Symposium Title: The Impact of ASD on the Family: Understanding Heterogeneity in Parenting Style and Stress in the Context of Parent-Child Interaction

Chair: Amanda C. Gulsrud

Discussant: Lauren Brookman-Frazee

Overview: Increased understanding of variability in the parent-child interaction and predictors of optimal outcomes for the whole dyad is an important area of study in autism spectrum disorder (ASD). It is well established that child factors, such as developmental level and language ability are predictors of outcome, but less is known about how factors in the parent, such as stress and parenting style, may relate to these outcomes. Understanding variability in parenting style and family well-being are important to understanding how to develop individualized treatment approaches, especially when the intervention may be deployed through the parent, such as those using parent-mediated approaches. This symposium will examine the important role of parents within the context of early parent-child interactions with a focus on implications for treatment. The first talk will explore the familiar context of a compliance task (i.e. cleaning up toys) between parent and toddler with ASD and how parent and child negotiate this interaction. Specific parental strategies and child compliance will be explored. Second, we will use K-means clustering to profile specific patterns of parent and child characteristics that may lead to differential outcomes in children's play behaviors. Lastly, we will examine the relationship between challenging behaviors and family well-being over the course of intervention. All of these findings ultimately inform how we think about intervention development, including for whom interventions may be most effective and how to individualize treatment dependent upon the unique characteristics of each parent and child.

Paper 1 of 3

Paper Title: Children’s Compliance with Parental Requests in a Sample of Toddlers with ASD

Authors: Amanda Dimachkie, Amanda Gulsrud, Connie Kasari

Introduction: Compliance with parental demands is considered a developmental hallmark indicative of the general capacity to observe societal standard of conduct (Kuczynski & Kochanska, 1990), and defined as the “ability to resist tempting impulses, control frustration, delay gratification and complete requested actions” (Kochanska, 1993). Although a positive relationship between parenting practices and child compliance is well documented amongst typically developing children, there is still much to be learned regarding the ways parents’ may influence compliant and noncompliant behaviors in a heterogeneous sample of children with ASD. This study aims to understand the role of parents’ use of request strategies in gaining compliance from toddlers with ASD.

Methods: 75 toddlers with ASD (24 – 36 months) completed a clean-up task in which parents were instructed to encourage their child to assist them with cleaning up toys used in a preceding play activity. Videos of parent-child dyads completing the task were coded in 10-second epochs for parents’ use of request strategies, parents’ affect, and children’s compliance to their parents’ requests. Coding was completed by coders trained to fidelity, with 20% of videos co-scored for reliability (α > 0.80). Descriptive analyses were conducted to determine the distribution and frequencies of the variables. A series of negative binomial logistic regressions were conducted to determine whether parental request strategies and parental affect predicted children’s compliance. To adjust for variability in time to complete task across participants, the model was offset by the number of intervals elapsed per participant.

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**Results:** Parents used an average of 9.12 (SD = 4.705) request strategies, but there was considerable variability in the frequency of strategies used per parent ranging from as few as 1 to 18. Parents most frequently used Direct Commands ($\mu = 4.55; SD = 2.73$) and least commonly used Unclear Commands ($\mu = 0.43; SD = 0.873$) and Reasoning/Bargaining ($\mu = 0.49; SD = 1.01$). Children most frequently responded with Passive Non-compliance ($\mu = 3.93; SD = 3.63$) and Defiance ($\mu = 2.68; SD = 2.411$). The least frequent child compliance code to emerge was Negotiation ($\mu = 0.08; SD = 0.487$).

Four parental request strategies (Unclear Command, Direct Command, Indirect Command and Reasoning/Bargaining) were entered as independent variables in to a model predicting children’s Situational Compliance. The model was statistically significant ($\chi^2 = 21.369$, $df = 5$, $p = 0.001$), revealing parents' use of Reasoning/Bargaining significantly predicted children’s Situational Compliance ($b =0.624$, Wald $\chi^2 = 12.705$, $df = 1$, $p < 0.001$). Child Passive Non-compliance was significantly predicted by parents’ use of Unclear Commands ($b =0.372$, Wald $\chi^2 = 5.409$, $df = 1$, $p < 0.05$) and Direct Commands ($b =0.126$, Wald $\chi^2 = 5.630$, $df = 1$, $p < 0.05$).

**Discussion:** This study found that in a sample of toddlers with ASD, parental requests were related to child compliance behaviors. Interestingly the most frequently used parental strategy, Direct Commands, was related to non-compliance and the strategy used least by parents, Reasoning/Bargaining, was related to compliance. Given these somewhat surprising findings, early intervention should incorporate helping parents to understand their influence and the most effective strategies to elicit compliance in their young toddlers with ASD.

**References:**

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**Paper 2 of 3**

**Paper Title:** Automated Clustering: Understanding Parental Characteristics and their Association with Improved Play Outcomes for an At-Risk Infant Population

**Authors:** Justin Williams$^1$, Amanda Gulsrud$^1$, & Connie Kasari$^1$

**Introduction:** Autism Spectrum Disorder (ASD) can be reliably diagnosed in children as young as two years of age, but behavioral signs of autism can be detected in children as young as 12 months of age. Growing awareness of the disorder and its earliest signs has led to an increased number of referrals for intervention in younger and younger populations and a need to better understand heterogeneity in child and parent factors and its influence on intervention outcomes. The goal of this analysis is to develop an automated procedure to define groups of young children at-risk for ASD from a heterogeneous population of study participants based on child and parent factors prior to receiving treatment. These subgroups were then tested to see if they show differential improvements in play outcomes.

**Methods:** A total of 40 at-risk toddlers, 12 to 22 months old, were randomized to receive the JASPER intervention were grouped into two clusters using k-means clustering. K-means clustering removes subjectivity when creating group cutoff values, and optimizes grouping across multiple covariates. Variables evaluated in the clustering process included: baseline self-reported ratings of frequency/burden of hassle behaviors by parents, baseline number of types/frequency of simple and functional play levels, and age of child, mother, and father. Using an iterative process, two clusters were chosen to separate participants. Cluster 1 ($n = 13$) consisted of older children with above average baseline counts for both simple and functional play levels, with parents who reported a greater number of hassle events but lower overall rating of hassle from these events, and Cluster 2 ($n = 27$) showed opposite baseline characteristics.
**Results:** Using the non-parametric Wilcoxon rank sum test as a t-test analog, there is significant location shift ($W = 80$, $p = 0.03$) between the clusters with respect to the difference of mastery play level from baseline to 8-week exit. On average, Cluster 1 improved their mastery play level by 0.23 (SD = 2.83), while Cluster 2 improved mastery play level by an average of 2.5 levels (SD = 3.19). Similarly, there was a suggestive difference ($W = 86$, $p = 0.05$) for a location shift in the distribution of difference of diversity of play types from baseline to 8-week exit by cluster. Cluster 1 decreased the average diversity of play types by -0.53 (SD = 9.99), while Cluster 2 increased by 7.59 (SD = 10.72).

**Discussion:** We expect that these at-risk toddlers would improve in play outcomes due to exposure of the JASPER intervention. However, this clustering methodology highlights identifiable subgroups using baseline data with differential improvement. The study found that younger children with lower baseline play levels and parents that reported fewer hassle events but greater overall hassle ratings showed a greater rate of improvement on intervention outcomes. Understanding how baseline characteristics may influence treatment outcomes is important as we move toward more individualized treatment models.

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**Paper Title:** Preschoolers with ASD: Challenging Behavior and Impact on the Family over Time

**Authors:** Christina Kang Toolan¹, Alison Holbrook¹, Stephanie Shire³, Rebecca Landa⁴, Tristram Smith⁵, & Connie Kasari¹

**Introduction:** Parenting a child with ASD can increase stress and decrease parent mental health and family well-being (FWB). These parent outcomes are especially likely if the child displays frequent or intense challenging behaviors (CBs; Hsaio, 2016). Little is known about how FWB and child CBs may change during early intervention. This study examined the relationship between FWB and CBs (number, severity) in preschoolers with ASD over the course of a 6-month intervention.

**Methods:** This study used data from a randomized controlled trial comparing 6 months of discrete trial training (DTT; a highly structured teaching format based on applied behavior analysis) and the Interpersonal Developmental Approach (a play-based naturalistic developmental behavioral intervention mainly involving Joint Attention, Symbolic Play, Engagement, and Regulation; JASPER). Participants were preschoolers (n=145) who used <30 spontaneous words. During the last 2 months of intervention, parents received weekly training on how to improve children’s social communication using strategies based on the intervention their child received (structured vs. naturalistic).

At entry and exit, parents completed the Home Situations Questionnaire-PDD (HSQ, 25 items), which assesses behavioral noncompliance in everyday settings. Parents reported number and severity of CBs.

At both timepoints, parents also completed the Family Impact Questionnaire (FIQ, 50 items; Donenberg & Baker, 1993) which assesses the perceived impact a child has on the family relative to other children on their families. We used 3 FIQ subscales to measure FWB: negative feelings and attitudes (NFA; 15 items, $\alpha=.852$), negative social impact (SOC; 10 items, $\alpha=.991$), and negative financial impact (FIN; 7 items, $\alpha=.886$).

We conducted mixed models (NFA) and generalized estimating equations (SOC, FIN) analyses to assess effects of CB on FWB, controlling for age, gender, autism severity, and treatment group. SOC and FIN were dichotomized into high-impact and low-impact groups based on medians due to data skewness.

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Results: In both treatment groups, NFA remained stable from entry to exit, with no treatment group differences. Across both timepoints, higher parent-reported NFA was associated with greater number, $F(1,267.611)=28.357, p<.001$, and severity of CBs, $F(1,267.505)=23.342, p<.001$).

There was a time x treatment group interaction on SOC: SOC increased in DTT, but decreased in JASPER, $X^2(1)=4.350, p=.037$. Across both timepoints, higher parent-reported SOC was associated with greater number, $X^2(1)=14.405, p<.001$, and severity of CBs, $X^2(1)=29.127, p<.001$.

Parent-reported FIN did not significantly change between entry and exit and did not differ between groups. Across both timepoints, as number and severity of CBs increased, parents were more likely to report high FIN (number: $X^2(1)=6.438, p=.011$; severity: $X^2(1)=4.988, p=.026$).

Discussion: This study confirms previous reports that CBs are an important contributor to FWB across time. Greater number and severity of parent-reported CBs were found to be linked to parents’ negative feelings and attitudes, disrupted social lives, and financial burden. Therefore, early interventions that focus on reducing CBs may support FWB. While NFA and FIN remained stable across time, SOC improved more in JASPER than DTT, perhaps because the naturalistic approach of JASPER is conducive to use in everyday environments.

References: