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Tracking the Development of Communication in Parents with Children with Autism Spectrum Disorders

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TRACKING THE DEVELOPMENT OF COMMUNICATION IN PARENTS WITH CHILDREN WITH AUTISM SPECTRUM DISORDERS

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ABSTRACT

Compared to their typically developing (TD) peers, most children with Autism Spectrum Disorder (ASD) develop language skills later and at slower rates. Previous research has found that verbal input shapes the linguistic development of young TD children and children at risk for developmental delays. One area that is not well understood is whether certain aspects of communication (i.e., rate of verbal output, rate of gestures) of the caretaker play a role in how language is developed in children with ASD over time. The purpose of this study is to explore the linguistic behavior of the caretaker (i.e., the mother) when the child with ASD is around 2.5 years of age and through this longitudinal investigation, re-examine the caretakers' linguistic behaviors each year after that, for three straight years. Ten pairs of mother-child social interactions were observed for this study as mothers engaged with their child during a 15-minute play session. Each mother-child pair has four data points, when the child was at 2.5, 3.5, 4.5, and 5.5 years of age. Parents in each session were instructed to "play with your child as you normally would at home." Trends in communication of the mother showed a decrease in the frequency of nonverbal gestures from the first to the fourth visit while the rate of speech increased by the fourth visit. These trends suggest that caregivers are more aware of the type of communication their child with ASD needs as that child ages. This information is useful in building a stronger communicative profile of the social interactions of families with children with ASD.

INTRODUCTION

Autism Spectrum Disorder (ASD) is a spectrum developmental disorder that can include repetitive behaviors, and/or deficits in social communication and social interaction. In the United States, 1 in 54 children are affected by ASD with signs and symptoms typically appearing around age 2 according to the Center for Disease Control (CDC; Maenner, Shaw, & Baio, 2020). According to the National Institute of Mental Health (NIMH), types of behaviors in ASD may include a lack of response to other individuals or the tendency to avoid eye contact. Individuals with ASD may have difficulties with conversation in addition to difficulty detecting emotion in vocal tone or facial expressions. Difficulty with theory of mind has also been observed. Theory of mind is the ability to know that other individuals have different perspectives than oneself. In addition, individuals with ASD may be overly focused on parts of objects or be intensely focused on a specific interest. Repeating certain behaviors or getting upset by changes in routine and being affected by sensory stimuli are also characteristic of individuals with ASD.

This research project was interested in the development of communication between a mother and her child. Child development is largely influenced by the environment the child is in. Evidence has shown that there is a relationship between the development of fundamental communication skills and joint attention during parental play interactions (Siller & Sigman, 2002). Previous research has provided information on the impact parental influence has on

communication. This study seeks to further explore that link and address changes in caregiver interaction as a child with ASD continues to develop social communication skills.

Turn taking, facial expressions, and nonverbal gestures are all aspects of receptive and expressive language skills that begin to develop soon after birth. A greater proficiency in these areas is associated with increased conversational skills in children with ASD and typically developing children. Positive caregiver interaction can help facilitate growth in language development. Previous evidence suggests that children with ASD often lack the extrinsic motivation to utilize social cognitive skills to initiate communication (Chevallier et al., 2012). Children able to spend longer periods of time focused on a shared interest, such as an object or person, with a caregiver typically have a larger motivation to communicate. A positive language learning environment is associated with a higher level of caregiver responsiveness. Previous research suggests that a child's developmental trajectory of communication is influenced by the caregiver. This allows the child a better opportunity to comprehend and acquire language skills because the caregiver is providing more exposure to language interactions (Hanen Centre, 2016). By interacting with a child, the caregiver is exposing the child to the sounds, words, and conversational skills that make up expressive language. At 12 months old, children are typically able to comprehend more words than they produce (Mayo Clinic, 2018).

This study was intended to provide more information on how families communicate with a child with ASD by measuring changes in nonverbal and verbal communication of the mother over time. This study investigated how the communication of the mother was influenced throughout each visit, across four years. Specifically, how communication occurs in areas such as nonverbal gestures and rate of speech as the child with ASD develops. Caregiver responsiveness characterized by these types of linguistic behaviors are often associated with predictors of language growth for children with ASD. The use of nonverbal gestures and rate of speech facilitates language development and social communication by allowing children to associate meaning with what the parent is drawing attention to through gestures (Talbott et al., 2018). A stronger profile of families in a naturalistic setting is useful for clinicians to educate parents on how best to support areas of deficit in their child with ASD through their own parent-child interactions. Using the rate of gestures and rate of speech, the development of communication was measured during a mother-child play session. Sessions were recorded when the child was 2.5, 3.5, 4.5, and 5.5 years old to track linguistic development of the caretaker of a child with ASD.

METHODS

Participants

Participants in this study consisted of 10 children with ASD (8 males, 2 females) from the Madison, Wisconsin area who were enrolled in a larger longitudinal investigation of language and cognitive development. Children were recruited from early intervention programs, medical clinics, and from the general community. Children with ASD were diagnosed based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM IV-TR) diagnostic criteria (American Psychiatric Association, 2000) by an experienced psychologist while utilizing the Autism Diagnostic Observation Schedule (ADOS; Lord, Rutter, DiLavore, & Risi, 2002) or ADOS-Toddler module (ADOS-T; Luvster et al., 2009), Autism Diagnostic Interview - Revised

(ADI-R; Rutter, Le Conteur, & Lord, 2003), and clinical judgment. The ADOS and ADI-R represented the standard method for assigning a diagnostic classification of autism for research purposes at the time this study was created.

Assessments for ASD were conducted at all time points, first at 2.5 years and at each testing period (3.5, 4.5, 5.5 years). All the children in the current study met diagnostic criteria for ASD at all visits. All children came from families of native English speakers. Exclusionary criteria for this study included chromosomal abnormalities, cerebral palsy, frank neurological insult, prematurity, multiple births, uncorrected vision or hearing impairments, bilingualism, and seizure disorder. Written informed consent was obtained from caregivers prior to enrollment, which was approved by the Institutional Review Board (IRB) at the University of Wisconsin-Madison. The PI/Mentor was previously a postdoctoral fellow in the Language Processes Laboratory and has worked on a separate study using a different dataset.

Experimental Materials

A 15-minute naturalistic mother-child play session was completed at all four visits. Mothers were instructed to "play with your child as you normally would at home" before taping began in order to elicit a normal response to the stimuli. Two different types of toys were provided by the experimenters, a Mr. and Mrs. Potato Head (Hasbro-Playskool) and a Little People Animal Sounds Farm set (Fisher-Price) with the batteries removed. The experimenters provided the toys rather than using toys provided by the mother so to keep the testing materials consistent. A student research assistant recorded the play sessions with a hand-held digital video recorder (Sony DCR-SR80 Handycam).

Procedure

The researcher completed both IRB CITI and RCR Training (Approved IRB: #050119-1). After approval, the researcher was able to begin uploading the 10 mother-child pairs into Eudico Language Annotator (ELAN) for coding. Inter-Rater Reliability (IRR) and practice on ELAN software was completed using a sample that was not part of the project. The video sample was selected from an independent dataset. The researcher practiced coding for eye contact and facial expressions with the video sample. This was compared to three other students to test for accuracy. The IRR was above 85% agreement.

Data Selection

Ten mother-child pairs were selected from a larger data set. Participants who were not present at all four visits were not included in this study. Videos that were under 12 minutes and over 16 minutes were also eliminated. Play sessions that were about 15 minutes in length allowed enough time for the mother and child to play normally to elicit the most natural reaction. Videos that were blurry, unfocused or did not have good sound quality were also eliminated. Because a hand-held video recorder was used, some videos included poor sound quality, camera angles away from the caregiver, or poor lighting.

ELAN Software

The ten data points were uploaded into ELAN Software to code for nonverbal gestures and the rate of speech. There were 40 videos total. Each video file was converted from .mpg to .m4v format. Using ELAN, the researcher made tiered annotations to keep track of nonverbal gestures of the mother. The beginning and end of the video was noted for timing purposes. The researcher also made notes of the number of words per minute spoken by the mother using QuickTime Player. This information was uploaded into ELAN for each minute of video.

RESULTS

Frequency of Gestures

We first examined the average rate of nonverbal gestures from the mother interacting with her child with ASD. Table 1 displays the average rate of gestures and the standard deviation for each mother at each of the four visits.

Table 1: Average Number of Gestures by the Mother Through Four Visits

Subject ID	V1	V2	V3	V4
2015	63	38	3	21
2025	20	13	5	1
2030	29	6	5	5
2047	13	4	2	2
2058	6	7	2	3
2071	24	15	16	9
2081	27	21	26	14
3002	15	8	8	8
3010	24	19	14	13
3023	19	12	11	5
Avg	**24**	**14.3**	**9.2**	**8.1**
SD	15.3	10.0	7.6	6.3

Rate of Speech

Table 2 shows the average rate of speech and standard deviations for each mother during the mother-child play session throughout each visit.

Table 2: Average Rate of Speech per Minute of the Mother Through Four Visits

Subject ID	V1	V2	V3	V4
2015	57	54	69	78
2025	44	55	52	53
2030	57	55	77	70
2047	45	47	49	46
2058	45	29	41	37
2071	60	69	63	78
2081	38	50	59	58
3002	32	33	36	46
3010	33	46	31	33
3023	47	30	43	49
Avg	**45.8**	**46.8**	**52**	**54.8**
SD	9.8	12.8	14.8	15.9

DISCUSSION

Responsiveness of the caregiver can be an effective tool to encourage engagement with the child, ultimately becoming a fundamental aspect of the development of language (Jeong-Mee Kim, 2004). The current study examined the role a child's language development plays in the parent's own linguistic behavior through changes in linguistic behavior over time. Data found in this study suggests a relationship between caregiver's responsive interactions and the growth of language in children with ASD due to the changes in interaction behaviors from the caregiver. Linguistic behavior of the caretaker of a child with ASD was examined each year for four years, beginning when the child was about 2.5 years of age until the child was around 5.5 years old.

Linguistic Behavior

Previous evidence supports the use of gestures as a dynamic nonverbal communication aiding in language development by directing and engaging infants to process the object their attention is directed toward with word meaning (Rader & Zukow-Goldring, 2012). When used in combination with verbal engagement, infants demonstrate word learning more effectively. The current study focused on gestures and rate of speech due to the influence these fundamental aspects of communication have on early development of language. Variability of engagement in verbal and nonverbal communication may indicate varying levels of responsiveness from the caregiver.

Changes in patterns of behaviors from the caregiver may be indicative of a shift in the cognitive and social aspects of communication in children with ASD. Results of this study showed that the average rate of gestures by the mothers in the first visit was 24. By the fourth visit, the frequency of nonverbal gestures has decreased to 8.1. There was a large amount of variability between the mothers' rate of gestures, as some mothers were more likely to use a greater number of nonverbal cues per session to engage with their child than other mothers in the study. However, it is interesting to note that despite the difference in total number of gestures between the caregivers, every mother that participated in this study adapted their communicative style each year. On average, mothers used less gestures during the play session over time. For each mother-child pair that consistently decreased in the frequency of gestures over time, there were new developments in how the mother conversed with her child.

Patterns including the number of words per minute showed consistency throughout all mother-child pairs. The average trend for the mothers showed an increase in the number of words spoken as the rate of speech went from 45.8 words per minute at the first visit to 54.8 words per minute during the fourth visit. Variability increased as the standard deviation increased by the fourth visit. Eight of the mothers increased their rate of speech by the fourth visit. One mother maintained the same rate of speech during the first visit as in the final visit. One mother decreased slightly in the number of words spoken in the first visit as in the fourth. This data suggests that as the child's language is developing, the mother is also changing to fit the child's needs. Overall, the trends for rate of speech show the number of words per minute increasing from the first to fourth visit.

Taken together, caregivers remained generally consistent with the patterns for both rate of speech and rate of gestures. The frequency of nonverbal gestures has been shown to decrease every year through all four visits. The mean number of words spoken by the mother per minute increased each year through all four visits. The differences demonstrate how the child's development may influence the mother. As the child gets older, the parents might modify their communication to fit with what works best with their child with ASD. Parents are flexible in the type of communication they are using to play with their child as shown with these patterns.

Caregiver Responses

Previous studies have shown that an increase in maternal responsiveness is associated with a larger growth in infants' social, emotional, communication, and cognitive abilities (Landry et al., 2006). Social and emotional health was shown to increase significantly among children with a low birth rate when maternal responsiveness increased, which explained the importance of establishing an early foundation for development in children. Parental utterances in response to a child's verbal communication may allow children with ASD to expand vocabulary at a greater rate (McDuffie & Yoder, 2010). Parent education focused on predictors of language growth in children with ASD may encourage parents to understand the role engagement and responsiveness has on children's language development (Karst & Van Hecke, 2012). Active engagement with their child could lead to an increased focus on responding to the child's individual needs based on the developmental delay.

Intervention

Early intervention incorporating parent education has been associated with better outcomes for children with ASD. Support for parent-implemented Reciprocal Imitation Training (RIT) using naturalistic object imitation strategies has also been associated with an increased ability for young children with ASD to use spontaneous imitation skills (Ingersoll & Gergans, 2006). Additional support for RIT as a therapeutic strategy targeting gestural imitation in addition to teaching object imitation was evidenced by increases in language behaviors post treatment (Ingersoll & Lalonde, 2010). Using a language-based, parent-implemented intervention model, improvements in functional verbal communication have resulted in increased verbal communication, socialization, and social motivation (Bradshaw et al., 2017). Potential increases in social motivation through parent-implemented procedure was evidenced by reported increases in verbal communication and gesture and object imitation during training promoted by the parent. Parental influence on training procedures have resulted in positive treatment outcomes, but general predictors of treatment response outcomes of children with ASD should largely be considered individualized. Parent and family effects may also negatively influence treatment outcomes for children with ASD due to external family factors. Monitoring fluctuations in family dynamics may prove to be beneficial to increase the efficacy of parenting techniques during treatment due to changes in parent child interactions (Karst & Van Hecke, 2012). The efficacy of treatment may be influenced by the individualization of the treatment plan as measured by predictors of treatment response outcomes for children with ASD (Hudry et al., 2018).

The current study provides additional evidence that parental involvement influences the language growth of their child with ASD through caregiver changes in gestures and speech. Parents can increase support for language growth and nonverbal communication through the individualization of interactions as the child's communication needs evolve. Changes in the frequency of gestures and rate of speech in caregivers interacting with their child with ASD provides varying opportunities for imitative skills which can improve language outcomes. This further supports theories promoting the developmental influence nonverbal communication strategies have on child communication growth.

Limitations and Future Directions

There are some limitations with this study that future studies can improve on. The current study does not explain the influence linguistic behavior of a child with ASD has on other familiar communication partners such as a sibling, father, or other caregiver or how other family members' linguistic behavior affects the child. This study only measures the communicative behavior of the mother. There were not enough fathers or other family members that would have participated in the study to compare these trends. Future studies with a larger sample size could allow for additional observation of interactions between caregivers in different roles and their child. Observing how these other individuals play a role in the development of a child's communication would be beneficial to build on the communicative profile of families. Participants in this study only included data from when the child was 2.5, 3.5, 4.5, and 5.5 years old. It is unclear as to how the child influences parental linguistic behavior when the child is about 8.5 years or 10.5 years old. There could be another increase or decrease in the rate of gestures or speech 3 or 5 years later. Additional research could investigate the effects going to school and subsequent behaviors have

on both the mother and child's communication. Moreover, it is unclear as to whether there is a difference in communicative behavior in caregivers due to external factors such as when a child attends a traditional school setting or a homeschool setting.

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REFERENCES

Bradshaw, J., Koegel, L. K., & Koegel, R. L. (2017, May 23). *Improving functional language and social motivation with a parent-mediated intervention for toddlers with autism spectrum disorder*. Journal of Autism and Developmental Disorders. Retrieved November, 2021, from https://link.springer.com/article/10.1007/s10803-017-3155-8.

