RELATIONSHIPS BETWEEN FAMILY CHARACTERISTICS, PARENTING PRACTICES, AND CHILD PROBLEM BEHAVIORS AMONG DIVERSE FAMILIES OF CHILDREN WITH DEVELOPMENTAL DELAY

by

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DISSERTATION ABSTRACT

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Doctor of Philosophy

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Title: Relationships Between Family Characteristics, Parenting Practices, and Child Problem Behaviors Among Diverse Families of Children with Developmental Delay

Children with Developmental Delay (DD) and Autism Spectrum Disorder (ASD) experience challenging behaviors, including noncompliance, that impact individual and family functioning across settings. Due to developmental risk, parenting has emerged as being especially instrumental within this population, with positive parenting practices directly linked to more positive child outcomes. There are many factors that may be associated with parenting practices including child diagnosis, ethnicity, family income, and parent education. However, much of the extant parenting literature includes White, middle or upper middle-class participants which precludes meaningful within-sample comparisons and limits the generalizability of findings.

The following dissertation study aimed to investigate parenting practices (both parent-reported and direct observations of parenting) within an ethnically and socioeconomically diverse sample of 109 parents and their preschool—aged child with developmental delay. Parents completed self-report measures on their parenting and child's behavior and participated in a 15-minute video-recorded parent-child interaction. Findings suggest that parents were likely to report using more positive practices and less likely to report using harsh or inconsistent parenting. Parents were also observed to use

high levels of inconsistent or vague strategies (i.e., behaviors coded as inappropriate commands and lack of follow through), especially during the clean-up activity. Small associations among parent-reported and direct observations of parenting were found; however, these assessed slightly different constructs of parenting. Family income and parent education were significantly associated with the use of positive parenting practices. Observed use of behaviors coded as inappropriate commands and praise were found to explain unique variance in observed child noncompliance, after accounting for family income. Parent-reported use of harsh or inconsistent discipline explained unique variance in parent reported child externalizing behaviors. Implications of these findings are discussed with respect to family-centered interventions for ethnically and economically diverse families. Limitations and future directions are also articulated.

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I: INTRODUCTION

Developmental Delay

Developmental delay (DD) is broadly defined as a delay in physical, cognitive, communication, social, emotional, and/or adaptive development that occurs in children through age nine (IDEA, 2004). Early developmental delays are often associated with specific developmental disability diagnoses, such as autism spectrum disorder (ASD) and intellectual disability (ID). There is a rise in children diagnosed with developmental disabilities. In 2017, 17.8% of U.S. children aged 3–17 years had a diagnosis of a developmental disability, in contrast to 16.8% in 2014 (Zablotsky et al., 2019). These prevalence data suggest that more than 1 in 6 U.S. children are identified with a developmental disability.

Differences in developmental disability prevalence rates among ethnic groups, such as those seen within ASD, suggest diagnostic disparities rather than differences in true prevalence (Smith et al., 2020). In particular, Latinx children with developmental disabilities are likely to receive ASD diagnoses at older ages than White children, and subsequently access services later (Zablotsky et al., 2017). In this dissertation I use the word Latinx as a gender-neutral form of Latino/a and use the term to broadly include all Hispanic or Latin American groups. Latinx families may experience unique challenges accessing critical services (e.g., evaluations, early intervention services, school Individualized Education Programs, developmental specialists; Magaña et al., 2019; Smith et al., 2020). Limited knowledge about existing services, language barriers, and culturally unresponsive providers may impact Latinx parents' experiences in understanding and supporting their child with DD or ASD.

Developmental delays are often associated with challenges in learning, emotion regulation, and daily living skills (Shevell et al., 2005). Further, children with DD and ASD are at heightened risk for developing severe challenging behavior across home, school, and community settings (Heward et al., 2017), with deficits in self-regulation and communication skills often implicated (Crnic et al., 2017; Gerstein et al., 2011). Behavior, academic, and social challenges can lead to poorer outcomes impacting child and family functioning, so there is a need for family-based interventions to address these difficulties in early childhood (McIntyre, 2008; 2013).

Child Challenging Behavior

It is not uncommon for children with DD to experience clinically significant levels of behavior problems (Baker et al., 2002; Heward et al., 2017; Tervo, 2012). Compared to typically developing same-age peers, children with DD display significantly greater emotional and behavioral challenges (Emerson & Einfeld, 2010; Feldman et al., 2000). These behavior problems often present as externalizing (e.g., "acting out", aggression) or internalizing (e.g., avoidance, anxiety) behaviors, although externalizing behaviors are more common in young children (Tervo, 2012). Noncompliance is a common occurrence in early childhood and may be especially challenging for parents of children with DD (Breiner & Beck, 1984; Bryce & Jahromi, 2013; Fischetti et al., 2012; Hiebert et al., 2009). Noncompliance can be considered active or passive refusal to comply or cooperate with a command or directive; it may look like defiance, self-assertion or passive ignoring (Kochanska et al., 2001). Parents may benefit from instruction in parenting practices and strategies that aim to increase child compliance.

Parenting Children with Developmental Delay

Parenting a child with DD may be associated with higher stress and can vary greatly from the experience of parenting a typically developing child (Baker et al., 2003). The presence of challenging behaviors, difficulties accessing services, increased caretaking responsibilities, and worries about the future can all be sources of strain and distress that are unique to parents of children with disabilities (Woodman et al., 2015). Caring for a child with DD increases the demands on parents and the family system as a whole. One study found that, relative to a comparison group of typically developing children, parents rated their children with DD as less sociable and attentive and more negative and demanding (Fenning et al., 2007). These factors may impact parenting practices, family functioning, and parent-child interactions.

Evidence for transactional relationships between child characteristics and parenting behavior suggests child and parent factors reciprocally influence each other or are bidirectional (Baker et al., 2003; Crnic & Greenberg, 1987; Lecavalier et al., 2006; Neece et al., 2012; Woodman et al., 2015). Parents are instrumental in their children's lives. Some argue that parenting matters "more" for children with developmental risk, such as developmental delay or disability (Crnic & Greenberg, 1987; Crnic et al., 2017). As such, parenting practices matter as they can positively (or negatively) influence children's developmental outcomes. The early childhood period, in particular, may be a time where these bidirectional relationships are important for shaping future outcomes (Woodman et al., 2015).

Parents of children with DD may be less likely to engage in positive parenting practices than parents of typically developing children (Blacher et al., 2013). Increased

child behavior problems have been associated with higher levels of observed negative parenting. DD status has also been found to predict negative parenting behaviors such as intrusiveness and negative affect; parents with these behaviors also tended to have children who were more demanding (Brown et al., 2011). Findings demonstrate associations between more negative parenting and child behavior problems that build off each other in a negative or coercive cycle (Fenning et al., 2014; Patterson, 2002). Protective factors may include parent mental health, social support, and socio-economic status; however, such protective factors are not always present. These findings underscore the need for family-focused intervention, specifically including ethnically diverse families with a range of socioeconomic backgrounds. Given the range of risk and protective factors children and families may experience, targeting parenting skills is one way to improve the likelihood of positive developmental outcomes for children (Crnic et al., 2017). Parents can be explicitly taught to decrease the use of ineffective parenting practices and increase effective practices during interactions with their children.

Parent Wellbeing

Higher parenting stress may also contribute to parents' negative feelings towards their children (Kurtz-Nelson & McIntyre, 2017) and is associated with maternal depression (Estes et al., 2009). Elevated child behavior problems may lead to later parent depressive symptoms and lower marital adjustment (Baker et al., 2005). The risk for poorer parental psychological adjustment, such as high levels of stress or depression, is magnified when children have *both* DD and behavior problems (Baker et al., 2002; Baker et al., 2005; Estes et al., 2009; Feldman et al., 2000; Webster et al., 2008). Social skill challenges seen in children with DD have been found to negatively impact parent stress

levels as well (Smith et al., 2001; Webster et al., 2008).

Parents of children with ASD may be especially more likely to experience stress and psychological distress, in part because of the heightened risk for behavior problems in children with ASD (Eisenhower et al., 2005; Estes et al., 2009). Child emotional and behavior problems have been found to be positively correlated with maternal stress and parental mental health problems (Herring et al., 2006; Woodman et al., 2015). The weight of parental depressive symptoms and chronic stress often leads to compromised individual and family functioning. Limited access to economic resources required to support a child with a disability also predicts parenting stress (Smith et al., 2001).

Parenting Practices

Parenting practices are often thought of as being more positive or more negative. Positive parenting is characterized by high positive affect, high sensitivity, and high stimulation of cognition with low negative affect, low intrusiveness, and low levels of detachment (Ellingsen et al., 2013). In addition, warmth, encouragement, affection, monitoring, and sensitive and consistent limit-setting are considered positive parenting practices. The presence of positive parenting behaviors may improve parent-child interactions and help mitigate child challenging behavior (Norona & Baker, 2016). Negative parenting practices often include harsh or inconsistent practices, physical aggression, intrusion, and criticism. These parenting practices have found to predict negative outcomes related to child behavior problems and mental health (Gershoff, 2002).

Factors Associated with Parenting Practices

Differences in parenting behaviors have been documented as a function of child-risk where parents of children with delays demonstrated less positive parenting than parents of typically developing children (Blacher et al., 2013). For example, children with low cognitive abilities may experience notable vulnerabilities to "poor parenting profiles" (Fenning et al., 2007, p. 9). Ellingsen et al. (2013) identified child DD status, high levels of child behavior problems, and low socioeconomic status to be risk factors that related to use of less positive parenting when a child was three years old. Mothers of children with DD had lower levels of sensitivity and scaffolding than parents of typically developing children (Marquis & Baker, 2014). The impact of these risk factors was determined to be cumulative, with the addition of each leading to decreases in positive parenting (Ellingsen et al., 2013). Although child developmental status may be a risk factor for less positive parenting, protective factors mitigating risk may be present, such as higher levels of parental education.

Low socioeconomic status is considered a risk factor for several negative child and family outcomes including higher levels of behavior problems, use of harsh discipline, and decreased social support (Dodge et al., 1994; Hoff et al., 2002). Family income has also been found to predict growth in positive parenting behaviors over time in parents of children with DD. That is, greater family income leads to an increase in positive parenting throughout childhood (Azad et al., 2014). Azad et al. (2014) also found that mothers with higher levels of education also reported valuing positive parenting practices more than mothers with lower levels of education. Stressors associated with poverty and efforts to meet basic needs may preclude opportunities for many parents to focus on these skills (Hoff et al., 2002).

Family ethnicity and cultural background may also impact parenting practices and parent views of children. Studies have shown Latinx parents to display harsher discipline practices (Halgunseth et al., 2006). Conversely, Donovick and Domenech Rodríguez (2008) found high levels of self-reported positive parenting practices (e.g., expressions of affection, parental involvement), high levels of monitoring, and low levels of physical discipline in first generation Latinx parents. Often, once SES factors are controlled for, differences in parenting practices by ethnicity may be less significant. Indeed, Marquis and Baker's (2014) findings suggested Latinx and White mothers did not differ in parent sensitivity or scaffolding, once socioeconomic variables were controlled for in the model.

Some research has found that Latinx mothers reported their child with DD had a positive family impact more often than reported by White mothers (Blacher & Baker, 2007), a finding which remain consistent regardless of child diagnosis (Blacher & McIntyre, 2006). One reason for this may be related to differences in how responsibility is attributed to children with DD. For example, some research has found differences in attributions made based on family ethnicity, where Latin-American mothers viewed their children with developmental disabilities as being less responsible for their problem behaviors as compared to White mothers who attributed more behavioral responsibility to their children. Notably, an increase in attribution of responsibility to the child also may lead to harsher or aggressive responses (Chavira et al., 2000), which can influence parents' feelings of how positively their child with DD impacts the family. Much of the published literature on parent training in DD is conducted with White middle-class families (McIntyre, 2013). Thus, understanding differences in parenting children with DD may inform more culturally sensitive intervention approaches.

Evaluation of Parenting

Literature demonstrates the significant influence of parenting on outcomes for children with DD (Ellingsen et al., 2013) as parenting may influence developmental outcomes more among children with developmental risk (Crnic et al., 2017). Given the dearth of published studies on parents with children with DD from a range of ethnic, racial, and economic backgrounds, it is important to gain a better understanding of parenting practices. Learning more about what parents do during interactions with their children informs parent training and skill building intervention work.

There are two methods commonly used to assess parenting behaviors – self-report and direct observation. Each method has both advantages and disadvantages that may impact the utility of data obtained from parents (Gardner, 2000; Morsbach & Prinz, 2006). Self-report measures are surveys or questionnaires that require individuals to reflect on their feelings, practices, and beliefs; these are often measured with Likert scales. The gold standard for assessment of observable behaviors is the use of direct observations (Hawes & Dadds, 2006; Zahidi et al., 2019). Coding systems and clear manuals make these observations more objective. As outlined below, each of these assessment approaches has strengths and limitations.

Parent Self-Report

Psychological research often relies heavily on participant self-report (Morsbach & Prinz, 2006). Advantages of parent-report include relative ease, convenience, and efficiency. Parents can complete self-report surveys on their own time without requiring scheduling and traveling. Self-report is also an effective way to gather sensitive information such as parental mental health or marital adjustment. It is also the most

appropriate method to assess parent feelings, attitudes, and beliefs (Gardner, 2000). However, responding to survey questions can be a difficult cognitive task, and biases or distortions may be present while participants reflect on their parenting behaviors and child behavior. Schwarz and Oyserman (2001) suggested respondents complete five tasks when responding to questionnaire items; these include: 1) understanding the question, 2) recalling relevant behavior, 3) making inferences and estimation, 4) mapping the answer onto the response format, 5) "editing" the answer for reasons of social desirability. Each of these steps represents an opportunity for responses to be less accurate and reliable. Participants must rely on their recall of the appropriate time frame and understand question wording, while fighting tendencies to answer in a socially desirable manner. Parent factors such as stress and depression can impact their ratings of child behavior problems. Maternal stress has been found to mediate the relationship between discrepancies in mother and child reports of child behavior problems (De Los Reyes & Kazdin, 2006).

While individuals should be viewed as experts on their own lives, research demonstrates that self-report may be discrepant from direct observation data or information obtained from another independent rater. A meta-analysis of self-report accuracy indicated that self-reported health behaviors and risk factors can be highly inaccurate (Newell et al., 1999). One study across nine countries found that mothers' and fathers' self-reports indicated high levels of social desirability; this distorted responding was especially present when responding to items about harsh parenting practices versus items about positive parenting (Bornstein et al., 2015). To account for this,

methodologically strong studies implement multiple measures, moving away from reliance on a single reporter of parenting practices and family functioning.

Direct Observation

Direct observational measures are often considered the gold-standard in research, clinical, and school settings (Zahidi, 2018). Observational methods allow researchers a glimpse into family processes that take place and are critical for understanding interactions between family members. Even brief observations can illuminate family strengths and challenges that families themselves may not be able to identify and report on (Gardner, 2000). Observational coding systems facilitate the tracking of child and parent behavior based upon explicit operational definitions with examples and non-examples. These systems provide objective anchors for trained coders to evaluate parent and child behaviors.

Although observational measures have significant value for understanding family processes, questions have emerged related to their ecological validity. One limitation of direct observation methods is that they are time and resource intensive, especially if they are carried out in a natural setting such as home or school. Laboratory or clinic observations may be easier to conduct, however may be less likely to result in findings that would generalize to more natural settings (Gardner, 2000). In addition, strong coding systems are often complex to develop and require extensive training for coders to become reliable. Time and resource constraints may impede multiple observations conducted close together in time, which would demonstrate test-retest reliability. However, multiple direct systematic observations of students in a classroom setting demonstrated low levels of reliability across ten days of observations suggesting that even direct observation

methods should be conducted alongside other assessment practices (Hintze & Matthews, 2004).

An additional threat to the validity of this assessment method is that parents may be subject to observer effects and thus act in ways that are not representative of typical interactions with their child. These observer effects, however, have not been found to significantly threaten the validity of observational methods (Gardner, 2000). That is, despite social desirability tendencies, researchers and clinicians can remain fairly confident that aspects of a family's true presentation, skills, and areas for improvement can be identified. Additional factors that may impact participants during direct observation include situational factors (e.g., family disagreement that morning, observation occurred during the child's usual naptime), illness, or fatigue (Bennetts et al., 2016). Observer biases may occasionally influence the way a coder interprets parent and child behaviors. Explicit coder manuals, ongoing trainings and meetings, and reliability checks can help mitigate these biases along with coder awareness of their possible biases (Haidet et al., 2009). Because of the limitations of each, mixed method assessment using multiple sources of information is optimal.

Association Between Parent Self-Report and Direct Observation

Because both parent self-report and direct observation measures contribute to our understanding of family systems and parent-child interactions, it is worth exploring the extent to which they are associated. Interestingly, findings from the literature show wide variability ranging from non-significant correlations to strong correlations. Moderate correlations between parent report and direct observations have been found with parenting measures including the Alabama Parenting Questionnaire, the Parenting

Practices Inventory, and the Parent Practice Scale (Feinberg et al., 2001; Hawes & Dadds, 2006; Strayhorn & Weidman, 1988). Behaviors found to be associated with parent self-report were praise, warmth, and harsh/negative parenting. This differs from studies finding no significant associations between observed and self-reported measures of parent behavior (Bennetts et al., 2016; Herbers et al., 2017; Zahidi et al., 2019).

Some of the mixed findings related to the association of self-report and direct observation measures may be due to dissimilar items which may not measure the exact same constructs (Gardner, 2000; Lovejoy et al., 1999). Although researchers carefully develop constructs from self-report and observational methods, conceptual mismatches are possible (Herbers et al., 2017). It is likely that at best, researchers can expect direct observation and self-report measures to come close but not perfectly align. Both measurement methods add value to research and when used together, can provide a more comprehensive view of parenting behavior.

Underrepresented Populations in Research

Exploring parenting behaviors in typically understudied populations is important. Historically, there have been significant disparities in access to care and services based on background characteristics (e.g., race, socioeconomic status, geographical location). Specifically, behavior parent training research with children with DD includes a paucity of diverse participants (Marquis & Baker, 2014). Intervention research also commonly includes White, middle class participants and key socioeconomic (SES) demographics are often not reported (Safer-Lichtenstein et al., 2019). Because of this lack of diversity, the generalizability of findings is limited. The current study was designed to recruit and

retain a significant number of Spanish speaking, Latinx participants by using a multi-site design in southern California and Oregon.

Purpose of the Current Study

This dissertation study is part of an ongoing larger NIH-funded randomized controlled trial investigating the efficacy of mindfulness-based stress reduction combined with behavioral parent training on child problem behavior in a sample of families with preschoolers with DD drawn from Oregon and California (R01 HD093661; MPIs L.L. McIntyre & C. Neece). The overarching aim of this dissertation study was to explore parenting practices among racially and ethnically diverse families with young children with DD and determine which child, parenting, and family characteristics were most proximally related to child problem behavior at baseline (i.e., prior to intervention in the larger study). Figure 1 represents the conceptual model for this study. Findings will help researchers and clinicians to better understand parenting behaviors that may emerge based on important factors (e.g., child diagnosis, ethnicity, SES) to design effective interventions and responsive services for children with DD and their parents, with a specific focus on those with an ASD diagnosis.

Research Questions

The following research questions were addressed:

1. What parenting practices are most commonly self-reported and observed among parents who have preschool-aged children with developmental delay?

   Hypothesis: It was hypothesized that a full range of parenting practices would be observed, including positive practices and more negative practices that are harsh or inconsistent.

2. Are self-reported parenting practices associated with observed parenting practices during a parent-child interaction?

   Hypothesis: It was hypothesized that self-reported parenting practices would be moderately associated with observed parenting.

3. What specific child and family characteristics are associated with observed parenting practices?

   Hypothesis: It was hypothesized that diagnosis of ASD, child problem behavior, family income, race/ethnicity, and parent education would be associated with parenting practices such that ASD, more challenging behavior, lower income, and lower parent education will be associated with less positive parenting and more negative or inconsistent parenting practices.

4. After controlling for child and family demographic variables, do parenting practices explain unique variance in observed and parent-reported child problem behaviors?

   Hypothesis: After controlling for race/ethnicity, child diagnosis, family income, and parent education, parenting practices will explain unique variance in child challenging behavior.

To provide support to families of children with DD and ASD, it is important that researchers and clinicians be able to accurately evaluate current practices and family functioning. Limited research has been conducted on the concordance of information gained from parent-reported behavior and observational methods (Herbers et al., 2017), less so for socioeconomically and ethnically diverse families of children with DD and ASD. Much of the previous research and formal understanding of parenting practices

emerges from research and intervention work with White families (Marquis & Baker, 2014). This limits the generalizability of findings and applicability of family interventions with families of color. This dissertation therefore includes the experiences of Latinx children and families of varying socioeconomic backgrounds to reduce this gap in the literature and to provide a more nuanced understanding of parenting practices for parents of children with DD and ASD. The racial/ethnic and socioeconomic diversity of the sample will provide a unique opportunity to explore differences in parenting practices that may result from family and contextual variability. Further research in this area is essential to better understand parenting behaviors in a diverse sample of families with children with developmental risk.

II: METHOD

Research Design

This dissertation study included baseline data for 109 parent-child dyads from the first three cohorts of a larger multi-site randomized-control trial; data collection for subsequent waves is ongoing. Structured assessments were administered to participants at baseline or wave 1. Though the current study only uses baseline data from cohorts 1-3, the larger study follows parent-child dyads across four time points (i.e., baseline, post-treatment, 6- and, 12-month follow-up).

Participants and Setting

Children with DD and their families were recruited from northern and central Oregon and southern California. A total of 109 parent-child dyads were included in the present study. The two study sites were selected strategically to draw an ethnically diverse and higher needs samples. The California site included two cohorts, including a Spanish speaking cohort, and the Oregon site included one cohort. The Spanish speaking cohort was supported by bilingual research staff, including bilingual assessors, interventionists, and parent–child observation coders. All baseline assessments took place within family homes between Fall 2018 and Winter 2020 prior to the COVID-19 pandemic.

Recruitment materials were developed and distributed in Spanish and English. Strategies for recruitment were similar across sites but tailored to the specific communities. The team worked within existing community structures to make connections with eligible families. In southern California, the Inland Regional Center (i.e., government agency serving individuals with DD) was instrumental in recruitment

efforts for Latinx families. Study coordinators made presentations to providers at the Inland Regional Center. Multiple mailings and a website link with study information were distributed around the area. Prospective participants were asked to either complete and return a post card with their contact information or complete an online interest form linked on the recruitment website. The Clackamas Education Service District (ESD) Early Intervention and Early Childhood Special Education programs served as recruitment sources for the Oregon site. Study information was distributed to families involved in these programs with the use of flyers, and Clackamas ESD electronic newsletters, with additional information available to families on the project website. Participants were added to an ongoing waitlist before being contacted by research assistants to screen and enroll in the study.

Research assistants called and screened potential participants over the phone. Inclusionary criteria included a) families who have a child (ages 3-5) with DD who is receiving services through early intervention or pre-school individualized family service plan (IFSP) or individualized education plan (IEP), b) elevated child problem behavior as reported by parents on the Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001), and c) high levels of parenting stress on the Parenting Stress Index (Abidin, 1995). Exclusionary criteria included a) positive parent screenings for active psychosis, substance abuse, or suicidality, b) parent engagement in psychological or behavioral services at time of intake, and c) children experiencing deafness, blindness, or conditions that cause them to be non-ambulatory. Children needed to be in the custodial care of the participating parent.

Parents

Table 1 provides demographic characteristics for participating parents and children. Ninety-five percent of parents identified as biological or adoptive parents and 4% identified themselves as being other family members (i.e., great grandparent, foster mother, stepmother). Because all of these individuals served in a parenting role for child participants, they will be referred to here as parents. Parents were overwhelmingly female (99.1%) and an average of 37.72 years old (*SD* = 8.25). Parents identified as primarily Latinx (72.5%) followed by White (22.9%), Black (7.3%), Asian (1.8%), and Other (2.8%). Participants reported speaking primarily Spanish (49.5%) or English (47.7%) in the home. Parents had a range of educational experiences with 22% completing junior high or less, 11.9% completing partial high school, 17.4% completing high school or having an equivalent GED certificate, 8.3% completing at least one year of college, 8.3% completing specialized training, 10.1% completing an Associate degree, 16.5% completing a Bachelor's degree, and 5.5% completing graduate or professional training.

Household income also ranged greatly (*M* = $72,270, *SD* = $110,249, Median = $43,000, Range = $12,000- $700,000). However, an estimated 33% of families (*n* = 36) had incomes that placed them at or below the federal poverty threshold indicating that average income is not an adequate representation of this sample. Family poverty was estimated by taking the 2018 federal poverty threshold guideline for number of family members estimated by accounting for alternate parents and siblings associated with the parent-child dyad (U.S. Department of Health and Human Services, 2018). In accordance with the way several states and federal agencies calculate eligibility for federal programming (U.S. Department of Health and Human Services, 2021), a low-income variable was also created to estimate the number of families who are likely struggling

financially but do not meet the threshold for poverty. Low income was estimated as any family who earned 150% of the 2018 federal poverty threshold for five family members (i.e., modal # of individuals in each family home) or lower, which equates to $44,130. Due to existing study income categories, a cutoff of $49,000 was determined for lower income. With this estimate, 52.3% of families in this sample are considered low income, with 33% below the federal poverty threshold.

Children

Children who participated were primarily male (62.4%) and an average of 3.82 years old (*SD* = 0.81). Child participants were identified as predominately Latinx (72.5%) followed by White (24.8%), Black (7.3%), Asian (2.8%), and other (2.8%). Regarding primary diagnosis, 39.4% of children were diagnosed with ASD, 22.9% with a Speech/Language Delay, 12.8% with Developmental Delay, 0.9% with Cerebral Palsy, 7.3% with a genetic disorder/syndrome (e.g., Down Syndrome, Fragile X), and 10.1% with other (e.g., Sensory Disorder, Learning Disability, Motor Delay, Social-Emotional Delay). Child participants demonstrated elevated total problem behavior, with *T*-scores on the Child Behavior Checklist (CBCL) averaging 69.29 (*SD* = 10.96), nearly two standard deviations above the mean.

Measures

Demographics

The primary caregiver completed a demographic questionnaire during the baseline visit. Items included information such as parent and child age, parent and child race and ethnicity, primary language spoken at home, parent education level, parent employment status, and family household income. Information related to child primary

diagnosis and educational eligibility for early special education services were also collected.

Child and Parent Self-Report Measures

Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). Parents reported on child internalizing and externalizing behavior problems using the CBCL. The CBCL is a 99-item screener for social, emotional, and behavior problems; parents respond using a 3-point Likert scale with response options ranging from *not true* to *very true or often true*. Sample items parents rated on the CBCL to describe their children included "temper tantrums or hot temper" and "can't sit still, restless, or hyperactive". Higher scores indicate greater presence of behavioral problems. Raw scores are converted to *T*-scores, with a mean of 50 and standard deviation of 10., with a cut score of 60 or higher suggestive of elevated behavioral problems. The CBCL has evidence of reliability and validity (Achenbach & Rescorla 2001; Achenbach, 2009; Baker et al., 2003). In the present sample the alpha coefficient for the Total Problems score was high ($\alpha = .96$).

Parent Practices Interview (PPI; Incredible Years, 2015). Parenting discipline and management strategies were measured using the PPI an 80-item self-reported measure originally developed by the Oregon Social Learning Center as a discipline questionnaire. The PPI has been adapted for young children by Incredible Years researchers (Incredible Years, 2015). Parents reported the frequency with which they engage in certain discipline strategies and parenting behaviors using seven-point scales ranging from *neve*r to *always*, *not at all likely* to *extremely likely*, or *strongly disagree* to *strongly agree*. The PPI has been used and validated in parents of young children (Herbers et al., 2017), parents of children at risk for conduct problems (Brotman et al.,

2011), and Latinx parents (Serrano-Villar et al., 2017). Scales in this measure include Appropriate Discipline, Harsh/Inconsistent Discipline, Positive Verbal Discipline, Monitoring, Physical Punishment, Praise and Incentives, and Clear Expectations. Internal consistency of these scales was calculated using Cronbach's alpha (Cronbach, 1951).

Appropriate Discipline. The Appropriate Discipline scale included 12 items. Example items include: When your child misbehaves, how often do you "take away privileges? or "give them a brief time out?" Cronbach's alpha for this scale was acceptable ($\alpha = .82$).

Harsh and Inconsistent Discipline. The Harsh and Inconsistent Discipline scale included 15 items. Example items include: When you child misbehaves, how often do you "threaten to punish him/her (but not really punish him/her)" and "notice it but not do anything about it (ignore)?" Cronbach's alpha for this scale was acceptable ($\alpha = .80$).

Positive Verbal Discipline. The Positive Verbal Discipline scale included nine items. Example items include: If your child refused to do what you wanted him/her to do, how likely is it that you would "problem solve with your child" and "when your child completes his/her chores, how likely are you to praise or reward your child?" Cronbach's alpha reliability for this scale was moderate ($\alpha = .75$).

Physical Punishment. The Physical Punishment scale included six items. Example items include: If your child misbehaves, how likely are you to "Give your child a spanking/smacking)" and "slap or hit your child (but not spanking)?" Cronbach's alpha suggests moderate reliability ($\alpha = .76$).

Praise and Incentives. The Praise and Incentives scale included 11 items. Example items include: Rate how much you agree/disagree with following statements "It

is important to praise children when they do well" and "I shouldn't have to reward my children to get them to do things they are supposed to do." Cronbach's alpha indicates moderate reliability (α = .67).

Clear Expectations. The Clear Expectations scale included six items. Example items include: "I have made clear rules or expectations for my child about going to bed, getting up on time and doing chores". Cronbach's alpha indicates moderate reliability (α = .66).

Monitoring. The Monitoring scale was excluded from analysis due to low item reliability (α = .54).

Direct Observation Measures

Direct observation included one 15-minute parent-child interaction recorded and coded by advanced graduate students. This interaction consisted of three tasks, including a ten-minute play task, a two-minute clean-up task, and a three-minute structured activity task. Standard toys, structured activity puzzles, and assessor scripts were used during each home visit. Assessor scripts for each task are included as Appendix A. Twenty percent of videos were double coded (i.e., coded by two reliable coders) to ensure inter-rater reliability of 80% or greater. Coders received five months of training prior to coding real video data and were blind to intervention condition. The coding team met weekly to discuss any uncertainties and to prevent coder drift. If coders fell below 80% reliability, they engaged in additional practice and training support before coding subsequent videos.

The Parent-Child Behavior Observation System (PC-BOS; Phaneuf & McIntyre, 2007). The PC-BOS is a micro coding system that uses 30-second interval recording procedures to track parent behaviors of inappropriate play, intrusion, positive

consequences for inappropriate behavior, inappropriate commands, lack of follow through, criticism, physical aggression, descriptive commenting, and praise. Child positive and negative verbalizations as well as any instance of disruption or aggression are also captured. The PC-BOS directly maps on to the Incredible Year's curriculum (Webster-Stratton, 2001). For ease of analysis, PC-BOS codes were combined across tasks and recalculated into a single variable (e.g., inappropriate Commands in the play task, clean-up task, structured activity task combined to one inappropriate commands variable); this resulted in a total of 30, 30-second intervals being considered in analysis. A maladaptive child behavior composite was created from PC-BOS child behavior codes. Intervals that had one or more negative child behavior (e.g., disruption, aggression, child negative verbalizations) were captured within this composite. Baseline interobserver agreement (exact agreement) reliability scores for each cohort were: Cohort 1, 87%; Cohort 2, 87%; Cohort 3, 90%. PC-BOS behavior codes included in analyses are included in Appendix B.

Combined Indices. PC-BOS parenting codes were collapsed across positive parenting and negative parenting categories to form two composites – Combined Negative Index and Combined Positive Index. The Combined Negative Index was formed by summing intervals that contained one or more negative parenting behavior code (i.e., inappropriate play, intrusion, positive consequences for inappropriate behavior, inappropriate commands, lack of follow through, criticism, physical aggression). The Combined Positive Index was formed by summing intervals that contained one or more positive parenting behavior code (i.e., praise, descriptive commenting). These indices are reported as percentage of intervals of positive or negative parenting behavior.

Pro-Parenting Coder Impressions Survey (PPCOIMP; McIntyre et al., 2019). The coding system focused on global impressions of parent-child interactions is the Pro-Parenting Coder Impressions (PPCOIMP). The 57-item PPCOIMP was adapted from the Kindergarten Study Coder Impressions to align with Pro-Parenting intervention components (Kindergarten Study Coder Impressions, 2015). Separately parent and child behaviors are rated using a 9-point Likert scale with options ranging from "not at all" to "very much". The PPCOIMP captures overall impressions of the interaction including parent positive behavior support, behavior management skills, and the quality of the parent child relationship. Coders completed global ratings on the PPCOIMP following coding each observation task with the PC-BOS. Baseline inter-rater reliability scores for each cohort follow: Cohort 1, 92%; Cohort 2, 86%; Cohort 3, 90%. PPCOIMP items are listed in Appendix C.

Alpha analyses were conducted to determine the extent to which items within different existing PPCOIMP scales hung together.

Parent Limit Setting. Five items made-up the Parent Limit Setting scale. Example items include "Does the parent seem to be avoidant or reluctant to set limits on the child, allowing the child to engage in misbehavior without responding?" (reverse coded) and "Is the parent appropriately contingent in responding to positive or compliant positive behavior?" Cronbach's alpha indicated acceptable reliability ($\alpha = .76$).

Proactive Parenting. The Proactive Parenting scale was made-up of six items. Example items include "Does the parent give the child choices?" and "Does the parent adjust of define the situation so as to assure the child's interest, success, and comfort?" Cronbach's alpha indicated modest reliability ($\alpha = .62$).

Parent Warmth. The Parent Warmth scale consisted of five items. Example items include, "Does the parent seem to be responsive to their child's feelings?" and "Does the parent provide high-quality instructional and emotional support to the child during structured activities?" Cronbach's alpha indicated acceptable reliability ($\alpha = .72$).

Child Maladaptive Behavior. Four items were included in the Child Maladaptive Behavior scale. Example items included "Does the child become overly upset or angry with tasks or changes in routines?" and "Does the child seem to have difficulty staying on task and following caregiver instructions?" Cronbach's alpha indicated acceptable reliability ($\alpha = .80$).

Child Noncompliance. The Child Noncompliance scale consisted of three items. An example item includes "Is the child compliant and cooperative with the parent's directives and request?". Cronbach's alpha showed strong reliability ($\alpha = .90$).

Procedure

Once families were deemed eligible to participate in the study, parents were mailed a packet of questionnaires about their children and parenting including a consent form, the PPI, and the CBCL. Next, a home visit was completed and several additional measures, including the demographics survey, were collected followed by the observation task. The observation took place within the family home – a natural setting where researchers are more likely to get a genuine look at family interactions. During the 15-minute task, children are in a unique position to have their parents' undivided attention, as parents were asked to remove typical distractions (i.e., silence cell phone, turn off TV, siblings typically not involved). True undivided attention is likely less common, especially among parents with more than one young child. In addition, researchers

provide a box of standardized toys (e.g., playmat, blocks, food items, cash register, books, trucks, baby). Because this study used baseline data, families were not yet familiar with toys and activities, further creating a unique and novel experience ideal for observation.

Although this dissertation used baseline data and does not consider intervention effects, it is important contextual information to understand the next steps for participants. Following the baseline assessment, eligible families were randomly assigned to one of two intervention conditions as part of the larger study (McIntyre & Neece, 2018). The interventions were held weekly in groups in the community and were 16-weeks in duration. The interventions contained 10 weeks of behavioral parent training combined with either six weeks of mindfulness or psychoeducation. Participants completed longitudinal follow-up assessments as part of the larger study.

Data Analysis

Statistical Package for the Social Sciences 27 (SPSS) software package (IBM Corp, 2020) was used to address the research questions in the present study. The analyses conducted to address each research question are as follows.

Preliminary Analyses on Distributions of Key Variables

Preliminary analyses on variable distributions were conducted to verify necessary assumptions. Distributions for the following variables were appropriately symmetrical indicating no severe skew or outliers: Proactive Parenting scale (M = 6.30, SD = 2.24), Limit Setting scale (M = 6.79, SD = 1.20), Child Non-Compliance scale (M = 3.72, SD = .98), Warmth scale (M = 5.34, SD = 1.25), and the Child Problem Behavior Total problems variable (M = 69.29, SD = 10.96). PPI scale descriptives are as follows:

Appropriate Discipline (*M* = 3.88, *SD* = 1.17), Harsh and Inconsistent Discipline, (*M* = 2.98, *SD* = .89), Positive Verbal (*M* = 4.56, *SD* = .94), Praise and Incentives (*M* = 4.48, *SD* = .90), and Clear Expectations (*M* = 3.44, *SD* = .92). Other variables were skewed. The family income variable had a skewness of 4.97 (*SE* = .37) and kurtosis of 28.25 (*SE* = .73), the Child Maladaptive Behavior composite had a skewness of 1.76 (*SE* = .23) and kurtosis of .509 (*SE* = .46), the Physical Punishment scale had a skewness of 1.77 (*SE* = .24) and kurtosis of 2.36 (*SE* = .47), and the Clear Expectations scale had a skewness of .185 (*SE* = .24) and kurtosis of 1.22 (*SE* = .47). This skewness was expected given the sample and is consistent with prior studies of children with DD and their families (e.g., McIntyre, 2013).

Analyses

Research Questions and Corresponding Analyses

Research Question 1: What parenting behaviors are most commonly self-reported and observed among parents who have preschool-aged children with developmental delay?

Analysis. For direct observation measures, we calculated the percentage of intervals where specific parenting behaviors were observed using the PC-BOS. PPCOIMP subscales were used (e.g., proactive parenting, parent limit setting) to represent the parenting practices observed in our sample. Descriptive data from the PPI scores related to positive and negative/harsh parenting practices were reported.

Research Question 2: Are self-reported parenting practices associated with observed parenting behaviors during a parent-child interaction?

Analysis. Pearson's bivariate correlations were used to determine possible associations. Since self-reported practices and observed parenting practices were not

strongly associated ($r > .60$), they were treated as separate constructs of parenting behavior and were not combined to form a singular parenting construct.

Research Question 3: What specific child and family characteristics are associated with observed parenting behavior?

Analysis. Correlational analyses were conducted with family characteristics and observed parenting behaviors. These family characteristics included race/ethnicity, parent education, household family income, and child diagnosis of ASD. A series of independent samples t-tests were also conducted to determine whether there were differences in parenting behavior by family characteristics; family characteristics were each transformed into dichotomous variables. Ethnicity was represented as Latinx or not Latinx. Parent education was represented as high school diploma (or above) or no high school diploma. Family income was represented as low income (i.e., household income < $49,000) or not low income (i.e., household income > $49,000).

Research Question 4: After controlling for child and family demographic variables, do parenting practices explain unique variance in observed and parent-reported child problem behavior?

Analysis. To determine whether parenting practices predicted child problem behavior, hierarchical linear regression analyses were conducted. Family characteristics including race/ethnicity, family income, parent education, and child ASD diagnosis were entered into the first block. Parenting practices were entered into the second block, to determine if parenting practices explain unique variance on child problem behavior.

Power Analyses

Power analyses using G Power 3.1.9.4. were conducted to ensure adequate power to conduct bivariate correlations and regression analyses with a sample size of $n = 108$. Though the overall sample size is 109, one family did not participate in the observation task leaving 108 participants. For bivariate correlations with a sample size of 108 and two-tailed probability ($p = .05$), there was sufficient power (.89) to determine a medium effect size ($r = .30$). In this case, 84 participants would yield sufficient power. Multiple regression analyses with six predictors indicated sufficient power (.85) for analyses to detect a medium effect size of $f^2 = 0.15$. For more parsimonious models with only two predictors, there is higher power (.95) to determine a medium effect size.

Missing Data

The current study has a small amount of missing data. Of the 109 dyads, one did not participate in the recorded parent-child interaction, leaving 108 dyads included in direct observation data. For the PPI, nine surveys are missing, leaving 100 responses for analyses. The missing parent-reported data could be due to parents skipping a page within the larger mail-home packet or not returning the mail-home packet to project staff. Independent-samples t-tests (i.e., family income, parent education) and a chi-square test (i.e., ethnicity) determined there were no significant differences for key demographic variables among parents with missing surveys and parents who submitted complete data. This missing data was accounted for in the power analysis, and the study remains adequately powered.

III: RESULTS

Research Question 1: Distributions of Parenting Behaviors

Descriptive statistics were used to examine the results for research question 1, "What parenting behaviors are most commonly self-reported and observed among parents who have preschool-aged children with developmental delay?" Parent self-reported parenting behavior from the PPI scales and directly observed behaviors were analyzed. Descriptives from each scale follow.

Parent Reported

Self-reported parenting behavior on PPI scales were examined to determine parent perceptions of their overall parenting behavior. Parents provided responses on a seven-point scale with scores ranging from 1 *never* to 7 *always*. Positive Verbal Discipline was endorsed *about half of the time* ($M = 4.56$, $SD = .94$). Parent use of Praise and Incentives fell in the *about half of the time* range ($M = 4.49$, $SD = .92$). Appropriate Discipline was reported *sometimes* ($M = 3.88$, $SD = 1.18$). Parent reported use of Clear Expectations fell in the *sometimes* range ($M = 3.44$, $SD = .92$).

Parent self-report of Harsh/Inconsistent Discipline and Physical Punishment were reported less frequently. Parents reported using Harsh and Inconsistent Discipline *sometime*s ($M = 2.98$, $SD = .89$). Parents reported using Physical Punishment less frequently ($M = 1.35$, $SD = .53$) than any other behaviors.

Direct Observation

Descriptive statistics for directly observed global parenting behavior were examined. PPCOIMP composites allowed for grouping of related PPCOIMP items. PPCOIMP scale response options range from 1– 9 with higher scores indicating greater

presence of a certain behavior. For Proactive Parenting, caregiver scores fell between *somewhat* and *very much* (*M* = 6.30*, SD* = .98). This indicates that parents overall demonstrated proactive parenting behaviors such as providing choices, giving age-appropriate reasons for behavior change, and using verbal structuring to make tasks more management.

For Parent Warmth, caregiver scores fell in the *somewhat* range (*M* = 5.34*, SD* = 1.25). A score in the somewhat range indicates that parents were observed being somewhat affectionate and responsive. Scores in this range can also mean that parents occasionally did not pick up on their child's cues and provide variable high quality instructional and emotional support. Observed parent Limit Setting scores also fell in the *somewhat* range (*M* = 6.79*, SD* = 1.20). Scores in this range indicate that parents were more comfortable setting firm limits rather than being reluctant to set limits.

Micro-coding descriptives from the PC-BOS are described below. The play task had a total of 20 intervals, the clean-up task had a total of four intervals, and the structured activity task had a total of six intervals, resulting in 30 coded intervals for the observation. All intervals had a duration of 30 seconds. The average number of intervals in which behaviors were observed was calculated as a percentage. See Figure 2 for a bar graph representing observed PC-BOS parenting behaviors.

Parent use of inappropriate play was coded in an average of 11.73% of intervals (range = 6 – 53.33%), and intrusion was coded in 29.32% of intervals (range = 0 – 80%). Parent use of positive consequences for inappropriate behavior was coded in an average of 1.39% of intervals (range = 0 – 36.67%). Parent use of inappropriate commands was coded in an average of 52.77% of intervals (range = 6 – 96.67%), and lack of follow

through was coded in 54.11% of intervals (range = 10 – 96.67%). Criticism was coded in an average of 0.99% of observation intervals (range = 0 – 13%), and physical aggression was coded in 0.22% of intervals (range = 0 – 6.67%). During the clean-up task only, parent commands were tallied for each interval. Across the two-minute task, parents provided an average of 22.13 commands (*SD* = 14.21), ranging from 0 to 68 commands. This indicates that on average, parents gave commands at a rate of 11.06 commands per minute, 5.53 commands every 30 seconds, or 1.84 commands every 10 seconds.

Parent use of positive parenting behaviors were also coded, including the use of descriptive commenting and praise. Descriptive commenting was coded in an average of 27.75% of intervals (range = 0 – 73.33%). Instances of praise were tallied using frequency counts. Parents were observed providing praise an average of 11.79 times across the 15-minute observation (range = 0 – 53). This is a rate of about 0.79 instances of praise every minute or 3.93 instances of praise every 5 minutes.

Results also indicate that parents used more inappropriate and inconsistent practices across the observation than positive practices. The Combined Positive Index showed that there was an average of 46.11% of intervals with at least one positive PC-BOS behavior observed. The Negative Combined Index included 69.41% of intervals with at least one of the seven PC-BOS inappropriate parenting behaviors coded.

Research Question 2: Associations Between Parent Reported Behaviors and Directly Observed Behaviors

Pearson's correlations were conducted to explore the second research question targeting associations between parent reported parenting behaviors (PPI) and directly observed behaviors (PPCOIMP and PC-BOS; See Tables 2 and 3). Results indicated that

associations of parenting behaviors were more significantly correlated within measures than between measures; however, there were some significant findings. Observed proactive parenting was significantly associated with parent reported clear expectations (r = -.252, p = .011) and physical punishment (r = -.260, p = .009). This indicates that greater use of proactive parenting practices was associated with less reported use of clear expectations and physical punishment. Parent self-reported use of clear expectations was significantly associated with observed use of inappropriate commands (r = .222, p = .025) and lack of follow through (r = .228, p = .021), such that greater use of clear expectations was associated with more observed inappropriate commands and lack of follow through. Parent self-reported use of clear expectations was also significantly associated with observed physical aggression (r = .201, p = .043), such that greater use of clear expectations was associated with more observed parental physical aggression; this association is somewhat counterintuitive.

Observed warmth was negatively associated with self-reported harsh/inconsistent discipline (r = -.234, p = .018), such that greater warmth was associated with less reported use of harsh/inconsistent discipline practices. Observed limit setting was significantly associated with parent self-reported appropriate discipline (r = -.239, p = .016) and harsh/inconsistent discipline (r = -.260, p = .008), suggesting that greater use of limit setting practices was associated with less use of appropriate or harsh/inconsistent discipline practices. Parent reported positive verbal discipline was not associated with observed parenting behaviors.

Interestingly, observed praise and descriptive commenting were not associated with any self-reported parenting behaviors. In addition, globally observed parenting

behaviors (PPCOIMP) were much more likely to be significantly associated with parent reported behaviors than micro-observed parenting behaviors (PC-BOS).

Research Question 3: Child and Family Characteristic Differences with Observed Parenting Behavior

Family characteristics considered in analyses included child ASD status, race/ethnicity, family income, and parent education. Independent samples *t*-tests were used to determine if there are differences in observed parenting behavior between status groups.

ASD Diagnosis

Child participants were placed into two groups, those with ASD diagnoses and those without ASD diagnoses (i.e., those with all other delays or disabilities). Independent samples *t*-tests results indicated that observed parenting behaviors did not differ between those with and without ASD. See Table 4 for means and *t*-values.

Race/Ethnicity

Participant ethnicity was separated into two categories – Latinx or not Latinx (i.e., all other race/ethnicity categories). These categories were used to conduct independent samples *t*-tests to determine observed parenting differences by group. There were significant differences between Latinx parents and parents who were not Latinx in terms of parent limit setting $t(106) = 2.26$, $p = .026$. Latinx families were observed setting limits significantly more ($M = 6.95$) than families who were not Latinx ($M = 6.38$); Significant differences were also seen for the observed use of inappropriate commands $t(106) = 2.44$, $p = .016$ and lack of follow $t(106) = 3.22$, $p = .002$, such that Latinx parents used higher levels of inappropriate commands and lack of follow through than

parents who were not Latinx. Significant differences were not observed between groups for proactive parenting, warmth, use of descriptive commenting or praise. See Table 5 for means and *t*-values.

Family Income

A family income cut-off of $49,000 was used to represent low-income in this sample, which is approximately 150% above the federal poverty threshold for a family of five. Participants were separated into two groups, including families who were low income and families who were not low income. There were significant differences in observed parenting behaviors by family income related to proactive parenting $t(106) = -2.82$, $p = .006$ and warmth $t(106) = -4.95$, $p = .000$. Parents with greater income used higher levels of proactive parenting ($M = 6.56$) than parents with lower income ($M = 6.05$). Parents with lower income demonstrated significantly less warmth ($M = 4.81$) than parents with higher income ($M = 5.90$). Significant differences were not observed between groups regarding limit setting $t(106) = .08$, $p = .937$.

There were significant differences for use of inappropriate commands, $t(106) = -3.98$, $p = .000$ and lack of follow through, $t(106) = -4.20$, $p = .000$ between income groups. This suggests that parents with lower income used more inappropriate commands ($M = 17.98$) and lack of follow through ($M = 18.57$) than parents who were not low income (inappropriate commands, $M = 13.52$; lack of follow through, $M = 13.71$). Significant differences also were noted based upon family income for use of descriptive commenting $t(106) = 3.18$, $p = .002$, such that parents with lower income used less descriptive commenting ($M = 7.09$) than families with higher income ($M = 9.65$). Finally, there were significant differences in the use of praise, $t(106) = 2.25$, $p = .026$, such that

parents with lower income (M = 9.88) were observed to use less praise than parents with higher incomes (M = 13.85). See Table 6 for means and t-values.

Parent Education

Dichotomous variables of parent education were created to conduct a series of independent samples-t-tests comparing parenting behavior among parents with and without a high school diploma. Results indicated that there were significant differences between parents with high school diplomas or above and parents without high school diplomas in observed warmth $t(106) = 2.62$, $p = .010$, with higher educated parents demonstrating more warmth (M = 5.56) than lower educated parents (M = 4.91). Significant differences were not observed between groups for proactive parenting or limit setting.

Parents with high school diplomas or above used significantly more descriptive commenting (M = 9.04) than families without high school diplomas ($M = 6.95$), $t(106) = -2.43$, $p = .017$. There were also significant differences observed between groups for praise, $t(106) = -2.29$, $p = .024$, such that parents with less education used significantly less praise (M = 9.00) than parents with greater education (M = 13.24). No significant differences were observed between groups for use of inappropriate commands or lack of follow through. See Table 7 for means and t-values.

Research Question 4: Parenting Practices and Child Problem Behavior

To determine whether parenting practices explained meaningful variance in child problem behavior, hierarchical linear regression models were run. Separate models were conducted for observed and self-reported parenting practices and observed and parent-reported child problem behavior since they were not significantly associated. Family

characteristics were controlled for in the model including household income, parent education, and race/ethnicity. Parenting practices were selected to represent more positive and more harsh/inconsistent parenting. Inappropriate commands was included because it was significantly associated with several other parenting behaviors and certainly impacts child problem behavior. Though lack of follow through also had several significant associations, it was excluded because of being highly correlated with inappropriate commands to meet the assumptions for multi-collinearity.

Observed Parenting Practices

Hierarchical linear regressions were conducted to test whether parenting practices explain unique variance in observed child problem behavior, specifically child non-compliance. Child noncompliance was selected over the combined maladaptive behavior index given the relatively low levels of observed child aggression and disruption in this sample and the high levels of observed noncompliance during observed parent–child observation tasks. In the first block, household income (Low income/ Not low income), parent education (No HS diploma/ HS diploma or above) and race/ethnicity (Latinx/not Latinx) were entered. Together these variables did not account for significant variance in observed child noncompliance, $R^2 = .04$, $F(3, 104) = 1.58$, $p = .199$. Parenting practices including warmth, praise, and inappropriate commands were entered into the second block. After accounting for family characteristics, parenting practices accounted for unique variance in observed child noncompliance, $\Delta R^2 = .095$, $F(6, 101) = 2.70$, $p = .018$. Specifically, praise ($t = -2.13$, $p = .035$) and inappropriate commands ($t = 2.54$, $p = .012$) were significant predictors in model 2. Household income emerged as the only significant predictor from block 1 ($t = -1.99$, $p = .049$); however, when parenting practices were

entered, it became non-significant, (t = -.61, p = .546. See Table 7 for regression results for observed child noncompliance.

Given results from the first regression analysis, a second more parsimonious model was run that included the most significant family characteristic – income and significant parenting practices – praise and inappropriate commands. While overall praise was used for the first regression analysis, it was hypothesized that praise during the clean-up task (when noncompliance was being measured) would be a more proximal and significant predictor of observed child noncompliance. Thus, in the second more parsimonious model, praise during the clean-up task was selected as a parenting behavior of interest. In this regression analysis, income was entered into the first block and accounted for significant variance in observed child noncompliance, R^2 = .042, F(1, 106) = 4.60, p = .034, suggesting that low-income status is a risk factor for child behavior problems. Next, praise (clean-up task) and inappropriate commands were entered into the second block. The overall model accounted for 13.6% of the variance in child noncompliance, ΔR^2 = .12, F(6, 101) = 6.64, p = .000. Both praise (clean-up; t = -3.22, p = .002) and inappropriate commands (t = 2.35, p = .021) emerged as significant predictors after for accounting the contributions of income. See Table 9 for these regression results.

Self-Reported Parenting Practices

To determine whether self-reported parenting practices explain unique variance in self-reported child problem behavior (CBCL total problems t-score), two regressions were conducted. In the first regression, income was entered into the first block. It did not emerge as a significant predictor, R^2 = .002, F(1, 96) = .198, p = .657. Self-reported

parenting practices including clear expectations and harsh/inconsistent discipline were entered into the next block; neither parenting practices explained unique variance in CBCL Total Problems $\Delta R^2 = .03$, $F(3, 94) = 1.08$, $p = .363$. Although the overall model was nonsignificant, there was a trend toward significance for harsh/inconsistent discipline ($t = 1.63$, $p = .107$). Because of this pattern, an additional regression model was conducted with child Externalizing Problems (CBCL externalizing problems *t*-score) as the outcome variable, rather than CBCL Total Problems, which includes both externalizing and internalizing symptoms, given the link between harsh and inconsistent discipline and externalizing problems (e.g., Reid & Patterson, 1989). See Table 10 for these regression results.

A second regression was conducted to determine if reported parenting practices explain unique variance in reported child externalizing behavior. Income was entered into the first block and was not significant, $R^2 = .010$, $F(1, 97) = .987$, $p = .323$. Harsh/inconsistent discipline was entered into the second block and emerged as a significant predictor, $\Delta R^2 = .094$, $F(2, 96) = 5.56$, $p = .005$. The total model accounted for 10.4% of variance explained in child externalizing behavior. After controlling for income, Harsh/Inconsistent parenting practices explained unique variance in externalizing problems on the CBCL ($t = 3.17$, $p = .002$). See Table 11 for these regression results.

IV: DISCUSSION

Multiple factors may influence child developmental outcomes including child individual differences, the presence of developmental delays, temperament and disposition, cognitive abilities, adaptive skills, social skills, self-regulation, as well as parenting practices and contextual variables such as family income. Parenting has been described as "the medium through which the child experiences the world" (Kaiser & Delaney, 1999, p. 69), and children ages 3-5 likely spend most of their time with caregivers in the home environment. Although child individual differences and various contextual variables may be less amenable to intervention, parenting is often studied because it is one of the more malleable targets for intervention (Lakind & Atkins, 2018). Considering how proximally associated parenting is for young children, the current study aimed to increase our understanding of the parenting context for a diverse sample of young children experiencing developmental delays and disabilities.

Evaluating parenting practices in an ethnically, racially, and linguistically diverse community sample is important for a variety of reasons. Most randomized controlled trial research for children with DD and ASD has consisted of white, middle class families, and it is not uncommon for SES demographics to be omitted, with middle class or upper middle class considered to be the default (Robertson et al., 2017; Safer-Lichtenstein et al., 2019). Indeed, this community sample is notably more ethnically and socioeconomically diverse than many other community samples (Robertson et al., 2017; West, et al., 2016) and provides important information about the experiences of a typically underrepresented group in the literature. Findings from this study provide

further evidence for varying parenting contexts depending on income and educational attainment backgrounds.

Parenting Practices

The first research question was descriptive in nature, asking "What parenting behaviors are most commonly self-reported and observed among parents who have preschool-aged children with developmental delay?" A range of parenting practices were self-reported and observed, which provided insight into the range of parenting skills parents had prior to receiving the parenting interventions in the larger study.

Self-Reported Practices

In this diverse community sample, parents reported using more positive practices (e.g., clear expectations, praise and incentives, positive verbal discipline, appropriate discipline) than negative or inconsistent practices (e.g., harsh/inconsistent discipline, physical punishment). This is consistent with the literature suggesting that parents are more likely to self-report positive parenting practices and less likely to report harsh or negative parenting practices (Donovick & Domenech Rodríguez, 2008; Swenson et al., 2016).

Observed Practices

There were a variety of parenting practices observed in the parent–child interactions. One notable finding was the relationship between inappropriate commands, lack of follow through, and praise that parents provided to their children. Ideally parents will provide a single command, wait for the child to respond, and then follow through with that command (i.e., with reinforcement or a second command; Webster-Stratton, 2001). This allows the child an opportunity to hear and process the command and then

either comply or not comply. This ratio is challenging to accomplish for many parents (Luehring, 2020) which was observed in this study.

Findings from the current study indicated that the parenting practices most commonly observed during the parent–child interaction were inappropriate commands followed by lack of follow through, both inconsistent practices. As the children in the sample were very young, had high levels of parent-reported problem behaviors (i.e., an average of almost two standard deviations above the published mean on the Total Problem scale of the CBCL), and were engaged in tasks with specific expectations, it is not surprising that parents frequently made commands to their children. This is consistent with previous research finding that parents were observed to use a significant number of commands with their children with behavior problems, especially during a clean-up task (McCabe et al., 2010). Lack of follow through was captured when parents did not respond to their child after a command (e.g., provide praise or prompting). This included times when parents provided two or more commands in a row (e.g., "come here, put the toy away"). Again, this parenting behavior is common among parents of young children (Webster-Stratton, 2001). While these parenting behaviors are common, providing inappropriate commands at a high frequency creates a significant challenge for children as high rate of commands make it less likely that children are given an opportunity to demonstrate compliance before another command is provided.

During the clean-up task, a task with more opportunities for commands and child compliance/noncompliance, parents provided an average of *11.06 commands per minute* – a significant number of both appropriate and inappropriate (i.e., unclear, vague) directives. Literature suggests that parents tend to use fewer positive practices when

involved in structured parent–child interactions (Blacher et al., 2013), which may explain the concentrated use of commands in the clean-up task.

Parents in this sample were observed to give high rate of commands per minute (during the clean-up task), and only provide 1.08 praise statements during this time. This suggests that many parents heavily rely on the use of commands in attempts to gain child compliance during the clean-up task. This was somewhat ineffective when considering children were observed to comply only an average of 2.90 times per minute, which indicates a significant amount of child noncompliance and a greater likelihood of parents giving many commands with no opportunity to comply. Additionally, the literature has shown that providing adequate time for a child to comply with a parent command or directive positively impacts child compliance (Forehand et al., 1978). It is likely that decreasing the number of commands provided, would increase child compliance during the clean-up task.

Intrusion was observed to occur most frequently in the structured activity task. This is expected due to the structured nature of the activities (e.g., tower of London, puzzles) choices for this task (Blacher et al., 2013). The activities each have a "right way" of assembling, causing many parents to provide varying levels of guidance to complete the puzzle as intended. Observations of physical aggression and criticism occurred very infrequently during observations. This aligns with low levels of self-reported harsh/inconsistent discipline and physical punishment. This finding is not surprising given that these behaviors are likely uncommon in community samples. Further, the participants knew they were being video recorded and may have attempted to behave in more socially desirable ways.

Positive parenting practices were also commonly observed including moderate levels of proactive parenting, warmth, and limit setting. Parents made moderate use of descriptive commenting which was significantly more common during the play task. During this task, there are many novel items to identify and label. Some parents also narrated their child's actions, similar to a sportscaster (e.g., "You're stacking the blocks. There goes the red one, now the blue one. You're making a very tall tower."). As descriptive commenting practices may be instrumental in building child language and communication, parenting interventions often encourage and model this behavior given that descriptive commenting shows parent interest, sensitivity, engagement and non-intrusive "following the child's lead" or child-directed interaction (e.g., McInnis et al., 2020; Webster-Stratton, 2001). Regarding praise, parents were observed to provide between 1 and 1.5 praise statements per minute during the interaction, a fairly steady rate of praise. This indicates that parents within the sample are already using important reinforcement strategies. Additional coaching could be beneficial around providing genuine specific praise that is varied and contingent upon appropriate child behavior.

Differences Between Self-Reported and Observed Parenting Practices

While there was some overlap between self-reported and observed parenting, many differences also emerged which may be explained by a few factors. First the PPI and PPCOIMP/PC-BOS are measures for evaluating parenting behavior that may be capturing different things. The PPI asks parents to consider their overall practices without a specific time frame for parents to consider. Both the PPCOIMP and PC-BOS systems target a 15-minute interaction, a precise moment or snapshot in time. It makes sense that parenting behavior assessed from these different frameworks do not align completely.

Whereas parent-report captures a more global view of parenting, the micro-coding observations target specific strategies that parents engage in, mapping directly on to the behavioral parent training intervention used in the larger randomized controlled trial (McIntyre, 2008).

Differences in findings may also be explained by challenges or limitations of each evaluation approach. Self-report is often recommended for evaluation of emotional states, feelings, and experiences. This study included self-report of parenting practices which evaluates what parents think they do. Reporting on one's own actions or practices may be especially challenging (Gardner, 2000). Both self-report and direct observation are susceptible to biases. With direct observation, researchers can assume participants are presenting their best selves that might not directly look like daily interactions. Self-report can also bring up socially desirable responding or be influenced by most recent (positive or negative) parenting interactions.

Results suggest that parents may think and report that they are providing more praise than they actually are. This is consistent with literature that individuals are more likely to overreport positive characteristics or practices (Swenson et al., 2016). An important consideration is the vulnerability participants may have felt when reporting on their parenting. Families who were undocumented, for example, may have felt reluctant to fully share their practices (especially if more harsh or negative) because of legitimate worries regarding the safety and unity of their family. Despite researcher assurances regarding confidentiality, this process may have felt evaluative which may have influenced parent responding.

Associations Between Observed and Self-Reported Parenting Practices

The second research question examined the extent to which observed and self-reported parenting practices were associated. The research question targeted whether what parents said they did aligned with that they were observed doing. The literature suggests that parent self-report and direct observation of parenting behaviors do not necessarily align; specifically, parents tend to overestimate their praise usage while underestimating criticism (Swenson et al. 2016). Results indicated some moderate associations between parent reported and observed measures, with the most significant associations being within measures. This intuitively makes sense that developed composites for each measure are more strongly associated with composites from the same measure. In addition, globally observed parenting behaviors (PPCOIMP) were significantly associated with self-reported parenting practices, while most micro or interval-coded practices (PC-BOS) were not significantly associated with self-report. It is likely that the global impressions rather than very specific micro-coded behaviors more closely get at the constructs measured in parent-report (PPI).

Proactive parenting was significantly negatively associated with reported use of physical punishment. This result was in the expected direction as proactive parenting practices (i.e., providing choices; calm, simple communication; verbal structuring, redirection, adjusting situation to assure child's interest and success) are likely to reduce the need for more serious physical discipline strategies. The moderate negative association between proactive parenting and clear expectations suggests that parents who use proactive parenting report using fewer clear expectations. Clear expectations target the provision of consequences for inappropriate behavior and specific rules (e.g., regarding bedtime, chores). With those proactive practices, there is decreased need for

implementation of consequences. This can also explain the significant association between clear expectations and observed physical aggression, as the more consequences used increases the likelihood parents escalate to physical consequences. Clear expectations was also significantly associated with inappropriate commands and lack of follow through. Parents who endorse use of consequences and rules are also more likely to issue many commands to implement these rules, so this is a logical association.

Expectantly, more observed parent warmth (i.e., praise, physical affection, responsiveness) was associated with less endorsed harsh/inconsistent discipline (i.e., raising voice, showing anger, threatening to punish but not actually, ignoring behavior) practices. Parents who were observed with higher limit setting (i.e., redirection, firm and sensitive limit setting) reported less use appropriate discipline (i.e., time out, removing privileges, following through with discipline) and harsh/inconsistent discipline. Limit setting can be considered a preventative practice that may reduce the need for more harsh discipline practices.

Parent reported use of praise and incentives (e.g., physical affection, praise, small gifts, stars on a chart) was surprisingly not associated with observed praise. This finding is contrary to that of Hawes and Dadds (2006) suggesting strong correlations between parent report of praise on the Alabama Parenting Questionnaire and directly observed praise. This could be because parents are not the best reporters of what they actually do regarding clear positive and harsh parenting (Swenson et al., 2016). Another explanation could be differences in how measures defined constructs. Further, parent report may be influenced by many factors other than the actual events being asked about (Morsbach &

Prinz, 2006). To gain a well-rounded view of parenting practices, collecting both parent reported and directly observed practices or relying on multiple methods, is likely ideal.

Differences in Observed Parenting Behavior by Family Characteristics

The third research question focused on family characteristics (i.e., child ASD status, race/ethnicity, family income, parent education) and whether there were differences in observed parenting practices by groups. The diverse sample makes these questions especially relevant and intriguing.

Child ASD Status

Interestingly, no significant differences were observed in parenting practices between children with and without ASD. This is somewhat surprising because parenting is influenced by the specific child and their reactions and responses; it is a two-way, dyadic relationship (Patterson, 2002). Parenting occurs within context of the parent child relationship. Children with ASD, a social communication disorder, have a set of symptoms that would likely influence the relationship differentially. Another explanation is that significant differences did not emerge in parenting practices because the ASD group was compared to a DD group. Findings likely would have been different if the ASD group was compared to a typically developing group.

Ethnicity

Findings indicate that Latinx parents were observed to set more limits and self-report use of positive verbal discipline practices (i.e., providing structure about child misbehavior, explanations, praise). Latinx parents were also observed to provide more inappropriate commands and engage in more lack of follow through than non-Latinx parents. There were no significant differences between Latinx parents and non-Latinx

parents regarding warmth, lack of follow through, descriptive commenting, or praise. Other parent-reported composites (i.e., clear expectations, harsh/inconsistent discipline, appropriate discipline, physical punishment, praise and incentives) also did not significantly differ by ethnic group. This is consistent with literature that Mexican American parents (Serrano-Villar et al., 2017) and Dominican and Puerto Rican mothers (Calzada & Eyberg, 2002) reported or were observed using high levels of positive parenting, warmth, and monitoring (Domenech Rodríguez et al., 2009) as well as low levels of harsh parenting. It also aligns with findings that Latinx mothers rarely reported using physical discipline practices or criticism (Calzada & Eyberg, 2002). This diverges from other findings suggesting Latinx parents report use of more harsh practices (Knight et al., 1994; MacPhee et al., 1996).

As many of the families in this sample were monolingual Spanish-speaking, it is likely that many of these parents are immigrants. Immigrants in the U.S. have faced increasing pressure related to unfavorable federal policies (Canizales & Vallejo, 2021). Worries about documentation status, family separation, finances, and accessing services are all stressors unique to the immigrant experience (Ayón et al., 2017). Immigrants are at a greater risk for psychological harm and serious health issues due to fears regarding deportation, family separation, and child detention (American Psychological Association; APA, 2019). These stressors may explain the higher levels of limit setting behaviors observed among the Latinx parents. However, these factors did not extend to less positive parenting for Latinx families, something that likely speaks to the resilience and strength of these individuals.

Family Income

The experience of poverty is complex and multilayered, exacerbated by structural inequalities. Income is a proxy for many other factors including race/ethnicity, education, and geographical location. More than half of our sample (52%) were "low income", while 33% of families were living at or below the federal poverty threshold. This indicates significant rates of economic hardship within our sample. The U.S. 2018 federal poverty rate was 11.8% (17.6% for Latinx individuals; United States Census Bureau, 2019), thus our sample was comprised of a more economically disadvantaged group than the national average. The pervasive nature of poverty suggests that participants have likely experienced its cumulative effects in areas such as parenting (Hoff et al., 2002).

Lower income parents, defined in this study as earning $49,000 or less, demonstrated significantly less use of descriptive commenting, warmth, praise, and proactive parenting. They were also observed to use more inappropriate commands and lack of follow through. These findings are consistent with the literature suggesting that family stressors associated with poverty have significant negative impacts on parenting (Gecas, 1979; Webster-Stratton, 1990). There is clear evidence for poverty-related disparities in parent use of positive parenting practices (Shah et al., 2015). Parents experiencing poverty have been found to demonstrate more punitive and less consistent parenting practices than higher income families (Kaiser & Delaney, 1996; La Placa & Corlyon, 2016).

Findings indicate the wide-reaching impacts of poverty, specifically for family dynamics and parent child interactions. It is noteworthy that families above the poverty threshold (i.e., 150%) have proximal experiences to families in poverty. These lower income families may be additionally disadvantaged by falling just out of the income

eligibility range for various federal programs and supports. Specifically, being low-income is a risk factor for engagement in parenting practices that are directly associated with child problem behavior (e.g., inappropriate commands, lack of follow through). This risk is greater than child risk factors, such as ASD or DD status. Poverty consists of complex stressors that are "closely associated with the absence of the conditions that foster healthy family functioning" (Kaiser & Delaney, 1996, p. 71). This quotation highlights the barriers families in poverty experience to function or parent optimally. Parents with lower income are also less likely to engage in more positive/warm and enriching (i.e., descriptive commenting) parenting practices. Given additional burdens associated with poverty, it is likely that there is less capacity for consistent and supportive parenting (Sampson & Laub, 1994).

Individuals in poverty and with lower income are more likely to experience chronic stress (Cassells & Evans, 2017; Conger & Donnellan, 2007; La Placa & Corlyon, 2016), trauma (Kiser & Black, 2005), early adversity (Steele et al., 2016), child psychopathology (Midouhas et al., 2013), and social-emotional challenges (Yoshikawa et al., 2012). These experiences might alter parent–child relationships. Parents in poverty who are concerned with meeting basic needs have less time and cognitive capacity to focus on using more positive parenting practices (Lakind & Atkins, 2018). Individuals in poverty are more likely to live in unsafe neighborhoods (Acevedo-Garcia et al., 2008), so parents' attention and capacity may also be focused on safety risks for their child with DD. Additionally, lower income parents may be working more to support the family and have less convenient and more inconsistent work hours (Lakind & Atkins, 2018), making them less available to engage in positive parenting. Parent work flexibility also impacts

the ease with which they are able to attend appointments for their child during the day or engage in parent training opportunities.

Families in poverty or with low-income status are often marginalized with much less access to medical care and/or services for children with disabilities. The concentration of poverty in neighborhoods means that there is insufficient access to health care, healthy food options, and quality schools (Acevedo-Garcia et al., 2008). These factors certainly negatively impact low income families with children with DD or ASD.

Together these findings are consistent with the literature and highlight the larger societal problems that low-income families experience. Families with fewer financial resources have less flexibility and without discretionary income, often must make difficult choices regarding needed items/services. When also caring for a child with a developmental disability, accessing needed tangible and instructional supports for the child is an additional difficult consideration. Parents with higher income may have resources to hire assistance (e.g., nanny, tutor, behavior specialist, skills trainer) to share the load of childcare or child skill building; even brief breaks can be refreshing and stress relieving to well position parents to use positive parenting practices upon their return. In addition, activities like descriptive commenting are likely easier to do with more toys, books, and activities in the home, and families with lower income might not have as much access to these resources. Indeed, studies have shown that caregivers with lower income were less likely to participate in cognitively stimulating interactive activities such as reading, singing, or engaging in storytelling (Hart & Risley, 1995; Shah et al., 2015).

Even considering the many challenges and barriers lower income families are up against, they also demonstrate resilience and resourcefulness. Many families with limited resources manage to sustain "positive dispositional traits" including positive parenting across generations (Jeon & Neppl, 2016, p. 30). The resilience of some lower income families has been connected to self-efficacy surrounding problem-solving abilities (Orthner et al., 2004), which can be targeted through parenting interventions and services.

Parent Education

Parent educational attainment is an important socioeconomic status factor and often linked to parenting practices and child outcomes (Azad et al., 2014; Hoff et al., 2002). Parent education and family income are often overlapping. In this sample, there were about 35% of parents who had not obtained a high school degree or the equivalent. Compared to parents with higher educational attainment (i.e., high school diploma or above), less educated parents were observed to use less warmth, praise, and descriptive commenting. This supports previous findings that parents of children with DD with higher levels of education demonstrated greater use of positive parenting practices such as positive affect, sensitivity, and cognitive stimulation (Azad et al., 2014; Ellingsen et al., 2013). Differences in warmth for lower educated parents is consistent other literature (Klebanov et al., 1994). More highly educated parents tend to use more positive parenting, even when faced with risk factors including child developmental delays and behavior problems (Ellingsen et al., 2003). Specifically, the extant literature suggests that more educational attainment is associated with less restrictive, punitive, and intrusive parenting (Hoff et al., 2002) though this differs from the pattern seen in this study. Parents in the current sample with higher educational attainment were not observed to use

significantly less harsh or intrusive parenting than parents with lower education, which might be explained by the generally low levels of harsh parenting observed in this sample. These results are counter to findings that parent education was not a protective factor when families were faced with other risk factors (Ellingsen et al., 2014). Findings regarding differences in descriptive commenting may be explained by literature suggesting higher educated mothers provide more explicit information (e.g., object labeling) during interactions with their child (Hoff et al., 2002; Lawrence & Shipley, 1996).

The current study provides a meaningful addition to the literature because studies investigating the impacts of parent education often report on differences in child outcomes instead of parenting practices (Hoff et al., 2002). The wide variety of parent educational attainment in this sample allows us to explore how it may be associated with parenting practices. Results underscore the importance of educational attainment for more warm parenting, positive reinforcement, and increased descriptive language use. Lower educated parents may benefit from more explicit teaching and modeling of these practices, such as through behavioral parent training interventions.

Impact of Parenting Practices on Child Problem Behavior

To answer research question four regarding the unique variance explained in child problem behavior by parenting practices, hierarchical linear regressions were conducted. Family characteristics (e.g., ethnicity, family income, parent education) were accounted for within the models. Specifically, we were interested in the impact of parenting practices on child noncompliance, since parenting behaviors during clean-up may be proximally associated with child behavior (e.g., Luehring, 2020).

Results across regression models show that family income was the only family characteristic that was explanatory even with the overlapping nature of other family factors (e.g., education); however, once parenting practices were entered, income became nonsignificant. When considering SES factors, other studies have also found family income to differentiate groups more than parent's educational attainment and result in more significant effects (Azad et al., 2014). Poverty and economic adversity are risk factors that are more significant than child factors (e.g., developmental disabilities, Emerson et al., 2009). In some cases, poverty led to greater risk for child developmental delay (Shah et al., 2015). Our findings suggest that in this sample, parenting practices significantly relate to observed child behavior problems (noncompliance).

Direct Observation

Parenting practices that were positive (e.g., praise, warmth) and more negative (e.g., inappropriate commands) were identified as predictors because they were most proximally associated with outcome variables – specifically child noncompliance. Praise (clean-up) and inappropriate commands explained 9.1% of variance in child noncompliance after controlling for income. This suggests that parenting practices such as providing adequate praise and fewer inappropriate or ineffective commands are directly connected to the likelihood that a child displays compliant behavior. Results also indicate it is necessary but insufficient for parents to be warm (e.g., sensitive, affectionate) when looking to improve child behavior. Efforts to reduce child problem behavior, specifically noncompliance, should target skills (e.g., effective commands, praise) that increase the likelihood of improved behavioral outcomes.

Results underscore the need for Behavior Parent Training (BPT) programs that explicitly teach and promote the use of positive parenting and limit setting. Fortunately, these programs typically already focus on adjusting parenting behaviors that may negatively influence child behavior. BPT programs such as the Incredible Years and Everyday Parenting enhance warm and positive parenting and improve parenting skills by teaching effective commands, follow through, specific praise, limit setting strategies, and positive structure (Dishion et al., 2012; Webster-Stratton, 2001). Compliance training also teaches parents to be more aware of the commands they provide and remain in the area to ensure follow through with "attention, appreciation, and praise" (Barkley, 2013, p. 110). A 1:1 ratio of parent commands and acknowledgement in the form of a consequence or positive reinforcement is ideal to increase child compliance (Webster-Stratton, 2001). So BPT focuses on reducing strings of commands, repeated commands, question commands, no opportunity commands, and "don't/ stop" commands as they are less effective in gaining child compliance. These trainings also teach parents to provide specific and immediate praise contingent on child appropriate behavior.

Self-Reported

Parent reported child problem behavior (i.e., CBCL Total Problems t-score) was used as the outcome variable for regression models involving parent self-reported parenting practices. Interestingly, family income was not a significant predictor in any parent reported regression model. This is somewhat surprising given the significance of income with observed behaviors and likely explained by the fact the observed and self-reported parenting get at slightly different things.

When both a more positive (e.g., clear expectations) and negative parent-reported practice (e.g., harsh/inconsistent discipline) was entered, the model remained nonsignificant. When only child externalizing behaviors was considered as the outcome variable, harsh/inconsistent discipline explained 8.5% of variance in child externalizing behavior. The fact that child total problems was not related to parenting behavior, while externalizing problems was, may be explained by the fact that parenting behaviors may not significantly influence child internalizing behaviors which comprise part of the CBCL Total Problems score. Additionally, child internalizing behaviors are less noticeable and disruptive for parents than externalizing behaviors. These findings are consistent with the literature that harsher parenting practices are associated with child challenging behavior (Brotman et al., 2009).

It is also critical to mention that diverse and often underrepresented participants (e.g., ethnic/racial, SES, primary language diversity) may be disadvantaged by behavioral coding systems and other frequently used measures that were designed with White individuals in mind. This is a problem within the field and may explain differences seen between groups using these measures. When families with varied backgrounds are evaluated based upon a Eurocentric "ideal" standard, differences in values or norms may be captured as more "negative". The only response for positive change in this area is for the field to actively recruit and retain large diverse samples to further validate measures in typically marginalized populations. Efforts like this will hopefully level the playing field and strengthen collective knowledge of parenting practices.

Implications

This study makes notable additions to the DD/ASD literature with findings representing a population underrepresented in DD/ASD studies (Safer-Lichtenstein et al., 2019). Because of our diverse sample, exploring differences in parenting practices between child ASD status, ethnicities, family income and parent education was feasible. Findings highlighted the pervasive nature of poverty in our community sample and the associations between income/parent education on parenting behavior. Differences in parenting practices were more pronounced for income and parent education, while there were fewer differences between ethnicity groups (Latinx vs. non-Latinx) and child diagnoses (ASD vs. non-ASD). Intervention researchers and community providers should consider the impact of poverty on parenting and prepare to differentially support lower resourced families in group and individualized settings. Thus reducing barriers for research participation and access to community services is critical for lower income families to be engaged. Supports such as providing childcare, snacks or dinner, convenient group locations, and/or internet access are examples of ways to address barriers to engagement and retention.

The findings from this study emphasize the need for parent skill building in the current sample. Parents were observed to use many inappropriate commands with corresponding high rates of lack of follow through. These inconsistent parenting practices are likely a “go-to” strategy for many parents who may not yet have a broad repertoire of parenting skills. For children with DD, parents likely need to be additionally conscious to be clear and provide consistent follow through to reduce confusion with children that have delays in adaptive and cognitive skills. These findings highlight the need for

culturally sensitive and appropriate parenting interventions that can provide support for parents living in under resourced communities.

A positive finding is that the significant predictors of child noncompliance, praise and inappropriate commands, are parenting behaviors that are amenable to change unlike other factors (e.g., income, ethnicity, child ASD status) and part of parent training curricula. As part of the larger study, parents in the current sample will be randomized to receive one of two 16-week interventions that involve behavioral parent training and either a stress reduction intervention or a social support intervention through community supports and psychoeducation. Follow-up assessments as part of the larger study will investigate change in parenting and child behavior.

Our exploration of the associations between parent self-reported and observed parenting practices determined only small associations. Parents may find it more challenging to accurately reflect and report on their own use of parenting practices in a variety of settings. Although direct observations may be more time-consuming and expensive, these data add value to research findings and provide unique insight into the parent–child relationship, particularly if these measures are repeated over time.

Limitations

The present study has several important limitations that are described below. This study was cross-sectional in nature and used baseline data from three cohorts involved in an ongoing randomized controlled trial. Thus, change over time (or response to intervention) cannot be inferred. Cross-sectional designs do not allow researchers to draw causal conclusions or use stronger language regarding outcomes such as “predict”; rather, conclusions are discussed as significant associations and unique variance explained.

Another limitation involves the dichotomization of income for analyses, as it is best practice not to transform continuous variables in this way. Given the wide variability and skew seen with the family income variables, this step was conducted to separate income into meaningful groups that were somewhat equal and to highlight the economic disadvantage seen in the current sample. It is acknowledged that income is more nuanced than low-income or not low-income categories. Additionally, considering the sensitive nature of family immigration and documentation status, we did not collect more specific information about Latinx family backgrounds. This information could be useful in exploring differences and similarities in parenting across immigration status' or ethnic subgroups.

In addition, parent self-report was an integral part of the study, with parents reporting on their parenting practices and child behavior problems. Self-report is always subject to rater biases and concerns regarding social desirability. Additionally, parents are asked to consider specific timeframes but may allow more recent events (e.g., tantrum the morning of the assessment) to influence their ratings. In particular, many measures were used as part of the larger project, so parents may have experienced more fatigue or confusion (i.e., carrying instructions over from a previous measure) if they chose to complete the packet all at once. Direct observations represent only a brief moment (i.e., 15-minutes) in time and can also be influenced by coder bias. However, given strengths and limitations of both methods for assessing parenting practices, the use of parent report and direct observation was a strength of the study.

The PPI was the measure of self-reported parenting practices used. Though it somewhat aligns with direct observation measures, other parenting practice measures

may have also been selected such as the Alabama Parenting Questionnaire (APQ, Essau et al., 2006). The APQ has five subscales of parenting (i.e., involvement, positive parenting, inconsistent discipline, poor monitoring, corporal punishment) found to be linked to child behavior problems (Hawes & Dadds, 2006). It is commonly used in studies looking at associations between parent reported and directly observed practices. Finally, the Bonferroni correction was not employed for the third research question, which is an often helpful but conservative approach when conducting multiple significance tests (i.e., repeated independent samples *t*-tests).

Future Directions

There are several avenues researchers could take to extend findings related to parenting practices and child problem behaviors. Intervention research should also continue to prioritize culturally responsive intervention components for behavioral parent training specifically as it relates to ethnically and socioeconomically diverse participants (Barker et al., 2010). The most optimal outcomes are likely to result from direct researcher-community partnerships that inform the development of contextually appropriate procedures and materials to build parent's skills. Parent focus groups, community partnerships, and contact with primary care providers are all ways to engage in this critical work (e.g., Magaña et al., 2014). Some families may need more individualized supports to support broader needs that are tailored to family strengths and areas of growth. Services can be modified based on child and family needs. Contextual and structural barriers that prevent engagement and retention of marginalized populations should be carefully attended to and dismantled when possible.

Evaluating parent mental health in this population is important as mental health directly influences parenting practices and child behavior (Smith, 2004). Parents of children with developmental disabilities have been found to experience greater stress than parents of typically developing children (Baker et al. 2003; Neece, 2014), and stress may directly impact depressive symptoms (Farmer & Lee, 2011). Due to COVID-19, mental health concerns across the population are incredibly high (Gordon, 2021) and parents have additional stressors related to childcare and distance learning (Patrick et al., 2020). Therefore, understanding the impact of parent depression on parenting practices and child behavior can inform what is known about risk and protective factors. Although data from the current study were collected prior to the COVID-19 pandemic, it is important to recognize that families currently may experience isolation related to the pandemic that negatively impacted parent utilization of personal and professional supports (Patrick et al., 2020) that encourage use of positive parenting practices. This might also be worth exploring to better understand the impacts of the pandemic on parenting practices, particularly among families with children with DD and ASD, who also have specialized support needs (Neece et al., 2020).

Finally, future research may obtain parent-reported self-efficacy relating to their parenting. Though self-report may not be the best way to evaluate parenting practices, it may be a better suited option to measure self-efficacy which could have an interesting impact on parenting practices.

Conclusion

An evaluation of baseline parenting practices and their associations with child problem behavior yielded interesting findings that meaningfully contribute to the

developmental disabilities literature, with focus on traditionally marginalized and understudied population (i.e., Latinx, low-income families). Parents self-reported and were observed using primarily positive strategies. While warm parenting is important, it is also essential to pay specific attention to increasing the use of clear, effective commands and praise to promote child compliance. Parents with lower income and educational attainment experience additional cumulative risk factors that make positive parenting practices more difficult given other stressors. Results demonstrate the need for culturally sensitive parenting interventions to promote positive parenting strategies to support children with DD or ASD. Additional considerations will likely be required to support use of these practices within lower income communities. Continued proactive efforts to recruit and retain ethnically and socioeconomically marginalized participants as well as connect them with services is essential to improve child and family outcomes.

APPENDIX A

PARENT-CHILD INTERACTION ASSESSOR SCRIPT

"Next we will be conducting a short, 15 minutes observation of you and your child playing with some toys I brought. It is important that both you and your child stay here together in this area of the room, so that you are in full camera view. Please do your best to minimize distractions. Please silence your cell phone and do not make any phone calls or turn the TV on during our 15-minute observation. Do you have questions?"

STANDARDIZED TOYS - FREE PLAY
(10 minutes)

"**You and your child will have the chance to play with these toys I brought. Try to pretend like I'm not here and play like you normally would. <u>I'll let you know when it's time to clean up</u>."**

- Push Bin to Mom
- ***Assessor 1 dumps out at the same time Assessor 2 says "GO"***

00:00 Start Timer at "Go"
"GO AHEAD AND PLAY"

09:00 One Minute Warning:
"**You have one more minute before it's time to clean up and get ready for the next activity."**

10:00 Stop Timer

CLEAN UP
(2 minutes)

"It's time to clean up now. <u>Please put all of toys back into the box</u>."
10:00 Start Timer at "GO"
"GO AHEAD AND CLEAN UP."

If child and parent finished cleaning but two minutes are not yet finished, say,
"Wow! That was fast! We have ____ more minutes/seconds until the next activity."

12:00 Stop Timer

If all of the toys have been picked up after two minutes, say,

"Thank you for cleaning up so quickly! We have one more activity today." If all the toys have NOT been picked up, say,
"Thank you for helping clean up. Let me quickly help finish so we can move on to our last activity."

- Help clean up toys if necessary **(**You can finish later if needed)
- Move toy bin out of reach

TEACHING ACTIVITY
(3 minutes)

"Here are three different activities you can choose from. <u>Please pick something to work on</u>."

- Set Structured activity bag down

12:00 Start Timer at "Go"
"GO AHEAD AND GET STARTED"

14:00 One Minute Warning:
"**You have one more minute.**"

15:00 Stop Timer

- Experimenter **offers praise/encouragement** at the end of 3 minutes.

APPENDIX B

BEHAVIORAL CODES AND DEFINITIONS

Note: only parenting behaviors used in analysis are defined below

Inappropriate Commands

Ambiguous Commands: An unclear directive that requests the child to respond with a behavior change. May include the following types: one-word follow up commands; counting as a command follow-up; single-world prompts that function as a command; specific behavior requested is not included in the command; time frame for the behavior change is not specified; command stated as a question; "Let's" command when the parent has no intention of joining; "can you" or "should we" commands.

No-Opportunity Commands: More than one command delivered to the child in a row without time allowed for completion of each individual command before another is verbalized. The demanded behavior change may be clearly identified, however, there is more than one command listed in the statement.

Repeated Commands: Any type of command that is repeated more than two times as a result of non-compliance.

"Don't", "Stop", or "No" Command without including other options: The parent gives the child a command that prohibits them from doing something without providing suggestions as to what they can do instead.

Threatening commands: Parent gives an unclear consequence as a result of a behavior.

Lack of Follow Through (only coded after an appropriate or inappropriate command)

Withdrawing Commands: The parent withdraws the command after the child responds in a negative manner such as screaming, tantruming, or hitting.

Ignoring Compliance to Commands: Parent gives commands without recognizing compliance or noncompliance

Descriptive Commenting

Descriptive Commenting: Providing an appropriate (neutral/positive) running commentary on child's play or other positive behavior (like a sportscaster).

Labeling: Parent provides language (vocabulary) for the child about something the child is attending to.

Praise

Praise: Reinforcing a positive child behavior through attention, a hug, a smile, verbal praise, and excitement. Each instance of praise is counted separately.

APPENDIX C

PRO-PARENTING CODER IMPRESSIONS (PPCOIMP)

1. Does the parent encourage positive child behavior with praise and/or incentives? (e.g. "good job!; "keep going like that and you'll be an expert)

2. Does the parent use directives that seem specific and clear to the child? (e.g. "Put the toys back in the box"; "come here and sit next to me" vs. less clear questions like "do you want to clean up now?")

**Consider: Inappropriate commands, rate whether the directives are clear, NOT if the child follow them.*

3. Does the parent prompt the child to transitions and/or future requests for behavior change? (e.g. "we have one more minute to play with these toys before we have to put them away")

4. Does the caregiver set limits firmly and sensitively (i.e. without using aversive control techniques such as yelling, anger, criticism, threats)?

**Consider: If the parent clear and consistent with limits, are they following through, etc.*

5. Does the parent provide praise and rewards without regard to child's behavior (non-contingently)? (e.g. child complains/whines and parent offers treats/gives praise; saying "good job" for most of the child's actions regardless of if they are actually doing a good job)

6. Does the parent give in to the child's negative moods or behaviors with treats and positive activities? (e.g. making jokes, hugs, tickles, playing games)

**Consider: Positive consequences for child inappropriate behavior, follow through.*

7. Does the parent seem to be avoidant or reluctant to set limits on the child, allowing the child to engage in misbehavior without responding? (e.g. child throws toy and parent doesn't respond; child pushes boundaries and parent ignores and allows the behavior)

8. Does the parent seem to over-indulge or spoil the child? (e.g. absence of limit-setting; doing whatever the child wants regardless of what the situation calls for; child says they don't want to help clean up and parent says "ok")

9. Does the parent follow through with requests or directives to assure compliance and/or cooperation? (e.g. parent gives command and if child doesn't comply the parent continues to direct the child until they have done what the parent asked; parent asks child to put a toy away and continues to do so if child doesn't comply immediately)

**Consider: If the parent is following through consistently and the child does not comply, do not mark the parent down for this. Only consider parent follow through, NOT child compliance level.*

10. Is the parent appropriately contingent in responding to positive or compliant child behavior? (e.g. praising child for following a direction; generally positive when child is pro-social/obedient; praises or encourages child's efforts)

11. Is the parent appropriately contingent in responding to negative or non-compliant child behavior? (e.g. provides reminders; assists child with completing task; provides consequences; verbal reprimands)

12. Does the caregiver give the child choices? (e.g. "What toy would you like to play with?"; "Shall we play with the kitchen set first, or the animals first?")

13. Does the parent communicate to the child in calm, simple and clear terms? (e.g. doesn't use big words that the child doesn't understand; communicates what they want to the child clearly; doesn't get annoyed/frustrated with the child)

14. Does the parent give understandable, age appropriate reasons for behavior change? (e.g. empathetic and sensitive to the child's needs; speaks with child using language the child understands)

**Consider: If child asks "why?" about something, consider how the parent responds.*

15. Does the parent adjust or define the situation so as to assure the child's interest, success and comfort? (e.g., making a game, reframing the activity, explains concept in a different way if child doesn't understand)

16. Does the parent redirect the child to more appropriate behavior if the child becomes off task, uncooperative or misbehaves? (e.g. child leaves room and parent calls the child back in and tells them to sit down; child starts complaining during a focused task, parent says "no, it's time to do this activity now")

17. Does the caregiver seem to be responsive to the child's feelings? (e.g. "I know you're getting frustrated"; "don't worry, you don't need to get it exactly right!")

18. Does the caregiver seem to be inconsistent in responding to the child's behavior? (e.g. child throws toy, mom says "don't throw the toy" but child keeps repeating the behavior and mom doesn't respond)

**Consider: This is child behavior in general, can include both negative and positive behaviors.*

19. Does the parent use verbal structuring to make the task manageable? (e.g. dad says "lets first take all the blocks out of the bucket, then look for the biggest pieces, then we can find the smaller ones")

20. Does the parent seem 'tired-out', depressed, or 'out of it' during the task?

21. Does the parent seem stressed out during the task?

22. Does the parent seem overwhelmed during the task?

23. Does the parent threaten the child with any sort of punishment to gain compliance? (e.g. mom says "you can't go to grandpa's house if you don't finish this"; "if you don't stop messing around you won't get a sticker")

24. Does the parent criticize or blame the child for family problems or other family difficulties or stressors?

25. Does the parent use physical discipline during the observation session? (e.g. smacking, flicking, pinching, hitting)

**Consider: Frequency and intensity of physical discipline displayed.*

26. Does the parent seem in firm control and in a leadership role with the child?

27. Does the parent generally display anger, frustration, and/or annoyance during activities?

**Consider: Both frequency and intensity of anger, annoyance, frustration displayed*

28. Does the parent seem negatively emotionally reactive to the child or situation? (e.g. has negative emotions in response to child's behavior or statements)

29. Does the parent seem to act without thinking or "run on autopilot"?

30. Does the parent express his/her emotions inappropriately?

31. Does the parent seem present on a moment-to-moment basis during the interaction, attentive to and aware of what is happening during the interaction?

32. Does the parent show affection and/or love for the child during the observation session? (e.g. parent smiles; general overall warmth; positive physical contact)

33. Does the parent hug, kiss, cuddle, tickle or otherwise touch the TC in a positive way during the session?

**Consider: Rate parent based on any extent of positive physical contact. E.g., if lots of positive physical contact in one task but not in the others, still rate the parent based on the extent of positive physical contact in the one task.*

34. Does the parent actively ignore/reject the child? (e.g. child show parent a toy during play task and parent continually doesn't respond; child asks for help and the parent continues doing something else; parent on their phone or focusing on sibling when child seeking their attention)

35. Does the parent make statements or gestures that indicate that he or she feels the child is worthless?

36. Does the parent make affective communication errors? (e.g., talks in inviting voice, but physically blocks access)

37. Does the parent engage in role confusion? (e.g., draws attention to self when child is in need)

38. Does the parent seem disoriented when interacting with the child? (e.g., appears confused, hesitant, or frightened; displays incongruous affect to the child and the situation)

39. Does the parent demonstrate any negative-intrusive behavior? (e.g., mocks or teases child and his or her behavior/statements)

40. Does the parent seem to withdraw from the child? (e.g., fails to initiate interaction when cued; does not respond to child's cues for interaction/joint play/emotional or physical support)

41. Does the parent provide high-quality instructional and emotional support to the child during structured activities? (e.g. following child's cues, moving at child's pace, helping child self-regulate, teaching child)

42. Is the child compliant and cooperative with the parent's directives and requests? (e.g. does what parent asks, clearly listens to parent)

43. Does the child seek out the parent, indicating reliance on the parent for reassurance and/or safety?

44. Does the child hug, kiss, cuddle, tickle or otherwise touch the parent in a positive way during the session?

**Consider: If parent hugs child and the child leans in for the hug but does not put arms around the parent, this is still considered reciprocating the positive physical contact. If they do not move, or move away from the parent, this is NOT considered positive physical contact.*

45. Does the child seem afraid or avoidant of the parent?

46. Does the child react with physical violence to the parent?

**Consider: How negative physical contact is defined.*

47. Does the child seem dysregulated and difficult to manage, unable to control his/her behavior and emotions? (e.g. trouble following rules; can't sit still; easily upset/angry; dramatic emotions or emotional shifts)

48. Does the TC become overly upset or angry with tasks or changes in routines? (e.g., putting toys away, throwing a tantrum during clean-up task; doesn't want to put blocks away to switch to homework task)

49. Does the TC seem overactive or impulsive? (e.g. keeps getting up and leaving room; grabs at toys before they are supposed to play with them)

50. Does the TC get excited with visitors and attempt to touch or interact with the interviewer(s), filmer(s), and/or the research equipment (i.e., cameras, storage containers, etc.)?

51. Does the TC seem anxious, timid, or shy? (e.g. hides behind parent; nervous around assessors; looks at parent for approval/security)

52. Does the TC seem to have difficulty inhibiting behaviors that are unrelated to the task or task instructions?

53. Does the TC seem to have difficulty staying on task and following caregiver instructions? (e.g. easily distracted, complains, wants to touch/play with something that is not part of task)

54. Choose the option below that best describes the quality of the child's overall level of compliance during the observational session:

A. Committed compliance
Child stayed engaged in tasks willingly and appeared to have "embraced" the session wholeheartedly. She or he did not need parental interventions to maintain task orientation: the child seemed to be committed to the activities.

B. Situational compliance
The child was generally cooperative but needed parental prompting to stay engaged in the session – otherwise he or she tended to cease to comply.

C. Passive noncompliance
The child failed to follow parental instructions during activities. When prompted, the child tended to be reluctant and ignore most directives. The child may have been engaged in the activities, but not in a cooperative manner.

D. Refusal/Negotiation
The child did not comply to parent directives and suggestions and, if prompted, tended overtly to refuse and/or negotiate with the parent, but in a non-aversive manner. This child may have been engaged in some tasks, but openly refused or negotiated with many parent instructions.

E. Defiance
The child did not comply to parent directives and, if prompted, refused by defiance, with poorly controlled anger, whining, kicking toys or having a temper tantrum.

55. How likely is it that this family will have a loving (i.e., close and positive) interpersonal relationship five years following the filming of this session?

56. Is the caregiver overweight?

57. Is the child overweight?

58. Comments on this family interaction?

59. Was there any indication that the family might not be functioning as they usually do? If so, please describe:

PPCOIMP COMPOSITES

Proactive Parenting: items 12, 13, 14, 15, 16, 19

Limit Setting: items 4, 7 reversed, 8 reversed, 11, 16, 26

Warmth: items 1, 17, 32, 33, 41

Child Composites

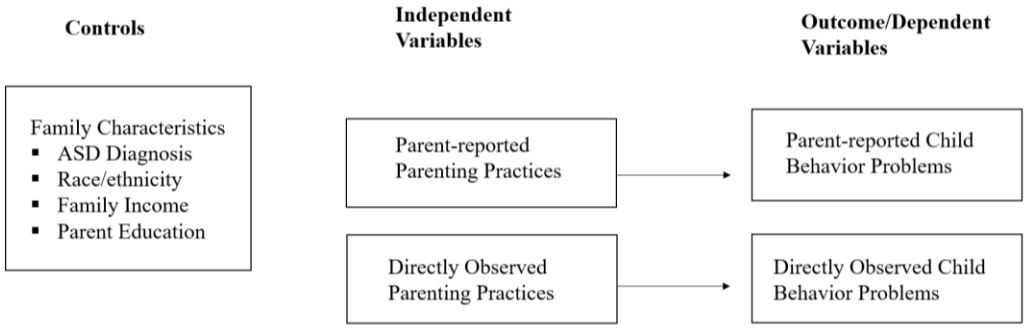
Noncompliance: items 42 reversed, 47, 54

Maladaptive Behavior: items 48, 49, 52, 53

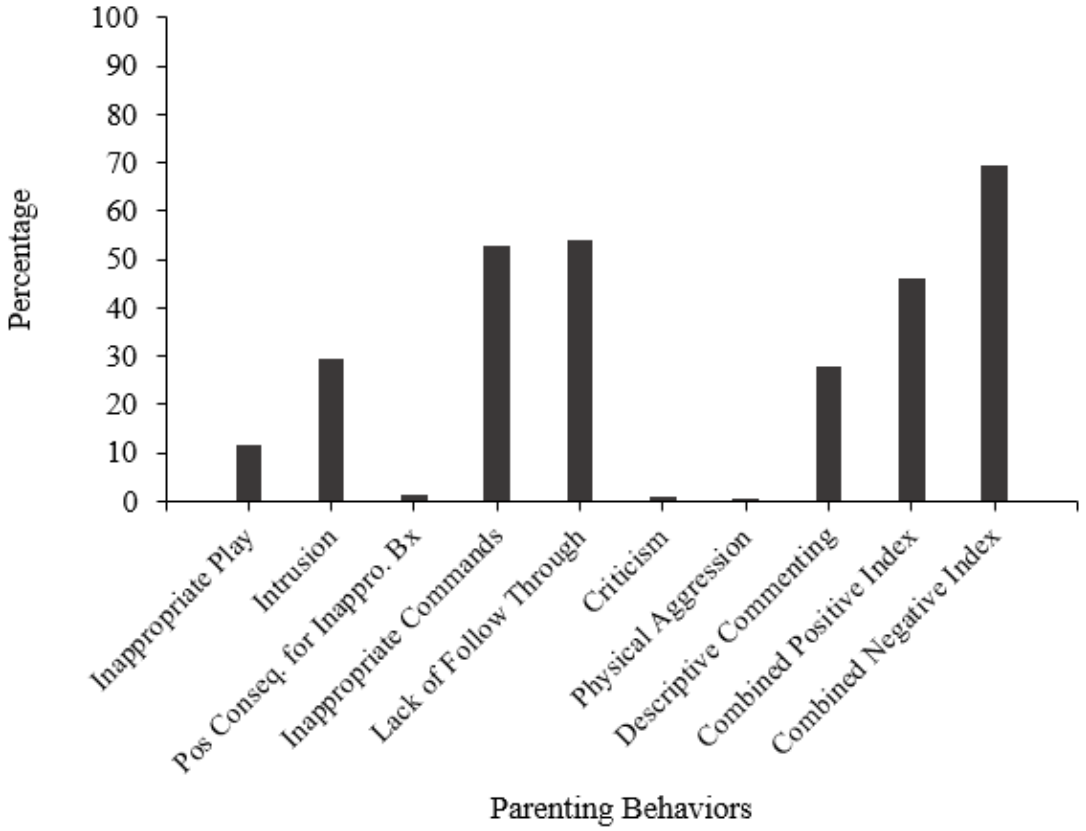
APPENDIX D

FIGURES AND TABLES

Conceptual Model



PC-BOS Parenting Behaviors



Participant Demographics (N = 109)

	Mean (SD)	*n* (%)
Child demographics		
Sex (female)		41 (37.6)
Race (Hispanic/Latinx)		79 (72.5)
(White)		27 (24.8)
(Black)		8 (7.3)
Age in years	3.82 (.81)	
Primary diagnosis (ASD)		43 (39.4)
(Developmental Delay)		14 (12.8)
CBCL total problems *t*-score	69.29 (10.96)	
Caregiver demographics		
Sex (female)		108 (99.1)
Race (Hispanic/Latinx)		79 (72.5)
(White)		25 (22.9)
(Black)		8 (7.3)
At or below the federal poverty threshold		36 (33)
Low income*		57 (52.3)

*indicates 150% of poverty threshold

Correlations Between Parent Reported and Observed Parenting Practices (PPCOIMP)

Variable	1	2	3	4	5	6	7	8	9
1. Proactive Parenting	—								
2. Warmth	.56**	—							
3. Limit Setting	.70**	.27**	—						
4. Appropriate Discipline	-.13	-.03	-.24*	—					
5. Harsh/Inconsistent Discipline	-.15	-.23*	-.26**	.20*	—				
6. Positive Verbal Discipline	-.003	.14	-.10	.65**	.06	—			
7. Physical Punishment	-.26**	-.19	-.19	.27**	.36**	.15	—		
8. Praise and Incentives	.065	.02	.04	.16	-.06	.30**	-.10	—	
9. Clear Expectations	-.25*	.50***	-.002	.41**	.06	.14	.24*	.14	—

Note. **$p < .01$, *$p < .05$

Correlations Between Parent Reported and Observed Parenting Practices (PC-BOS)

Variable	1	2	3	4	5	6	7	8	9	10
1. Inappropriate Commands	—									
2. Lack of Follow Through	.96**	—								
3. Descriptive Commenting	-.19*	-.19	—							
4. Praise	.14	.09	.21*	—						
5. Appropriate Discipline	-.80	-.11	-.03	.03	—					
6. Harsh/Inconsistent Discipline	-.12	-.10	-.16	-.17	.20*	—				
7. Positive Verbal Discipline	-.08	-.09	.05	.16	.65**	.057	—			
8. Physical Punishment	.09	.07	-.16	-.06	.27**	.36**	.15	—		
9. Praise and Incentives	.02	.02	-.01	.10	.16	-.06	.30**	-.10	—	
10. Clear Expectations	.22*	.23*	-.12	-.004	.41**	.06	.14	.24*	.14	—

Note. $^{**}p < .01$, $^{*}p < .05$

Comparing Children with an ASD Diagnosis and without an ASD Diagnosis

Variable		Child Diagnosis ASD (n=43)	Not ASD (n=65)	*t*-value	p-value
Proactive Parenting	M	6.14	6.41	-1.41	.162
	SD	(1.00)	(.96)		
Limit Setting	M	6.66	6.88	-.96	.339
	SD	(1.37)	(1.08)		
Warmth	M	5.07	5.51	-1.80	.073
	SD	(1.32)	(1.19)		
Inappropriate Commands	M	17.21	14.92	1.89	.061
	SD	(6.58)	(5.83)		
Lack of Follow Through	M	17.40	15.46	1.53	.129
	SD	(7.15)	(5.90)		
Descriptive Commenting	M	7.77	8.69	-1.08	.282
	SD	(4.33)	(4.37)		
Praise	M	11.56	11.94	-.21	.837
	SD	(9.34)	(9.38)		

Comparing Latinx and Not Latinx participants

Variable		Ethnicity		*t*-value	p-value
		Latinx (n=78)	Not Latinx (n=30)		
Proactive Parenting	M	6.29	6.30	.051	.960
	SD	(1.01)	(.91)		
Limit Setting	M	6.95	6.38	2.26	.026
	SD	(1.10)	(1.37)		
Warmth	M	5.21	5.65	-1.65	.102
	SD	(1.25)	(1.23)		
Inappropriate Commands	M	16.72	13.53	2.44	.016
	SD	(6.31)	(5.41)		
Lack of Follow Through	M	17.42	13.13	3.22	.002
	SD	(6.29)	(5.96)		
Descriptive Commenting	M	8.15	8.77	-.65	.515
	SD	(4.56)	(3.81)		
Praise	M	10.99	13.87	-1.45	.151
	SD	(9.13)	(9.64)		

Comparing Low Income and Not Low-Income participants

Variable		Household Income Low Income (n=56)	Not Low Income (n=52)	*t*-value	p-value
Proactive Parenting	M	6.05	6.56	-2.82	.006
	SD	(1.01)	(.87)		
Limit Setting	M	6.80	6.78	.08	.937
	SD	(1.21)	(1.20)		
Warmth	M	4.81	5.89	-4.95	.000
	SD	(1.19)	(1.07)		
Inappropriate Commands	M	17.98	13.52	3.98	.000
	SD	(5.89)	(5.76)		
Lack of Follow Through	M	18.57	13.71	4.20	.000
	SD	(5.99)	(6.04)		
Descriptive Commenting	M	7.09	9.65	-3.18	.002
	SD	(4.53)	(3.76)		
Praise	M	9.88	13.85	-2.25	.026
	SD	(8.57)	(9.73)		

Comparing Parents without a HS Diploma and with a HS Diploma (or Above)

Variable		Parent Education		*t*-value	p-value
		No HS Diploma (n=37)	HS Diploma or Above (n=71)		
Proactive Parenting	M	6.08	6.41	-1.64	.103
	SD	(1.01)	(.95)		
Limit Setting	M	6.97	6.70	1.13	.260
	SD	(1.13)	(1.23)		
Warmth	M	4.91	5.56	-2.62	.010
	SD	(1.09)	(1.29)		
Inappropriate Commands	M	16.43	15.52	.721	.472
	SD	(6.47)	(6.11)		
Lack of Follow Through	M	17.08	15.79	.99	.327
	SD	(6.53)	(4.81)		
Descriptive Commenting	M	6.95	9.04	-2.43	.017
	SD	(4.81)	(3.95)		
Praise	M	9.00	13.24	-2.29	.024
	SD	(9.35)	(9.03)		

Regression Results for Observed Child Non-Compliance (N = 108)

Parameter	Model 1				Model 2			
	b	*SE*	*t*	*p*	*b*	*SE*	*t*	*p*
Income	-.23	.50	-1.99	.049	-.08	.55	-.61	.546
Parent Education	-.01	.52	-.09	.929	-.01	.51	-.04	.965
Ethnicity	-.05	.57	-.47	.642	-.08	.56	-.71	.479
Warmth					-.05	.20	-.43	.668
Praise					-.23	.03	-2.13	.035
Inappropriate Commands					.26	.04	2.54	.012

Note. Model 1 $R^2 = .044$, $F = 1.58$, $p = .199$. Model 2 $\Delta R^2 = .095$, $\Delta F = 3.69$, $p = .018$.

Regression Results for Observed Child Non-Compliance (N = 108)

Parameter	Model 1				Model 2			
	b	*SE*	*t*	*p*	*b*	*SE*	*t*	*p*
Income	-.20	.43	-2.14	.034	-.09	.43	-.94	.349
Praise (Clean-Up)					-.29	.08	-.3.2	.002
Inappropriate Commands					.23	.04	2.35	.021

Note. Model 1 $R^2 = .042$, $F = 4.59$, $p = .034$. Model 2 $\Delta R^2 = .119$, $\Delta F = 7.38$ $p = .000$.

Regression Results for Reported Child Total Problem Behavior (N = 98)

Parameter	Model 1				Model 2			
	b	*SE*	*t*	*p*	*b*	*SE*	*t*	*p*
Income	.04	2.24	.40	.692	.04	2.30	.42	.674
Clear Expectations					.05	1.24	.52	.602
Parent Harsh/Inconsistent Discipline					.17	1.30	1.63	.107

Note. Model 1 $R^2 = .002$, $F = .198$, $p = .657$. Model 2 $\Delta R^2 = .031$, $\Delta F = 1.52$, $p = .363$.

Regression Results for Reported Child Externalizing Behavior (N = 98)

Parameter	Model 1				Model 2			
	b	*SE*	*t*	*p*	*b*	*SE*	*t*	*p*
Income	.10	2.13	.99	.323	.07	2.04	.74	.459
Parent Harsh/Inconsistent Discipline					.31	1.17	3.17	.002

Note. Model 1 $R^2 = .010$, $F = .987$, $p = .323$. Model 2 $\Delta R^2 = .094$, $\Delta F = 5.56$, $p = .005$.

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