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Association of Working Alliance and Parenting Stress for
Mothers of Toddlers At-Risk for Autism Spectrum Disorder

A thesis submitted in partial satisfaction of the requirements
for the degree Master of Arts in Education

by

Cristiana Vattuone

2013

ABSTRACT OF THESIS

Association of Working Alliance and Parenting Stress for
Mothers of Toddlers At-Risk for Autism Spectrum Disorder

by

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Master of Arts in Education

University of California, Los Angeles, 2013

Professor Connie Kasari, Chair

Introduction: Parents of children with autism spectrum disorder (ASD) consistently report elevated levels of parenting stress. The complexities associated with raising a child with ASD put parents at greater risk, highlighting the importance of understanding potential stressors and protective factors that impact parental wellbeing. As the prevalence of ASD continues to increase, children are being screened and identified at earlier ages. Still, little is understood about parents of children at-risk and the factors associated with parenting stress within this population. The purpose of this study was to examine stress profiles for parents of very young children at-risk, and to examine the working relationship or *alliance* between parents and early interventionists providing a research based intervention program.

Methods: This study utilized a working alliance framework to examine the association of alliance on lowering parental stress levels over the course of a 12-week parent mediated early intervention project. 66 toddlers at risk for autism were randomized into 12 sessions of a parent-mediated intervention group or 4 sessions of a parent education group. 45 of the 66 participants were included in the current sample. Parenting stress was measured at two time points pre and post treatment, and working alliance was measured post treatment.

Results: Findings suggest that the caregivers in this study who participated in a parent-mediated intervention for their toddler at-risk reported on average clinical levels of parenting stress, as has been reported by parents of older children with ASD. Findings also showed that caregivers who participated in a parent-mediated treatment condition demonstrated higher alliance than the monitoring group. Alliance was marginally associated with lower parenting stress at the end of treatment.

Conclusion: Future studies should examine alliance and parenting stress in larger samples as alliance could be an important factor in lowering parenting stress for families of at risk toddlers who are engaged in early intervention.

The thesis of Cristiana Vattuone is approved.

Sandra Graham

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University of California, Los Angeles

2013

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Introduction

Parenting a child with a developmental disability can present its challenges, and families of children with autism spectrum disorder (ASD) may be particularly vulnerable. Parents of children with ASD consistently report higher levels of stress compared to parents of children with other developmental disabilities, such as Down syndrome and fragile x syndrome. These parents are also more likely to experience psychological symptoms of depression and anxiety (Baker-Ericzen, Brookman-Frazee, & Stahmer, 2005; Bebko, Konstantareas & Springer, 1987). The complexities associated with raising a child with ASD put parents at greater risk, which highlight the importance of understanding potential stressors that impact parental wellbeing.

While parenting stress is well documented among parents of children formally diagnosed with ASD, little is understood about families whose children are at-risk or newly diagnosed. The prevalence of ASD is now reported in 1 in every 88 children (CDC, 2012) in the United States, and with recent advancements in early screening and diagnostic measures, children are being diagnosed at much younger ages than previously possible. As a result, further inquiry into the potential stressors experienced among this group of parents is essential.

Thus, the aim of this study is to examine stress profiles of parents of younger children at-risk, as well as the association of parenting stress and working alliance between caregivers and early intervention providers. Given the paucity of research on family wellbeing and young children at-risk, this study aims to broaden our understanding of parenting stress to a much younger age group of children at-risk.

Early Warning Signs of ASD

Autism Spectrum Disorder is a neurodevelopmental disorder that affects cognitive, social, and behavioral functioning. ASD now encompasses related disorders, including autism, Asperger's syndrome, and pervasive developmental disorder-not otherwise specified (PDD-NOS). Although autism symptoms are highly variable, there are unifying characteristics among children on the spectrum that include difficulties with social relatedness, communication, changes in routines, and repetitive behaviors.

Onset of ASD symptoms must be present before 3 years of age, and formal diagnosis is possible using the following diagnostic framework: criteria from the Diagnostic and Statistical manual of the American Psychiatry Association (DSM-IV), algorithm scores from the Autism Diagnostic Observation Schedule (ADOS) (Lord, 2000), parent interviews, and medical history records. The ADOS is a standardized, semi-structured assessment and is considered the 'gold standard' in diagnosis of ASD. Previously, reliability and consistency of ADOS scores across development could be made by 3 years of age (Charman, Taylor, Drew Cockerill, Brown, & Baird, 2005). However, with recent advancements on early warning signs of ASD diagnosis can now be reliably made as early as 24 months (Lord, Luyster, Guthrie, & Pickles, 2012).

ASD is now considered a significant public health concern with the prevalence increasing each year (Zwaigenbaum, Bryson, Lord, Rogers & Carter, 2009). The American Academy of Pediatrics now recommends developmental surveillance of all children, with ASD screening beginning at 9-months of age, and continuing at 18- and 24-months. Early parent concerns are generally expressed first to pediatricians, and commonly relate to their child's delay in speech and communication (Rogers, 2009). While a

'wait and see' attitude may have previously been the norm, developmental surveillance could potentially ameliorate this issue. Detecting early signs of ASD is essential for implementation of early intervention services during a critical period of development, which research has demonstrated improves family adjustment and child outcomes.

While there are no reliable biological markers of ASD, studies have informed the early behavioral signs in very young children (Rogers, 2009). The first studies on early indicators of ASD are retrospective in nature, relying on parent report and videotapes of infants in their first year. According to parent report on children later diagnosed with ASD, concerns were raised by the second year, and one-third of parents report concerns within the first year (Ozonoff, Young, Steinfield, Hill & Cook, 2009; Baird, Charman, Pickles, Chandler, Loucas, 2008; Zwaigenbaum et al., 2009). Among the most common parental concerns were delays in language development, and lack of responsiveness, generally in response to the child's name being called (Zwaigenbaum et al., 2009). Parents also report that children appeared isolated, played differently from other children, and did not ask for help from an adult (Dahlgren & Gillberg, 1989). In 15-40% of children, parents report a regression, or a marked loss of language or acquired skills by the second year (Chakrabarti & Fombonne, 2001; Ozonoff, et al., 2009). However, recent findings suggest that a high percentage of children with ASD show a slow onset of symptoms, and perhaps the percentage of children experiencing a loss of skills is lower than previously believed (Rogers, 2009).

Home videotapes have been used to retrospectively analyze early autism indicators in young children later diagnosed. In a study conducted by Osterling and Dawson, home videotapes of children's first birthday parties

were analyzed for early autism symptoms (Osterling & Dawson, 1994). When compared to typically developing one-year-olds, children with ASD exhibited significantly less social behaviors, such as pointing, showing objects, and responding to social cues (Osterling et al., 1994). This pioneering study was one of the first to utilize analysis of home videotapes in the United States. Concurrent studies detected early signs of regression (Werner & Dawson, 2005), less pointing (Baranek, 1999), vocalizations (Osterling et al., 1994), eye-gaze (Adrien et al., 1993; Osterling et al., 1994) and response to name (Baranek, 1999; Osterling et al., 1994) compared to typically developing children. While these retrospective studies informed early developmental indicators of ASD, parental bias, difficulties in recall, and lack of comparison groups were a limitation by methodological design.

Prospective studies have advanced our understanding of the emerging signs of ASD by examining high-risk children from community settings, as well as infant siblings of children with ASD who are at 19% increased genetic risk (Ozonoff, Young, Carter, Messinger, & Yirmiya, 2011; Newschaffer, Croen, Fallin, Hertz-Picciotto, & Nguyen, 2012; Zwaigenbaum et al., 2009). The promise of prospective studies is that it allows for observation of developmental trajectories longitudinally (Zwaigenbaum, Thurm, Stone, Baranek, & Bryson, 2007). Sibling studies have examined symptoms in infants as young as six months and observe development over the course of three years, at which point ASD diagnosis could be confirmed. Synthesizing the literature on high-risk infant studies, Rogers concluded that no reliable behavioral markers were established at 6 months of age, and that ASD symptoms in communication and social engagement could be distinguished at 12-months of age (Rogers, 2009). Furthermore, results showed that infants at-risk demonstrate a range of risk factors across several areas of

development over time (e.g.- cognitive, motor, sensory, social) not just impairment in one specific domain (Newschaffer et al., 2012; Rogers, Estes, Lord, Vismara, & Winter, 2012; Rogers, 2009).

Development in young children vastly changes in the first years of life, with some children at-risk showing improvement, and others a consistent developmental trajectory that leads to later diagnosis of ASD. Longitudinal research on early signs of ASD have informed our understanding that children who are later diagnosed do show signs in the core features of ASD at very young ages (Lord et al., 2012; Rogers et al., 2012). That being the case, it is important to consider the impact associated with raising a young child who demonstrates signs of ASD that will ultimately result in a formal diagnosis.

Parenting Stress and Children At-Risk

Research suggests that parenting a child with or without a disability can be stressful, however parents of children with ASD are particularly vulnerable (Rogers, Estes, Lord, Vismara, & Winter, 2012; Estes, Munson, Dawson, Koehler, & Zhou, 2009; Davis & Carter, 2008; Baker-Ericzen et al., 2005; Bebko, Konstantareas & Springer, 1987). Given the paucity of research on parents of very young children, it is important to identify areas of potential stress associated with raising a child at-risk or newly diagnosed with ASD. Research indicates that parent and child factors may be attributed to elevated stress, as well as adaptive processes, available social supports, and coping strategies. Higher levels of parenting stress for this specific population of parents has been linked to adjustment to diagnosis, and navigating the number of interventions and alternative treatments available to young children with ASD (Davis et. al, 2008; Guralnick, 2000).

Furthermore, child characteristics associated with ASD such as varying intellectual profiles, and challenges with behavior and communication may also play a significant role (Baker-Ericzen et al., 2005; Fisman & Wolf, 1991; Siegel, 1997; Bristol, 1987).

While higher stress levels are consistently reported, research also supports that participation in parent education programs can decrease levels of stress and depression, and increase parent self-efficacy (Ericzen-Baker et al., 2005). Participation in early intervention and parent education programs may help to ameliorate parenting stress, which research has shown promotes better family functioning and adaptability. While we know parent education can help in early adaptation processes, the underlying mechanism involved in reducing stress is less understood, especially for children who are at-risk. Utilizing a working alliance framework, this study proposes that the partnership, or the working relationship between early intervention providers and parents, plays a significant role in reducing stress for parents of children at-risk or newly diagnosed with ASD.

Working Alliance

Research on working alliance is primarily found in the mental health literature, and focuses on the therapeutic relationship between clients and therapists within a clinical setting. Findings suggest that a strong therapist-client relationship brings about greater therapeutic change when compared to clients with a weaker alliance (Kazdin, Whitley & Marciano, 2005; Garcia & Weisz, 2002; Kazdin, Holland, Crowley & Breton, 1997). Research in this area has largely focused on adult psychiatric treatment studies, with an emerging focus on child populations. In terms of early intervention for children at-risk

or newly diagnosed with ASD, an area even less studied but arguably just as important, is the alliance between treatment providers and parents.

The quality and nature of the interaction between a treatment provider and client creates rapport and builds an attachment within the relationship. This aspect of mental health service use is widely studied as it transcends the therapy itself, and analyzes the tasks and goals of treatment within a collaborative relationship (Kazdin et al., 2005). Parent participation can be viewed as an integral component within the collaborative relationship for mental health services for children (Kazdin et al., 2005). In fact, Kazdin and colleagues found that a strong parent-therapist alliance not only increased treatment benefits for the child, but it was also associated with stronger adherence to treatment, better parent interaction styles, and overall better parenting in the home (Kazdin et al., 2005).

Parent participation is key to a successful treatment plan for children with ASD, especially for young children at-risk. Parent-mediated intervention models show beneficial and lasting benefits when parents are involved in treatment. In her recommendation to early intervention providers, Catherine Lord states, "...family's participation should be supported through the opportunity to learn techniques for teaching their children new skills and reducing behavioral problems" (Lord & McGee, 2001). In a study conducted by Kasari and colleagues, findings show that it was not simply parent participation that made a difference in child outcomes, rather it was the quality of the participation and the level of parent confidence that was most significant (Kasari, Freeman, Paparella, Wong, & Gulsrud, 2005). This underscores the vital role parents have in early intervention for maintaining and generalizing skills for children at-risk for ASD.

Working Alliance and Children At-Risk

The aim of the current study was to utilize the therapeutic model of alliance found in the mental health literature as a framework for early intervention and children at-risk for ASD. There have only been a handful of studies that have looked specifically at working alliance and autism. The first research team to introduce alliance into the autism literature was Carter and colleagues, who adapted a working alliance scale from Horvath and Greenberg's Working Alliance Inventory (Short form; 1989) to allow for parents to report on the relationship they formed with their intervention provider (Davis & Carter, 2006). The adapted scale entitled *Working Alliance Scale for Intervention with Children* was piloted and showed strong internal consistency for use in early interventions for children with ASD (Davis & Carter, 2003). Additionally, they found that parents of children who were younger rated their alliance higher than parents of older children. Brookman-Fraee conducted a study on the formation of partnerships between parents and community providers (Brookman-Fraee, 2004). Findings showed that parents who participated in a parent-model of alliance (parent directed) demonstrated reduced stress and increased confidence when compared to parents who participated in a clinician-model of alliance (clinician directed). Most recently, a multi-site study on a parent-mediated intervention for toddlers at-risk for ASD examined working alliance in a randomized, controlled-trial using Carter and colleagues *Working Alliance Scale for Intervention with Children* (Rogers, Estes, Lord, Vismara, & Winter, 2012). Results showed that parents receiving intervention from their primary therapist rated their alliance as stronger compared to parents who received community treatment as usual (Rogers et. al, 2012). While working alliance is

well-established within the mental health literature, the construct of working alliance within the psychoeducational literature requires further inquiry. The goal of this study is to deepen our understanding of alliance as it relates to parents of children at-risk for ASD and early intervention providers.

Theoretical Framework

The theoretical underpinnings for the proposed study are concentrated within an ecocultural framework. Ecological Systems Theory is a developmental model that emphasizes contextual and environmental influences on children, and the cultural nature of human development (Bronfenbrenner, 1979). This theory incorporates the family system and embodies all participating individuals, and how participants of the system influence one another. Development is viewed in terms of the environmental interactions and contexts in which the individual is participating. Sameroff's Transactional Model emphasizes the bi-directionality between a parent and a child (Sameroff, 1983). Child characteristics are believed to influence the parent, and parent perceptions, beliefs and attitudes are believed to influence the child. This bi-directional relationship, and the interchanges that occur throughout development are thought to influence child outcomes over time. The transactional model is also used within the therapeutic relationship between an interventionist, the child, and the parent. The theory of working alliance refers to the bi-directional relationship and alignment of the trust, bond, agreement and goals that are shared within a working relationship (Bordin, 1976).

Current Study

The purpose of the current study was to examine stress profiles in parents of children at-risk, and to examine the association of working alliance and

parenting stress for families who participated in a parent-mediated intervention with their toddler at-risk for ASD. It was hypothesized that parents of children at-risk would demonstrate similar stress profiles as has been reported for parents of older children. Second, the caregivers in the treatment group were expected to report stronger alliance than the caregivers in the monitoring group. Lastly, it was expected that higher rated alliance for all the caregivers at the end of interventions would be associated with greater decreases in parenting stress over the course of intervention. The goal of this study was to explore one specific pathway of improving parenting stress through a working alliance framework.

METHOD

Participants

Participants in the current study were part of a larger study on promoting parent synchrony for toddlers at-risk for ASD (Kasari, Siller, Huynh, Shih & Swanson, 2013). The original study was a parent-mediated intervention designed to address parents' responsiveness to their child in an effort to improve child developmental outcomes.

This was a multi-site study with participants residing in the Los Angeles and New York metropolitan areas. Children who participated screened positive on autism risk measures and were referred through pediatricians, community agencies, study brochures, and autism evaluation clinics. The original sample included 66 children and their parents who were randomized into treatment (n=32) and control groups (n=34). For the purposes of the current study a subset of participants who completed parent stress measures at both entry and exit from treatment, as well as the alliance scale were included in the sample (n=45). Children ranged in age from 15-31 months, with a mean age of 22.88 months,

SD=3.9. Participants were from diverse ethnic backgrounds and children were predominantly male (79%) (see Table 2).

After being referred to the study, parents completed autism screening measures including the Modified Checklist for Autism in Toddlers (M-CHAT). If the child was identified at-risk based on parent responses, a structured follow-up telephone interview was scheduled and procedures followed as outlined below.

Measures

Modified Checklist for Autism in Toddlers

The Modified Checklist for Autism in Toddlers (M-CHAT) (Robins, Fein, & Barton, 1999) is a screening measure designed to identify young children at-risk for autism spectrum disorder. It is an expanded version of the original Checklist for Autism in Toddlers (CHAT) (Baron-Cohen, Allen, & Gillberg, 1992) and relies solely on parent report. The M-CHAT was first used as a screening measure in pediatric offices and early intervention sites for children ages 18-24 months. In a follow-up study (Dumont-Mathieu & Robins, 2005) the M-CHAT was used for children as young as 14-months showing similar sensitivity to the original sample. The M-CHAT consists of 23 'yes or no' items (e.g.- does your child bring objects to show you; does your child imitate you) that address the current skills and behaviors of the child. Six of the items are considered to be 'critical' for the identification of risk for autism spectrum disorder. A child is identified at-risk if the parent responds positive to any 3 items, or 2 of the 6 items that are considered critical for the screening and identification of ASD. The *critical* items include: item 2 (interest in other children), item 7 (pointing to reference something), item 9 (bringing objects to show the parent), item 13 (imitating), item 14 (responding to name), and item 15 (following gaze). If scores on the M-

CHAT indicated that a participant was at-risk, parents were asked to do a follow up telephone interview (see Table 11).

Modified Checklist for Autism in Toddlers- Telephone Interview Follow-Up

The M-CHAT-Follow-Up (Robins & Dumont-Mathieu, 2006) is a structured telephone interview designed to clarify items failed on the M-CHAT. This allows parents the opportunity to expand on their answers and to offer more detailed information about the child. The follow-up interview is used to control for false-positive identification of children at-risk for autism spectrum disorder by having the parent explain in further detail their answers from the M-CHAT.

Parenting Stress Index

The Parenting Stress Index (PSI) (Abidin, 1995) is a 120-item measure designed to evaluate parent and child characteristics related to parenting stress. The PSI was administered at two time points, pre- treatment and post-treatment.

The PSI is a self-report questionnaire that identifies potential areas of stress within the bi-directional, parent-child relationship. The parent and child domains measure stress as it relates to parent, child, and situation-demographic characteristics. The subscales related to parent adaptability and family functioning include: Depression, Attachment, Restriction of Role, Sense of Competence, Social Isolation, Relationship with Spouse, and Parent Health.

The subscales that measure child behaviors and characteristics that may be particularly stressful to parents include: Adaptability, Acceptability, Demandingness, Mood, Distractibility/Hyperactivity, and Reinforces Parent. Items are scored on a 5-point scale with 5 meaning 'strongly agree' and 1 meaning 'strongly disagree'. Consistent with other studies of stress in parents of children with ASD, the proposed study will use the 75th percentile to identify clinical levels of stress in parents (Baker-Erikzen et al., 2005). The PSI stress

inventory measured for this study was found to be highly reliable (120 items; $\alpha=.958$).

Working Alliance Scale for Interventions with Children

The Working Alliance Scale (Davis & Carter, 2003) is a self-report scale that rates the working alliance, or the relationship between the parent and interventionist, based on experience while participating in early intervention. The Working Alliance Scale was administered at one time point at the end of treatment, allowing for alliance to develop over the course of intervention. Higher scores indicate a stronger working alliance. Families were assigned one interventionist throughout the course of intervention, and responses on the questionnaires aim to measure the working relationship between parents and the primary interventionist at the end of the 12-week intervention.

The parent form consists of 18-items designed to measure the trust and collaboration, satisfaction and confidence parents have with their interventionist. Answers are based on a 7-point scale, with '1' meaning *strongly disagree*, and '7' meaning *strongly agree*. Examples of questions found on the parent form include: *"I am confident in ____'s ability to help my child; We agree on what is important for me to work on with my child"* (see Appendix A). The alliance scale measured for this study was found to be highly reliable (18 items; $\alpha=.928$)

PROCEDURE

Parents of children who met criteria for the original multi-site study consented to participate. Children were then randomized into one of two conditions: experimental (treatment) or monitoring group (control) within each site. Random assignment was generated by a centralized computer program, thus maintaining blindness by site and researchers (see Figure 1).

Experimental Treatment

The treatment group received 12-weeks of in-home intervention based on a parent education program *Focused Playtime Intervention, FPI* (Siller, Sigman & Hutman, *in press*). Training sessions took place over a 12-week period, with one 90-minute session per week. The parent education program addressed eight topics designed to build upon one another, with the goal of promoting engagement and shared toy play between the parent and child. One interventionist was chosen to work with the family over the 12-week period, and interventionists had high treatment fidelity with an average of 96%. The sessions involved the interventionist demonstrating strategies, providing specific parent feedback based on parent-child interactions, and utilizing workbooks, and review of materials.

Monitoring Group

The monitoring group received 4 in-home training sessions based on a manual from the Center on the Social and Emotional Foundations for Early Learning (CSEFEL, Vanderbilt University). Sessions consisted of a range of topics related aimed to promote the child's social and emotional abilities, while decreasing problem behavior. Session topics included: assessing child communication, strategies for increasing social development, and strategies for decreasing problem behaviors. The 4 sessions were equally spaced over the 12 weeks corresponding with the same period as the experimental group. Interventionists had high treatment fidelity with an average of 96%.

Participants completed the Parenting Stress Index (PSI) upon entry into the study before treatment began, and again post-intervention once treatment was completed. The Working Alliance Scale was completed post-intervention at exit from treatment.

RESULTS

Preliminary analyses: Descriptive statistics are depicted in Tables 1 and 2 for parent and child demographics, and for primary study variables by treatment condition in Table 3. There were no significant differences between groups on demographic characteristics (gender of children, chronological age, mental age) thus demonstrating the success of the randomization. Distributions were normal for stress levels at baseline, and stress levels at exit. However, the alliance distribution presented as potentially skewed. Due to this ambiguity an analysis was run using a dichotomous variable for alliance.

Parenting stress reported by caregivers. An intercorrelation table of primary study variables is presented in Table 4. Pre-treatment stress was positively correlated with post-treatment stress ($r = .782, p = .000$). As noted in table 3, PSI stress level scores demonstrate that on average parents reported high-normal to clinical levels of stress with a mean score of 253 as indexed by the total score on the PSI (80th percentile). 39% of parents in the experimental group and 59% of parents in the monitoring group reported clinical levels of parenting stress at baseline. To compare total scores on parenting stress by treatment group a t-test was conducted and yielded non-significant results ($t(43) = .042, p = .967$) (see Table 5), meaning that reported baseline stress levels did not statistically differ by treatment condition.

Analyses of parent and child PSI domain scores are presented in Table 6. Findings suggest that parenting stress was predominantly related to child characteristics for the caregivers in our study. 82% of parents in the experimental group and 72% of parents in the monitoring group reported clinical levels of total stress in the child domain. To compare mean total child domain scores a t-test was conducted by treatment group and yielded non-

significant results ($t(43) = 1.52, p = .224$), meaning that there were no significant differences in group mean scores between the experimental group and the monitoring group.

Alternatively, stressors related to parent characteristics were in the normal range for both the experimental group and monitoring group as indexed by the PSI. To compare total mean scores on parent domain stress by treatment group a t-test was conducted and yielded non-significant results ($t(43) = -.592, p = .404$), meaning that there were no significant differences in group mean scores between the experimental group and the monitoring group.

Working Alliance by group. As noted in table 3, on average parents rated their alliance positively with a mean total score of 104. A t-test was conducted to compare alliance by treatment condition (treatment or monitoring). Analysis showed that the treatment group had significantly higher alliance scores than the monitoring group ($t(43) = 2.07, p = .043$) (see Table 7).

Relation of alliance and stress by group. Results from the linear regression suggest that a proportion of the total variation in parenting stress post-treatment was explained by the entire model (condition (treatment or monitoring group), alliance, and parenting stress at baseline) ($R^2 = .644, F(3, 41) = 24.75, p < .001$) (see Table 8). There was a marginally significant relationship between parenting stress and alliance ($p = 0.108$). There was not a significant interaction effect of alliance by treatment group (treatment or monitoring) ($p = 0.573$). Stress levels at entry were significantly predictive of stress at exit indicating stability of PSI scores across treatment.

Due to non-significant alliance by treatment effect, a second linear regression was conducted to determine if alliance was associated with parenting stress regardless of treatment condition. Again, the full model was

significant ($R^2 = .641$, $F(2, 42) = 37.57$, $p < .001$) (see Table 9). When treatment group was no longer included as a predictor, a slightly stronger effect for alliance was found ($p=0.071$). In both regression models there was a negative trend of parenting stress and alliance, with betas of -0.524 and -0.567 , respectively, meaning that as alliance increased parenting stress decreased.

Last, to address the possibility of a skewed alliance distribution, scores were dichotomized into *low alliance* (100 or lower) and *high alliance* (above 100) with a cut off score of 100. A one-way analysis of covariance was conducted with post-treatment stress as the dependent variable, alliance and condition as the independent variables, and pre-treatment stress as the covariate. Results demonstrate the full model was significant, with parallel findings to the regression model of alliance ($R^2 = .637$, $F(2, 44) = 36.82$, $p < .001$) (see Table 10).

DISCUSSION

Parents of children with autism spectrum disorder consistently report elevated levels of stress, yet research is quite limited regarding parents of children who demonstrate signs and symptoms of autism that may result in a formal diagnosis. Thus, the goal of this study was to examine stress profiles of parents of very young children at-risk, second, to examine if treatment condition had an effect on alliance, and third, to examine the predicted effect of alliance on parenting stress. Three main suppositions can be drawn from this analysis.

First, as hypothesized, parents reported elevated levels of stress consistent with previous findings of parents of older children with ASD. Scores indicate that on average caregivers in this study reported stress levels within the upper-normal to clinical range. Moreover, on average caregivers rated clinical stress levels in the child domain (parent-domain scores were in the normal

range), suggesting that parenting stress was predominantly related to child characteristics. These findings are consistent with the literature on stress and parents of older children with ASD, and will add to the existing literature and extend prior work to a much younger sample of children at-risk. Findings suggest that parents may be experiencing high levels of stress even when children are very young. However, future studies may want to examine stress levels of these families and families of matched typically developing infants as mothers of young children in general report high levels of parenting stress. Additionally, future studies may want to differentiate the experience of stress for families at-risk and newly diagnosed, and parents of older children with ASD.

Moreover, some parents in the study demonstrated normal levels of stress suggesting that families may have important strengths, social support, or coping strategies for assisting in the adjustment process. Research is needed to gain insight into the factors that may help to support and build resiliency within these complex family systems.

Second, alliance was rated higher in the treatment group than the monitoring group. This supports the efficacy of the treatment on alliance, suggesting that alliance developed differently over the course of the 12-session, parent-mediated intervention, compared to the 4-session monitoring intervention. As discussed, a similar randomized-controlled trial also found higher alliance in the treatment group compared to the control group (Rogers et al., 2012). Both studies provided short-term, parent-mediated treatments over a 12-week period, suggesting that a strong alliance can develop over a short period. Alternatively, alliance may be stronger in dyads that receive a greater dose of contact between research therapists and parents, as was the case in

both this study and the Rogers et al. study. Future studies will want to closely monitor does and alliance associations.

Lastly, it was predicted that higher working alliance would be associated with a reduction in parenting stress at the end of treatment. The effect was marginally significant for the entire sample with no significant group effect. These findings should be interpreted with caution. Results demonstrated a negative trend between alliance and parenting stress suggesting that a higher rated alliance was associated with lower parenting stress at the end of treatment. The current study is limited by a small sample; thus future studies should increase sample size and representation.

There are several possibilities why alliance did not have a greater effect on lowering parental stress. First, the experience of stress for families who are concerned, thinking about their child having a serious disorder as autism, could prove greater than the relationship formed with the intervention provider. Participants in this study were unique in that they were at-risk for ASD and did not have a formal diagnosis. To reinstate, a child was at-risk if they screened positive on autism risk measures, and demonstrated signs and symptoms consistent with ASD. Formal diagnostic assessments were conducted one year post-treatment with 49 of the 66 participants from the original sample. Of the 49 who were assessed, 79% (n=39) met criteria for an ASD (See Table 11). It is possible that parents were experiencing greater levels of stress during this salient transition period from risk to potential diagnosis. Longitudinal research is needed to determine critical periods of stress for families, and to identify families who experience stress during salient periods, and those who have persistently high levels of stress.

Consistent with the literature on working alliance and younger children, this study found that on average families rated their alliance positively. It might be the case that parents have a higher level of optimism about intervention when children are younger, and that positive perceptions about their child improving might influence alliance ratings.

CONCLUSIONS

Parents of children at-risk or newly diagnosed with ASD are at increased risk for parenting stress. Further research is needed to identify the factors that contribute to and ameliorate parenting stress, as well as the positive social supports and strengths that families have that help to build resiliency. Longitudinal data would be valuable to gain a deeper understanding of the process of raising a child at-risk, adjusting to diagnosis, and the decision to uptake intervention services. For the parents in this study who reported clinical levels of stress, the diagnostic transition could be a critical period and may require specific consideration within early intervention programs.

Research suggests that family adaptation and adjustment to diagnosis is strongly correlated to social support and coping strategies, and alliance between treatment providers and parents may play a key role. As early intervention has become more family centered, focusing on the needs and strengths of the individual family system is paramount. Early interventionists may play a significant role in helping to facilitate the adaptation process. The relationship that forms between parents and service providers within early intervention settings could positively impact parental perceptions and adjustment over time, and reduce negative impacts on the family system.

The effectiveness of a strong alliance on parenting stress suggests the need to incorporate partnerships within early intervention settings. Increasing parent participation, goal setting, and collaboration could have positive results on parental perceptions, and could influence the way early intervention services are delivered to parents and children with ASD.

Table 1.

Child and parent demographic characteristics

	Control N = 22	Treatment N = 23
Child Demographics		
Gender (%)		
Male	73.5%	84.4%
Female	26.5%	15.6%
Ethnicity (%)		
White	50.0%	34.8%
Hispanic	22.7%	26.1%
Other/Mixed	27.3%	39.1%
Parent Demographics		
Gender (%)		
Male	9.0%	0.0%
Female	91.0%	100%
Education (%)		
Less than HS	4.5%	4.3%
High School	4.5%	21.7%
Some College	50.1%	39.1%
College/Prof.	40.9%	34.8%
Income (%)		
Below 40,000	4.5%	26.1%
40,001-70,000	22.8%	26.1%
70,000-90,000	72.7%	47.8%

Table 2.

Child characteristics at entry

Clinical Characteristics	Control (N=22)		Treatment (N=23)	
	Mean	SD	Mean	SD
<i>Chronological Age</i>				
Entry	23.36	3.388	22.39	4.438
<i>Mental Age</i>				
Entry	16.42	6.212	14.519	4.935

Table 3.

Descriptive statistics of primary study variables by treatment condition

<i>Variable</i>	Controls N=22		Treatment N=23	
	Mean	SD	Mean	SD
PSI Total Stress- <i>Entry</i>	252.31	39.14	252.82	43.62
PSI Total Stress- <i>Exit</i>	254.41	41.98	246.95	44.59
Working Alliance	100	17.17	107	5.92

Table 4.

Correlations among primary study variables

Correlations				
	Condition	PSI Stress Entry	PSI Stress Exit	Working Alliance
Condition	-----			
PSI Stress- Entry	.006	-----		
PSI Stress- Exit	-.088	.782**	-----	
Working Alliance	.241*	-.028	-.154	-----

* $p < 0.05$ level.** $p < 0.01$ level.

Table 5.

T-test results comparing parenting stress by treatment group

Parenting Stress	N	Mean	SD	t	df	p
Control	22	252.31	39.14	.042	43	.967
Treatment	23	252.82	43.62	-----	-----	

Table 6.

PSI child domain mean scores

Variables	Control (N=22)		Treatment (N=23)		%
	Mean	SD	Mean	SD	
<i>Parent Domain</i>	125.55	24.17	122.39	28.14	55
Child Domain	133.66	23.42	129.26	19.87	85

Table 7.

t-Test Results Comparing Alliance by Treatment Group

Working Alliance	N	Mean	SD	t	df	p
Control	22	100	17.17	2.07	43	.043
Treatment	23	107	5.92	-----	-----	

Table 8.

Summary of linear regression analysis for parenting stress

Variable	B	SE	<i>B</i>	t	Sig. (p)
Constant	99.46	40.57		2.45	0.01
Condition	-4.64	8.17	-0.05	-0.57	0.57
PSI Stress- Entry	0.82	0.09	0.78	8.44	0.00
Working Alliance	-0.52	0.32	-0.15	-1.64	0.10

Note: R²=.644

Table 9.

Summary of linear regression analysis for parenting stress

Variable	B	SE	<i>B</i>	t	Sig. (p)
Constant	101.65	40.06		2.53	0.01
PSI Stress- Entry	0.82	0.09	0.78	8.50	0.00
Working Alliance	-0.57	0.30	-0.17	-1.85	0.07

Note: R²=.641

Table 10.

Summary of analysis of covariance for parenting stress

Dependent Variable: PSI Stress Level Exit	Sum of Square	df	Mean Square	F	Sig.
Corrected Model	18.24	2	25909.1	36.15	0.00
Intercept	667.09	1	3.47	22.19	0.05
PSI Stress Level-Entry	49546.36	1			0.00
Working Alliance	1996.76	1	5.77	14.31	0.10

Note: R²=.637

Table 11.

Modified Checklist for Autism in Toddlers critical items

M-CHAT Critical Items

Failed Item (%)

(2) Does your child take an interest in other children?

63

(7) Does your child use index finger to point?

75

(9) Does your child bring objects to show you?

73

(13) Does your child imitate you?

72

(14) Does your child respond to his/her name?

64

(15) If you point to a toy does your child look?

67

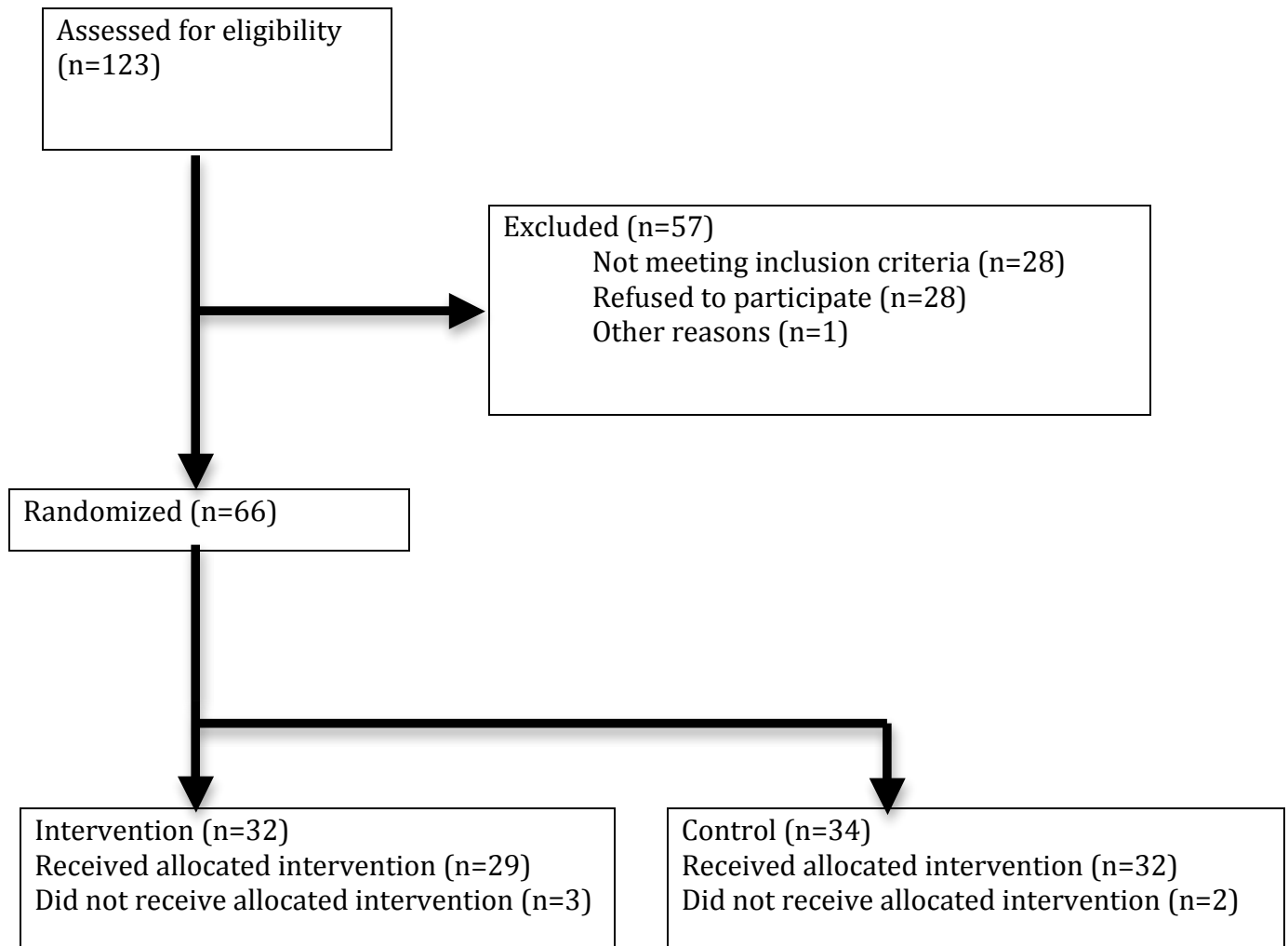
Table 12.

ADOS diagnosis at follow-up

<u>ADOS Diagnosis (Follow Up)</u>	<u>N=49</u>	<u>N</u>	<u>%</u>
NO ASD		10	21
ASD		9	17
<u>AUTISM</u>		<u>30</u>	<u>62</u>

Figure 1.

Participant Flow Chart



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