Chevallier, C., Kohls, G., Troiani, V., Brodkin, E. S., & Schultz, R. T. (2012, April). *The Social Motivation Theory of Autism*. Trends in cognitive sciences. Retrieved November, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3329932/.

Choi, B., Shah, P., Rowe, M. L., Nelson, C. A., & Tager-Flusberg, H. (2021, January 8). *A Longitudinal Study of Parent Gestures, Infant Responsiveness, and Vocabulary Development in Infants at Risk for Autism Spectrum Disorder*. Journal of Autism and Developmental Disorders. Retrieved November 2021, from https://link.springer.com/article/10.1007/s10803-020-04855-z .

Dadgar, H., Alaghband Rad, J., Soleymani, Z., Khorammi, A., McCleery, J., & Maroufizadeh, S. (2017, October). *The relationship between motor, imitation, and early social communication skills in children with autism*. Iranian journal of psychiatry. Retrieved November, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5816912/.

Doinitaa, N. E., & Mariab, N. D. (2015). Attachment and Parenting Styles. *Procedia-Social and Behavioral Sciences, 203*, 199-204

Ferjan Ramírez, N., Lytle, S. R., Fish, M., & Kuhl, P. K. (2019). Parent coaching at 6 and 10 months improves language outcomes at 14 months: A randomized controlled trial. *Developmental Science, 22*(3), e12762.

Harrop, C., Gulsrud, A., Shih, W., Hovsepyan, L., & Kasari, C. (2015). Characterizing caregiver responses to restricted and repetitive behaviors in toddlers with autism spectrum disorder. *Autism*, *1*, 13.

Hudry, K., McConachie, H., Le Couteur, A., Howlin, P., Barrett, B., Slonims, V., & PACT Consortium. (2018). Predictors of reliable symptom change: Secondary analysis of the Preschool Autism Communication Trial. *Autism & Developmental Language Impairments*, *3*, 2396941518764760.

Ingersoll, B., & Gergans, S. (2006, April 17). The effect of a parent-implemented imitation intervention on spontaneous imitation skills in young children with autism. *Research in Developmental Disabilities.* Retrieved November 4, 2021, from https://www.sciencedirect.com/science/article/pii/S0891422206000217?casa_token=aTTnCPe-nTcAAAAA%3AxTOQksMjh5RFjtxU43z1GBukaD1D6SGVf303ZzkCtk5j63LP9EnJqMiodL713_4tSMk8FVkI7as.

Jeong-Mee Kim, G. M. (2004, March). *The effects of mother's style of interaction on children's engagement: Implications for using responsive interventions with parents - jeong-mee kim, Gerald Mahoney, 2004*. SAGE Journals. Retrieved November, 2021, from https://journals.sagepub.com/doi/full/10.1177/02711214040240010301.

Karst, J. S., & Van Hecke, A. V. (2012, August 7). Parent and family impact of autism spectrum disorders: A review and proposed model for intervention evaluation. *Clinical Child and Family Psychology Review.* Retrieved November, 2021, from https://link.springer.com/article/10.1007%252Fs10567-012-0119-6.

Kim, H., Carlson, A. G., Curby, T. W., & Winsler, A. (2016, February 4). *Relations among motor, social, and cognitive skills in pre-kindergarten children with developmental disabilities*. Research in Developmental Disabilities. Retrieved November, 2021, from https://www.sciencedirect.com/science/article/pii/S0891422216300166?casa_token=gkRj4KIlEHQAAAAA%3Ajyys9C8ZzHs5FXrDq76MlgbWHwAIE-w0ptOnLwBe1yipUU9m81NgkvwBxu5MA9CkBGQEHM_J_xk.

Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Responsive Parenting: Establishing Early Foundations for Social, Communication, and Independent Problem-Solving Skills. *Developmental Psychology, 42*(4), 627-642.

Lowry, L. (2016). *Encouraging Joint Engagement with Children with ASD*. http://www.hanen.org/Helpful-Info/Articles/Encouraging-Joint-Engagement-with-Children-with-AS.aspx

Maenner, M. J., Shaw, K. A., & Baio, J. (2020). Prevalence of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2016. *MMWR Surveillance Summaries*, *69*(4), 1.

Manwaring, S. S., Mead, D. L., Swineford, L., & Thurm, A. (2017, September). Modelling gesture use and early language development in autism spectrum disorder. *International journal of language & communication disorders.* Retrieved November, 2021, from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5524615/.

Mayo Clinic. (2018, January 06). *Autism Spectrum Disorder*. https://www.mayoclinic.org/diseases-conditions/autism-spectrum-disorder/symptoms-causes/syc-20352928

McDuffie, A., & Yoder, P. (2010). Types of Parent Verbal Responsiveness That Predict Language in Young Children with Autism Spectrum Disorder. *Journal of Speech, Language, and Hearing Research: JSLHR, 53*(4), 1026.

Mundy, P., Sigman, M., & Kasari, C. (1990). A Longitudinal Study of Joint Attention and Language Development in Autistic Children. *Journal of Autism and Developmental Disorders, 20*(1), 115-128.

National Institute of Mental Health (NIMH). (2018). Autism Spectrum Disorder. Retrieved from https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd/index.shtml

Owen, M. T., Ware, A. M., & Barfoot, B. (2000, December 21). Caregiver-mother partnership behavior and the quality of caregiver-child and mother-child interactions. *Early Childhood Research Quarterly.* Retrieved November 2021, from https://www.sciencedirect.com/science/article/pii/S0885200600000739?casa_token=yV0-FzTCKxYAAAAA%3AYIjZl50TfNCqej4GL5sEvTmTwI4bq2_sDXSgDQcJy2Vu_j9rfTy6pdmpG4L77sLrHaiADxa-rkvy.

Rader, N. de V., & Zukow-Goldring, P. (2012, April 26). Caregivers' gestures direct infant attention during early word learning: The importance of dynamic synchrony. *Language Sciences.* Retrieved November 2021, from https://www.sciencedirect.com/science/article/pii/S0388000112000319.

Ray-Subramanian, C. E., & Weismer, S. E. (2012). Receptive and Expressive Language as Predictors of Restricted and Repetitive Behaviors in Young Children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 42*(10), 2113-2120.

Shire, S. Y., Gulsrud, A., & Kasari, C. (2016). Increasing Responsive Parent–Child Interactions and Joint Engagement: Comparing the Influence of Parent-Mediated Intervention and Parent Psychoeducation. *Journal of Autism and Developmental Disorders, 46*(5), 1737.

Sigman, M., Dijamco, A., Gratier, M., & Rozga, A. (2004). Early detection of core deficits in autism. *Mental Retardation & Developmental Disabilities Research Reviews, 10*(4), 221–233. https://doi-org.unk.idm.oclc.org/10.1002/mrdd.20046

Siller, M., & Sigman, M. (2002). The behaviors of parents of children with autism predict the subsequent development of their children's communication. *Journal of Autism and Developmental Disorders.* Retrieved November 2021, from https://link.springer.com/article/10.1023/A:1014884404276.

Stone, W. L., & Yoder, P. J. (2001). Predicting spoken language level in children with autism spectrum disorders. *Autism, 5*(4), 341-361.

Talbott, M. R., Young, G. S., Munson, J., Estes, A., Vismara, L. A., & Rogers, S. J. (2018, December 31). The developmental sequence and relations between gesture and spoken language in toddlers with autism spectrum disorder. *Society for Research in Child Development.* Retrieved November 4, 2021, from https://srcd.onlinelibrary.wiley.com/doi/full/10.1111/cdev.13203.

Tek, S., Mesite, L., Fein, D., & Naigles, L. (2014). Longitudinal analyses of expressive language development reveal two distinct language profiles among young children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 44*(1), 75-89.

Vismara L.A., Rogers S.J. (2018) Coaching Parents of Young Children with Autism. In: Siller M., Morgan L. (eds) *Handbook of Parent-Implemented Interventions for Very Young Children with Autism*. Autism and Child Psychopathology Series. Springer, Cham.