Title: Maternal Language Input to Children with FXS and Idiopathic ASD

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Introduction: Numerous studies have documented a positive relationship between the nature of the language from caregivers and children’s later language outcomes. Given phenotypic characteristics of children with neurodevelopmental disorders, such as fragile X syndrome (FXS) and autism spectrum disorder (ASD), reciprocal exchanges between parent and child may be limited, thus providing fewer opportunities for mothers to provide adequate language input to their children. The present study was designed to characterize the nature of maternal language input to children with FXS or ASD in the context of play-based interactions and to examine the concurrent relationships between maternal language input and child language performance measured in two contexts.

Research Questions:
(1) Are there between-group differences in maternal use of structural aspects of language (NDW and MLU) while interacting with their children?
(2) Are there between-group differences in maternal use of verbally responsive (i.e., contingent, affectively positive, and child-centered) language while interacting with their children?
(3) Are there concurrent associations between maternal language input and child language as measured during a parent-child play sample and during standardized language assessments?

Method: Participants were 14 children with ASD and their mothers and 14 children with FXS, with the children between the ages of 4- and 10-years old and matched on chronological age, nonverbal IQ, and autism symptom severity. A group of 14 typically developing (TD) 2- to 5-year-olds, matched on nonverbal developmental level to the syndrome groups, and their mothers also participated. Coding of verbally responsive language input is ongoing and the final sample will include 30 children with FXS, all of whom have a comorbid diagnosis of ASD, 30 children with ASD matched on age and nonverbal IQ, and 30 younger TD children matched on nonverbal developmental level. Each dyad participated in a 15-min semi-structured play sample using a set of developmentally appropriate toys. Play samples were video-recorded and transcribed using SALT (Systematic Analysis of Language Transcripts). Transcripts were analyzed to derive structural aspects of maternal and child language, including number of different words (NDW), mean length of utterance in morphemes (MLU), and total number of utterances (TNU). Prior to the presentation, transcripts also will be coded to derive maternal variables representing verbally responsive language input. Standardized measures of child language included the Expressive Vocabulary Test, Second Edition (EVT-2; Williams, 2007) and the syntax construction subtest of the Comprehensive Assessment of Spoken Language (CASL; Carrow-Woodfolk, 1999), a measure of expressive syntax.

Results: A series of one-way ANOVAs were used to compare maternal language input across groups. Results yielded a significant effect of group for maternal TNU during the parent-child play sample (F(2,41) = 4.11, p < .05). Post-hoc analyses indicated that mothers of children with FXS used significantly more utterances (M = 201.57, SD = 60.76) than mothers in the TD group (M = 150.64, SD = 25.02). The effect of group was not significant for maternal NDW and MLU, although MLU was trending towards significance (p = .095) with the mothers in the TD group using longer utterances. There were significant concurrent associations between structural aspects of maternal language and child language measures. For mothers in the TD group, there were significant positive associations between maternal NDW and child performance on the EVT. For mothers in the ASD and FXS group, there were significant positive associations between: (1) maternal NDW and child NDW during the play sample; (2) maternal NDW and child performance on the EVT; (3) maternal MLU and child MLU during the play sample; and (4) maternal MLU and child performance on the CASL.
Discussion: Although these data analyses are preliminary and coding of additional participants is ongoing, it appears that between-group differences exist in the characteristics of maternal language input to children and that these differences are correlated with child language ability. These findings highlight the transactional aspects of language learning in children with neurodevelopmental disorders and suggest differences in caregiver language form the normative case. Results have implications for interventions that target increases in child language by maximizing maternal language input to children.

References/Citations: