Association, 2013)



Special-ism

Mother-Infant Dyadic Interaction

- The interactive partnership between an infant and caregiver (usually called a “dyad”) is defined and explored as a single unit
 - The dyad is a dynamically interacting system
- Quality of mother-infant interactions effects child development
 - (Belsky, 1999; Cohen, 2012)

Synchrony

- One measure of dyadic interaction that serves to represent the quality of the interaction
 - (Davidson, 2016)
- A pattern of coordinated, reciprocal, dyadic interactions between a parent and child
 - (Harrist & Waugh, 2002; Leclere et al., 2014)
- Synchronous interactions entail more coordination between partners
 - Associated with positive child outcomes
 - (Leclere et al., 2014)



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Maternal Distress

- Linked to behaviors interfering with synchrony
 - (Field, Healy, & LeBlanc, 1989)
 - Less responsive vocalizations
 - (Zlochower & Cohn, 1996)
 - Less mutual engagement during interaction
 - (Weinberg, Olson, Beeghly, & Tronick, 2006)
 - Sensitivity and empathy impeded
 - (Crandell, Fitzgerald, Whipple, 1997)
- Mothers of older children with ASD had significantly higher maternal distress
 - (Davidson, 2016)

Language

- Important influence on child development
 - Receptivity to language
 - (Carter, Stone & Yoder, 2012)
 - Enhances early language acquisition
 - (Kuhl et al, 1997; McDuffie & Yoder, 2010)
- Spoken and written language can reveal underlying psychological processes
 - First-person pronouns linked with depression
 - (Edwards & Holtzman, 2017; Rude, Gortner, & Pennebaker, 2004)

Hypothesis

Maternal language influences synchrony

1. Increased use of first-person pronouns in maternal language adversely affects dyadic synchrony in the high-risk groups
2. Greater maternal distress will be associated with increased use of first-person pronouns

Participants

- 33 video recordings from the initial study
 - Half high-risk and half low-risk
 - 15-month-olds and their mothers

Design

- Secondary Data Analysis
 - Significant difference in synchrony between high and low-risk groups based on maternal utterances synchronized with infant attention
 - (Davidson, 2017)

Variables

- Independent
 - High-risk infants versus low-risk infants
 - Measures of synchrony
 - Maternal distress
- Dependent
 - Frequency of first-person pronoun
 - Frequency of negative emotion word patterns

Maternal Distress Composite Score

- Maternal Distress Composite Score:
 - Center for Epidemiologic Studies Depression Scale
 - Beck Anxiety Inventory
 - Parenting Stress Index – Short Form
 - Caregiver Burden Inventory

Synchrony

- Measures:
 - Maternal indicating behavior matched with child attention
 - Maternal utterance matched with child attention
 - Maternal utterance matched with child attention and action
 - (Siller & Sigman, 2002; Siller & Sigman 2008)
- Maternal utterances were less synchronized with child attention in the high-risk groups
 - (Davidson, 2016)

Language Inquiry and Word Count (LIWC)

- Computer-based text analysis program
- Counts and organizes words into groups
 - Different themes and categories
 - (Pennebaker, Boyd, Jordan & Blackburn, 2015)

Procedure

- Transcribe maternal language used between mothers and their infants during 15-minute free-play sessions
- Input maternal language used during each appointment into LIWC

Data Analysis Plan

- I will use multiple linear regressions to analyze associations between frequency of first-person pronouns and measures of synchrony within the high-risk and low-risk groups
- I will use multiple linear regressions to analyze associations between maternal distress and frequency of first-person pronouns

STUDY RATIONALE

- High-Risk Infant Sibling

- High-Risk Infant Sibling
- Maternal Distress

- High-Risk Infant Sibling
- Maternal Distress
- Language

- High-Risk Infant Sibling
- Maternal Distress
- Language
- Synchrony

Expected Results

- More first-person pronouns will be used in maternal language among the high-risk groups during unstructured free-play sessions
- Increased use of first-person pronouns will be associated with greater maternal distress

Major Alternative

- No observable significant difference:
 - No difference in frequency of specific words used between the high-risk and low-risk groups
 - No association between first-person pronouns and greater maternal distress
 - These findings could be due to small sample size

Importance

- Can improve early intervention programs
- Can improve child developmental outcomes
 - Early language acquisition

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QUESTIONS?