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The Need for More Effective Father Involvement in Early Autism Intervention

A Systematic Review and Recommendations

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Fathers of children with autism spectrum disorders (ASD) are underrepresented in both early intervention and research. However, fathers have unique interaction styles that make important contributions to the language and symbolic play development of typically developing children. Fathers may make similar contributions to the development of their children with ASD, who struggle with social-communicative deficits, particularly in the areas of language and symbolic play. This article provides a theoretical rationale for enhancing father-child involvement in early autism intervention that may lead to improved outcomes in child communication and symbolic play and have cascading benefits for families in reducing stress and enhancing coping mechanisms. To support this rationale, systematic reviews of the literature were conducted to (a) identify the extent of father involvement in parent training programs for children with autism, (b) identify the contributions of parents to the symbolic play outcomes of their children with ASD and other disabilities, and (c) examine differences in stress and coping experienced by mothers and fathers of children with ASD. Finally, possible barriers to father participation in early autism intervention are discussed and recommendations are offered for making parent-implemented early intervention for children with ASD more amenable to fathers.

Keywords: *autism; fathers; language; play; parent stress*

Over the past three decades, there has been growing interest in fathering and an emerging body of literature on the impact of fathers on child outcomes. Overall, fathers are increasing the amount of time they spend caring for their children and are more directly involved with their children than fathers of past generations, effectively shifting from bread-winning to coparenting roles (Pleck & Masciadrelli, 2004). In fact, according to the U.S. Census Bureau, although the number of stay-at-home fathers is still relatively small (i.e., 1%), fathers are now estimated to be the primary caregivers for 24% of preschool-age children with working mothers. Given the increased evidence of the greater coparenting role and more direct involvement of fathers with their children, one would expect greater participation of fathers in early intervention for their children with autism spectrum disorders (ASD).

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Unfortunately, this does not always appear to be the case. Despite the move to a “family-centered” model (Bruder, 2000) with greater caregiver participation in key components of early intervention (Crais, Poston Roy, & Free, 2006), mothers continue to be the primary and often exclusive participants in both autism research and early intervention service delivery. This one-parent participation model, however, ignores the growing literature that indicates that mothers and fathers each play an early and integral role in the development of their children, perhaps particularly in their social and communicative skills (Clarke-Stewart, 1980; Pancsofar & Vernon-Feagans, 2006; Shannon, Tamis-LeMonda, London, & Cabrera, 2002; Tomasello, Conti-Ramsden, & Ewert, 1990). Therefore, for children with communication and social deficits such as ASD, understanding and enhancing the role of fathers may be an important direction in both research and clinical practice. Moreover, there is evidence that responsive fathering is a strong predictor of better developmental outcomes for children, including improved emotional regulation and cognitive and language development (Shannon et al., 2002; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). If professionals are not involving fathers in early ASD intervention, they may be missing important opportunities to maximize social-communicative gains for these children. Overlooking fathers in intervention and research also may have unintended consequences for families, including increased levels of parental stress and decreased family cohesion. For instance, Tehee and colleagues (Tehee, Honan, & Hevey, 2009) reported high levels of stress in mothers of children with ASD and concluded that these high stress levels may be the result of the challenge of taking on the dual roles of caregiver and intervention provider. Thus, increased father involvement in intervention services may ease the overall workload for mothers and serve to reduce maternal stress. Indeed, enhancing the role of fathers in the development of children with communication and social deficits such as ASD could be an important direction in realizing optimal “family-centered” services for children with ASD and their families (Gable, Crnic, & Belsky, 1994; Magill-Evans & Harrison, 1999; Shannon et al., 2002). There is, however, a paucity of research on father contributions to social communication outcomes for children with ASD, and an added emphasis in this area is strongly needed.

In an effort to influence the field to attend more fully to fathers, we provide in this article a theoretical rationale for more effective father involvement by describing the unique roles of mothers and fathers with their young children in relation to communication, play, parental stress, and family cohesion. To support this rationale, we conducted systematic reviews of the literature to (a) identify the extent of father involvement in parent training programs for children with autism, (b) identify the contributions of parents to the symbolic play outcomes of their children with ASD and other disabilities, and (c) examine differences in stress and coping experienced by mothers and fathers of children with ASD. Finally, to further guide the field, we provide recommendations for future studies of father-child interaction and for making parent-implemented intervention for young children with ASD more amenable to fathers and their unique interactional styles.

Deficits in Social-Communicative Development in Children With ASD

Beginning early in life, children with ASD demonstrate severe deficits in language and social-communicative skills that limit their ability to participate in effective communicative

exchanges (Wetherby, Prizant, & Hutchinson, 1998). These communication deficits are parents' primary concern at time of referral and for many remain a concern throughout the child's school years (Lord, Risi, & Pickles, 2004). Although estimates vary, approximately 25% of children with ASD do not develop functional speech (Volkmar, Lord, Bailey, Schultz, & Klin, 2004). Therefore, for these families, helping the child develop some form of communication is vital. As is the case for children who are typically developing, there is growing evidence that the quality of early parent-child exchanges is particularly important for language acquisition for children with ASD (Siller & Sigman, 2002, 2008). Given the early communicative and social deficits characteristic of ASD, coupled with the fact that acquisition of some functional language before the age of 5 years is a strong predictor of further language development (Venter, Lord, & Schopler, 1992), the issue of effective parent involvement in early intervention for these children becomes paramount. In fact, studies of mother-child interactions (Siller & Sigman, 2002, 2008) have shown that when mothers of preschoolers with ASD use more undemanding utterances, or comments, which reinforce or maintain the child's ongoing activity, their children demonstrate better language abilities throughout adolescence. Although similar studies have not yet been conducted for fathers, and are needed, fathers too make important contributions to a child's language and play development. However, fathers have interaction and communication styles that are unique from those of mothers. Before moving to discuss fathers' roles in early intervention with their child with ASD, it is first helpful to understand fathers' unique contributions to child development as well as fathers' unique needs.

Fathers' Unique Contributions to Language Development in Typically Developing Children

Studies of father-child interactions with children who are typically developing have established that fathers offer unique language models, which make important contributions to children's language development (Clarke-Stewart, 1980; Gleason, 1975). Overall, fathers tend to use a higher level vocabulary and a more complex language model with their children than do mothers. For instance, compared to mothers, fathers use vocabulary that is more varied, rarer, and more abstract (Bernstein-Ratner, 1988; Gleason, 1975; Masur & Gleason, 1980; Pancsofar & Vernon-Feagans, 2006; Rondal, 1980). Fathers also use more lexically challenging syntax. For example, fathers are more likely than mothers to direct questions to their children. Moreover, most fathers' questions are "wh" questions that are more complex than the "yes-no" questions more frequently used by mothers (McLaughlin, Schultz, & White, 1980; Walker & Armstrong, 1995). This higher level language model used by fathers has an important role in communicative outcomes for typically developing children.

In seminal work highlighting fathers' influences, Gleason (1975) hypothesized that fathers' complex language models provided the child with a bridge from the supportive language of home to the more complex linguistic demands of the outside world. In Gleason's model, children were tasked by their fathers with speaking more coherently and clarifying misunderstandings, which helped foster their communicative development. Tomasello and colleagues (1990) found support for this "bridge hypothesis" in their observations that fathers' child-directed speech was closer in form to that of speakers outside the family. Indeed, Tomasello and colleagues also documented that children used higher level language with their fathers,

when compared to language used with their mothers, as well as with unknown examiners. Although the finding that children used similar language with fathers and strangers may support the “bridge hypothesis,” conversely it may also be explained by the possibility that the children had less contact with their fathers (particularly 20 years ago, when this work was published). This lack of contact also may account for the more frequent communicative breakdowns fathers experienced with their children (Tomasello et al., 1990).

There is some evidence, however, that fathers’ more linguistically challenging style may indeed support child vocabulary development. In fact, fathers’ vocabulary use at 24 months has been shown to predict levels of child expressive language 1 year later at 36 months (Pancsofar & Vernon-Feagans, 2006), whereas mothers’ language did not account for a significant portion of the variance. Thus, fathers in current times also have been reported to use more linguistically challenging models with their children. Reciprocally, children have been shown to use higher level language with fathers, including longer and more complex utterances (Masur & Gleason, 1980; Rondal, 1980) and more advanced narratives (Tomasello et al., 1990). Through these transactional exchanges with their fathers, typically developing children develop more complex language, greater awareness of the impact of their communicative signal on others, and an understanding of the need to clarify misunderstood messages. Although it is likely that these father–child exchanges also support communicative development for children with ASD, there are few studies available to provide confirmation.

Fathers’ Contributions to Language Development in Children With ASD and Other Developmental Disabilities

Despite the numerous unique contributions of fathers’ language models to child language development, paternal language styles have also been reported at times to be more directive than those of mothers (Brachfeld-Child, Simpson, & Izenson, 1988; Malone & Guy, 1982). For typically developing children, directive parental interaction styles often have negative connotations and have been associated with authoritarian parenting styles and poorer developmental outcomes (Baumrind, 1991; Weiss & Schwarz, 1996). For children with disabilities, however, the relationship between directive parent–child interactions and developmental outcomes is not as clear. In general, parents of children with disabilities have been shown to use more directives in interaction with their children as compared to parents of children who are typically developing (Dunst, 1985; Pellegrini, Brody, & Siegel, 1985; Tannock, 1988). There is some debate, however, as to whether the directive language used by parents is facilitative for children with disabilities. For example, Mahoney (1998) reported a negative relationship between the frequency of directives used by parents of children with Down syndrome and parents’ level of responsiveness to their child’s communication. On the other hand, Cielinski and colleagues (Cielinski, Vaughn, Seifer, & Contreras, 1995) noted that whereas mothers of children with Down syndrome were more directive of their child’s play, compared to mothers of typically developing children, this directiveness was also significantly correlated with the proportion of time their child was engaged in play. In contrast, for the typically developing children in the study, maternal directiveness was not correlated with sustained play engagement. Thus, there is some evidence that directiveness may be facilitative for children with disabilities.

Similar to parents of typically developing children and those with other disabilities, differences between mothers' and fathers' language models for their children with ASD also have been documented. For example, Wolchik (1983) examined the language patterns of mothers and fathers of 10 children with ASD and 10 typically developing children matched for language, age, sex, and parental education level. Syntactic and functional aspects of parent language were assessed during 20-min parent-child interactions, and frequency counts of language categories were compared across parent groups. Variables of interest included average sentence length, total number of sentences, questions, direction, modeling, labels, reinforcement, non-language-oriented language, adult-to-adult language, and other behaviors. Wolchik revealed few differences between the overall language models of parents of children with ASD versus parents of typically developing children. However, parents of children with ASD used non-language-oriented language (i.e., language not specifically directed toward eliciting or responding to the child's language or toward enhancing receptive language) more than parents of typically developing children. In addition, parents of children with ASD tended to use slightly more questions and labels than parents of typically developing children, although the differences were not significant. Moreover, the most striking differences were noted between mothers and fathers. Overall, mothers of children with ASD and children who were typically developing were more active conversationalists than fathers, across all language categories. Mothers used more requests, asked more questions, and labeled objects more often than fathers. Mothers also expanded their child's language more often than fathers and used more non-language-oriented language than fathers. Conversely, fathers engaged in more "other behavior," such as sitting quietly, sighing, talking on the phone, and laughing, than did mothers. These differences in the language models of mothers and fathers of children with ASD were also observed by Konstantareas, Mandel, and Homatidis (1988), who studied 12 children with ASD (40 to 151 months old) and their parents. Compared to mothers, fathers asked an equal percentage of questions but used a greater percentage of directives and a smaller percentage of prompts and statements than did mothers.

Although there is some evidence to suggest that directive language used by fathers may in fact be facilitative for children with ASD, the reasons for the facilitation are unclear. One key factor may be shared focus of attention between parent and child. In a study of directive language used by mothers, McCathren, Yoder, and Warren (1995) attributed the mixed effects of directives on child language outcomes to the existence of different types of directives that serve different functions in the language learning process. They distinguished between two main types of directives: redirectives (directives that initiate a new topic, thus causing a shift in focus for the child) and follow-in directives (directives that follow the child's lead). The authors postulated that redirectives, which require children to change referent topics, may indeed hinder the language acquisition process. In contrast, follow-in directives, which share the child's interests, may be effective in maintaining the child's engagement in communicative exchanges and thus help in learning vocabulary. The use of language that references the child's focus of attention is especially salient for children with ASD, who traditionally have difficulty in establishing and maintaining joint attention. For children with ASD specifically, Watson (1998) reported that although their mothers were able to respond contingently or follow their child's lead with the same frequency as mothers of typically developing children, they also used more utterances that were not responsive to their child's focus. Watson hypothesized that this was likely a reflection of the

difficulty these mothers had in establishing a joint focus of attention with their children with ASD. Furthermore, Siller and Sigman (2002) documented that preschool-age children whose mothers used more utterances that referenced the child's focus of attention had superior joint attention and language skills 16 years later, compared to children whose mothers used fewer responsive utterances. Given the impact of maternal follow-in directives, it is likely that some aspects of father directive language also may provide support to children with ASD in learning language; however, little is known about potential differences in directives used by fathers.

A second important factor in examining whether fathers' directive models support the language development of their children with ASD is the degree to which fathers are able to match their language models to their child's level of communicative competence. For example, in studies of interactions between mothers and their children with Down syndrome, Mahoney (1998) noted that although some types of maternal follow-in directives were indeed facilitative, those follow-in directives that placed the burden on the child to produce behaviors that exceeded his or her current level of development did not elicit the desired response from the child. Matching directive parental language models to child competency levels may be particularly important for fathers, as fathers in general have been shown to use more complex language models with their children than mothers (Bernstein Ratner, 1988; Gleason, 1975; Masur & Gleason, 1980; Pancsofar & Vernon-Feagans, 2006). However, previous studies have not analyzed the types of directives used by fathers to help with this distinction.

Finally, there is also evidence to suggest that fathers' directive communication styles may be facilitative in improving their children's social awareness from a pragmatic standpoint. For instance, Pellegrini, Brody, and Stoneman (1987) reported that although mothers tended to ignore their typically developing child's violations of conversational conventions, fathers used these opportunities to provide feedback to their child through repetition, modeling the correct response and sometimes requesting clarification. For children with ASD who inherently have impaired social awareness of the impact of their communicative signals on other people, this directive, didactic, pragmatic style may support their language development and help them to clarify their message, thus increasing their awareness of the impact of their communication on others. Therefore, although we acknowledge the fact that not all directive language is facilitative of language development, we recognize that some aspects of fathers' direct communication styles may indeed play a supportive role in fostering a child's communication development. However, further research is needed on the language and interaction styles of fathers with their child with ASD to directly examine the correlation between fathers' language models and the child's communicative ability. To investigate the extent to which fathers are currently involved in "parent"-implemented intervention for young children with ASD, we examined the existing literature.

Systematic Review of Fathers' Participation in Parent-Implemented Interventions for Children With ASD

Literature Search Strategy

The studies reviewed were identified for inclusion in this synthesis through a three-step process. First, searches were conducted to identify articles related to parent intervention

with their child with ASD that were published in English, in a peer-reviewed journal, between 1990 and November 2010, in the following databases: Academic Search Premier, PsycINFO, ERIC, and Cumulative Index to Nursing and Allied Health Literature (CINHAL). Search terms entered into the databases included *parent*, *autism*, *training*, *intervention*, *father*, and *mother*. Next, reference lists from articles that met inclusion criteria were examined to identify additional studies. Finally, to identify additional studies that were not captured through previous searches, reference lists were examined from three relevant literature reviews of parent training for children with ASD (i.e., Levy, Kim, & Olive, 2006; McConachie & Diggle, 2007; Schertz, Baker, Hurwitz, & Benner, in press). The systematic search identified 114 articles.

Inclusion Criteria

Only empirical studies (i.e., single-subject experiments and controlled group designs) that met the following criteria were included in the review: (a) participants included at least one child participant with ASD between the ages of 2 and 5 years and their parents, mother and/or father; (b) outcome measures included child social-communicative skills (i.e., verbal or nonverbal communication, imitation, social interaction, joint attention); and (c) parents were the agent of intervention. Studies with outcomes that did not include communication (e.g., problem behaviors, sleep behaviors) and studies in which interventions were primarily delivered by research staff and other professionals with an additional parent component were not included in this review.

Results

A total of 27 articles met criteria for inclusion in this synthesis. Two studies (Elder, Valcante, Yarandi, White, & Elder, 2005; Seung, Ashwell, Elder, & Valcante, 2006), which reported data from the same participants, were considered as a single study for purposes of this review. Table 1 describes the study design and the extent of father involvement reported in each. Of the resulting 26 articles (i.e., 11 controlled group studies and 15 single-subject experiments) examining parent intervention in ASD, four group designs and 10 single-subject experiments explicitly stated that participating parents were mothers. Seven group studies and two single-subject experiments did not specifically report whether fathers were included among the parents participating in intervention. Only three studies (Elder et al., 2005; Rocha, Schreibman, & Stahmer, 2007; Symon, 2005) specifically reported the involvement of fathers in parent training for children with ASD. In a study by Rocha and colleagues (2007), one of the three participating parents was the father of a child with ASD. In the study by Symon (2005), one of the three participating mothers trained a father as a secondary therapy provider, although in that study mothers were the primary intervention agents. In the single-subject experiment conducted by Elder and colleagues (2005), 18 fathers of children with ASD were taught to implement two intervention strategies. In a follow-up analysis of verbal communication outcomes for eight of the child participants in that study, Seung and colleagues (2006) examined the gains in verbal language made by a subset (i.e., 8 out of 18) of participating children.

Table 1
Summary of Parent Training Studies for Young Children With Autism Spectrum Disorder and the Extent of Father Involvement Reported in Each

Reference	Study Design	Father Involvement Reported
Aldred et al. (2004)	RCT	Mothers only
Ben Chaabane et al. (2009)	SSD; MBL participants	Mothers only
Brookman-Frazee (2004)	SSD; repeated reversal	Mothers only
Drew et al. (2002)	RCT	Not specified
Elder et al. (2005); Seung et al. (2006)	SSD; MBL strategies; secondary analysis	18 fathers
Gillet & LeBlanc (2007)	SSD; MBL participants	Mothers only
Ingersoll & Gergans (2007)	SSD; MBL participants	Mothers only
Jocelyn et al. (1998)	RCT	Not specified
Kaiser et al. (2000)	SSD; MBL families	Mothers only
Kasari et al. (2010)	RCT	Not specified
Kashinath et al. (2006)	SSD; MBL strategies	Mothers only
Mahoney & Perales (2005)	Matched groups	Mothers only
Mancil et al. (2009)	SSD; MBL participants	Mothers only
McConachie et al. (2005)	Group; intervention, wait-list control	Mothers only
Moes & Frea (2002)	SSD; MBL participants	Mothers only
Oosterling et al. (2010)	RCT	Not Specified
Ozonoff & Cathcart (1998)	Group; matched	Mothers only
Reagon & Higbee (2009)	SSD; MBL participants	Mothers only
Rocha et al. (2007)	SSD; MBL participants	“Two mothers and one father participated” (p. 156)
Schertz & Odom (2007)	SSD; MBL participants	Mothers only
Smith et al. (2000)	Group; random matched pair	Not specified
Stahmer & Gist (2001)	Group (pre–post with control)	Not specified
Symon (2005)	SSD; MBL participants	For 1 of 3 participating families, mother trained father as second- ary therapy provider
Vismara et al. (2009)	SSD; MBL (nonconcur- rent)	Not specified
Vismara & Lyons (2007)	SSD; alternating treat- ments	Not specified
Wong & Kwan (2010)	RCT	Not specified

Note: RCT = randomized controlled trial; SSD = single-subject design; MBL = multiple baseline design.

Recommendations

Although the body of literature on parent-implemented communication intervention for young children with ASD has grown over the past 30 years, only three single-subject experiments reviewed in this synthesis specifically reported that fathers participated in parent training. In 8 of the 25 studies, the authors did not specify whether fathers participated. An assumption of many “parent-training” studies seems to be that outcomes for mothers also apply to fathers. However, as discussed, fathers have language models that are unique

from those of mothers and therefore may have a unique influence on the communication development of their children with ASD. Thus, the need for greater father involvement in communication intervention and research for children with ASD is clear. Further research is also needed on the communicative contexts within which fathers and their children with ASD interact, which is most often through play. Given that fathers also have unique play-interaction skills, involving them in early play-based intervention may be beneficial for children with ASD who have severe deficits engaging in object play.

Rationale for Involving Fathers in Play-Based Early Autism Intervention

Play is one of the most significant tasks of child development, requiring cognitive, social, and emotional skills, and parents have an integral role in the development of their child's play skills. Symbolic play with objects has been shown to be an important predictor of later language development for typically developing children and those with ASD (Charman et al., 2003; Toth, Munson, Meltzoff, & Dawson, 2006).

In typical development, object play emerges in a generally smooth trajectory over four increasingly sophisticated phases. The first phase, *exploratory play*, emerges between 2 and 10 months. At this stage, the child begins to investigate properties of a toy through indiscriminate actions and simple manipulations. For example the child may hold a ball or mouth a toy. At around 10 to 18 months of age, *relational play* emerges. During this stage, the child starts to combine two or more toys in play. For example the child may stack rings, nest cups, or put toys into a bucket. The third phase, *functional play*, emerges between 12 and 18 months. In this phase, the child begins to use toys and miniatures as intended but without clear evidence of pretense. For example, the child may sweep with a toy broom. Finally, the fourth phase, *symbolic play*, emerges around 18 to 30 months. In this phase, the child starts to substitute one object for another (e.g., a banana for a phone) and begins to engage in more elaborate pretend schemas, imagination, and fantasy play (Casby, 1991; Lifter, Sulzer-Azaroff, Anderson, & Cowdery, 1993; Ungerer & Sigman, 1984).

In contrast to the smooth trajectory in play skills for typically developing children, most children with ASD do not follow this same trajectory of play development (Libby, Powell, Messer, & Jordan, 1998). Rather, children with ASD demonstrate severe deficits in play development. Overall, the play of children with ASD is less elaborate and more repetitive (Williams, Reddy, & Costall, 1996). For instance, children with ASD spend a longer period engaging in exploratory play, past the point at which typically developing children move on to more sophisticated levels of play (Jordan & Libby, 1997). It follows that children with ASD spend less time than their typically developing peers engaged in the more sophisticated levels of functional or symbolic pretend play (Baranek et al., 2005; Jarrold, Boucher, & Smith, 1993). Thus, play represents an important skill for children to acquire, and higher levels of object play skills have been shown to be strong correlates of language ability for both typically developing children and children with ASD (McCune, 1995; Mundy, Sigman, Ungerer, & Sherman, 1987).

Although both mothers and fathers help their children achieve higher level language and symbolic abilities through play, there are qualitative and quantitative differences between parents in play interactions with their children. For instance, father-child play is more

active and rough-and-tumble. Father-child play is also more generative, with fathers being more likely than mothers to engage in play schemas that stretch beyond the physical properties of the toys (Labrell, 1996). Although for most North American families the role of mothers in the family is primarily one of caregiver, the playing role in the family is more frequently associated with fathers (Pleck & Masciadrelli, 2004). As their child's first and primary play partner, fathers have a distinctive role in supporting their child's development through play. The contributions of fathers to their child's symbolic play development, however, have not been fully examined in the ASD literature. Importantly, the work of Kasari and colleagues (Kasari, Freeman, & Paparella, 2006; Kasari, Paparella, Freeman, & Jahromi, 2008) has demonstrated that interventions targeting higher level functional and symbolic play can improve both play and language outcomes for children with ASD; however, the intervention did not specifically target fathers.

Although it is likely that fathers of children with ASD demonstrate play styles similar to those used by fathers in interactions with typically developing children, it may also be the case that the bidirectional impact of a child's ASD affects the type of play fathers typically use. In one study, for example, fathers of children with ASD engaged in less parallel play than mothers while being more directive and less consistently responsive to their child's initiations (Elder, Valcante, Won, & Zylis, 2003). The four fathers in that study also reported being frustrated in not knowing how to play with their children with ASD. From a parental perspective, it may be more difficult to engage in play with a child who continues to play at lower levels than a child who has more complex and perhaps more varied play. However, fathers may be uniquely suited to support the play development of their children with ASD. Moreover, by enhancing play skills, fathers can not only gain more varied contexts within which to interact with their child but also enhance their child's language and social skills.

Systematic Review of the Literature on Parents' Contributions to the Symbolic Play Outcomes of Children With ASD and Other Developmental Disabilities

Given that our search of the literature on parent training in ASD yielded only three studies that specifically reported father involvement, we did not expect to find a study of father-implemented intervention focused on symbolic play outcomes for children with ASD. Therefore, we expanded our search to include studies of mothers and fathers of both children with ASD and children with other developmental disabilities.

Literature Search Strategy

A three-step, systematic search of the literature was conducted following the methods previously described. Search terms included *parent*, *play*, *autism*, *developmental delay*, *mother*, and *father*. The initial search returned 97 articles. Articles were then reviewed to determine whether they met criteria for inclusion described as follows.

Inclusion Criteria

Inclusion criteria included the following: (a) outcome variables included measures of symbolic level of object play and (b) participants were mothers and fathers of children with ASD or other developmental disabilities.

Results

As expected, our search of the literature identified no intervention studies examining fathers' impact on symbolic play outcomes for their children with ASD. The expanded search identified three relevant articles: one observational study examining fathers' contributions to the symbolic play of children with Down syndrome and two studies that measured symbolic play as an outcome of parent training for children with ASD. Table 2 describes the studies included in the expanded search. In the observational study of 19 children with Down syndrome and their fathers, de Falco and colleagues (de Falco, Esposito, Venuti, & Bornstein, 2008) reported that children achieved significantly higher levels of symbolic play in interaction with their father than they demonstrated in solitary play. In the two studies of parent-implemented intervention (Kasari, Gulsrud, Wong, Kwon, & Locke, 2010; Wong & Kwan, 2010), children with ASD made gains in the symbolic level of their object play, although neither study reported whether fathers took part in the intervention. The study by Wong and Kwan (2010) examined the effects of an intensive 2-week parent training with 17 newly diagnosed children with ASD and their parents in Hong Kong. The intervention targeted increasing eye contact, gestures, and vocalizations or words. Children showed significant improvement in communication and social interaction as well as significant gains on scores on the Symbolic Play Test (Lowe & Costello, 1995), reflecting that they used a higher degree of symbolic behavior in play following intervention. In the second study (Kasari et al., 2010), results of the effectiveness of mother-implemented intervention on symbolic play skills were mixed. Kasari and colleagues (2010) examined the effects of a parent-implemented intervention aimed at increasing joint attention with 38 children with ASD and their mothers who were assigned to either an immediate treatment or a wait-list control group. Postintervention, children in the immediate treatment group showed more types of functional, but not symbolic, play acts during mother-child play interactions, compared to children in the wait-list group.

Recommendations

Taken together, results from these three studies lend some support to the argument that fathers may make important contributions to the quality of symbolic play for children with ASD and highlight the need for additional studies of father-child play interactions for children with ASD. Play is an important developmental domain, a key context for father-child interaction, and a prime target for early intervention for children with ASD. The contributions of fathers to their child's play development may be especially salient for children with ASD, given the pervasive deficits in play associated with ASD and the link between early play ability and later communicative outcomes (Charman et al., 2003; Toth et al., 2006). By including fathers in early interventions for children with ASD, interventionists

Table 2
**Summary of Studies Examining the Impact of Fathers of Children With
 Developmental Disabilities and Mothers of Children With ASD on
 Symbolic Play Development**

Reference	Study Design	Participants	Results
de Falco et al. (2008)	Observational; two 10-min sessions (child solitary play; father-child play)	19 children with DS and their fathers	Children with DS showed more high-level symbolic play during father-child than solitary play; father-child dyads with higher emotional availability (EA) scores showed more symbolic play and less exploratory play vs. low EA dyads
Kasari et al. (2010)	RCT intervention: Joint Attention	38 children with ASD; 19 immediate treatment (IT); 19 wait-list (WL) control and their mothers	Children in the IT group displayed significantly more functional play acts but not increased diversity of symbolic play compared to children in the WL control
Wong & Kwan (2010)	RCT intervention: "Autism 1-2-3" vs. Wait-List Control	17 children with ASD and their parents	Intervention targeted (a) eye contact, (b) gesture, and (c) words; children showed gains in communication and social interaction as well as significant improvement in scores on the Symbolic Play Test

Note: ASD = autism spectrum disorder; DS = Down syndrome; RCT = randomized controlled trial.

capitalize on an important opportunity to recruit the child's primary play partner in targeting social-communicative gains. Indeed, because of fathers' unique interactional styles with their children, they may have a particularly important influence in facilitating play (and language) skills with their young children with ASD. Understanding the unique contributions of fathers to the play skills of their children with ASD may have important service delivery implications for effectively involving all parents in play-based early interventions for children with ASD. One essential step toward effective father involvement is further understanding of the contributions of fathers to the language and play development of children with ASD. In addition, greater father involvement may lead to positive collateral effects for families of children with ASD.

Rationale for the Potential Benefits of Father Involvement on Parental Stress and Family Cohesion

Over the past 30 years, several researchers have documented higher levels of parental stress in families with a child with ASD compared to parents of children who are typically developing as well as those with other developmental disabilities (Dumas, Wolf, Fisman, & Culligan, 1991; Koegel et al., 1992; Sanders & Morgan, 1997). Family systems theory (Turnbull & Turnbull, 1986) would suggest that high levels of parental stress likely have cascading effects on all the relationships in a family. For instance, high levels of parental stress may affect family cohesion, as evidenced by the higher rates of divorce among

families with a child with ASD than among comparison groups (Hartley et al., 2010). This is particularly concerning for the families involved but is also important to interventionists and researchers working with these families. For instance, high levels of parental stress have been shown to reduce the effectiveness of early intervention for children with ASD, particularly for those children receiving more time-intensive interventions (Osborne, McHugh, Saunders, & Reed, 2008). Moreover, there is some evidence that mothers of children with ASD experience even greater levels of stress than fathers of children with ASD (Hastings, Kovshoff, Brown, et al., 2005; Hastings, Kovshoff, Ward, et al., 2005). This may be related to mothers' greater caregiving role (Tehee et al., 2009). Although father involvement in child care is increasing, it continues to be less than mothers (Pleck & Masciadrelli, 2004). Historically within early intervention services, mothers typically played a larger role than fathers because they were more likely at home caring for the children while fathers worked outside of the home and were less available (Murray & McDonald, 1996). It is perhaps a natural extension of their caregiving role that mothers have been the focus of both early intervention services and research in early ASD intervention, despite the move in our field to more "family-centered" models. For example, within the early intervention service system, mothers remain the primary participants in child assessments (Crais et al., 2006) and interventions (Able-Boone, 1993; Polmanteer & Turbiville, 2000).

In focusing primarily on mothers to the exclusion of fathers, however, researchers and interventionists may be placing unstated, unintentional, and unrecognized burdens on mothers. In a qualitative study of mothers participating in the early intervention system, Leiter (2004) reported that interventionists were shown to create a "therapeutic imperative" for mothers, fostering expectations that mothers would learn the therapeutic skills that professionals used with their children and carry these over into the home setting. Furthermore, the mothers who did not perform to the interventionists' expectations were sometimes regarded by the interventionists as "noncompliant." For their part, mothers in the study reported feeling overwhelmed with taking on the role of therapist in addition to their caregiving role and were unsure of their abilities as interventionists. From this study and common current intervention practices, when mothers take on the major responsibilities in early intervention, this may place them in the position of relaying information, potentially "teaching" the other parent techniques, and "monitoring" successes and missteps. In contrast, in his qualitative studies of Australian parents of children with ASD, Gray (2003) theorized that for fathers, the majority of whom worked outside the home, employment provided a respite and may in part explain their lower levels of stress as compared to mothers. Thus, given that fathers of children with ASD appear to experience less overall stress than mothers, involving fathers in early intervention for their children with ASD may have positive outcomes for both children and parents.

Systematic Review of the Literature on Parent Stress and Coping in Mothers and Fathers of Children With ASD

To better understand the differences between fathers' and mothers' experiences of stress and coping, we reviewed the literature on stress and coping for parents of children with ASD.

Literature Search Strategy

A three-step systematic search of the descriptive and/or qualitative studies of stress and coping in mothers and fathers of children with ASD was conducted using the methods previously described. Search terms included *parent*, *stress*, *autism*, *mother*, and *father*. The initial search returned 48 articles.

Inclusion Criteria

Articles were examined for the following inclusion criteria: (a) participants included both mothers and fathers of children with ASD ages 2 to 5 years, (b) study outcomes included parental stress and/or coping, and (c) results were reported separately for mothers and fathers.

Results

A total of 17 studies met criteria for inclusion in this synthesis. For the purposes of this review, 2 studies that analyzed data from the same participants (Hastings, Kovshoff, Brown, et al., 2005; Hastings, Kovshoff, Ward, et al., 2005) were considered as a single study. A summary of the 17 included studies is presented in Table 3. Overall, both mothers and fathers of children with ASD were found to have elevated levels of stress compared to parents of typically developing children and parents of children with other developmental disabilities in 4 studies (i.e., Baker-Ericzen, Brookman-Frazee, & Stahmer, 2005; Brobst, Clopton, & Hendrick, 2009; Dabrowska & Pisula, 2010; Epstein, Saltzman-Benaiah, O'Hare, Goll, & Tuck, 2008). However, results comparing levels of stress experienced by mothers versus fathers of children with ASD were mixed. For instance, mothers and fathers were found to have similar levels of stress in 3 studies (Hastings, 2003; Hastings, Kovshoff, Brown, et al., 2005; Hastings, Kovshoff, Ward, et al., 2005; Ornstein Davis & Carter, 2008). However, in 8 studies, mothers were found to greater levels of stress than fathers (Dabrowska & Pisula, 2010; Herring et al., 2006; Gray, 2003; Little, 2002; Moes, Koegel, Schreibman, & Loos, 1992; Olsson & Hwang, 2001; Sharpley, Bitsika, & Efremidis, 1997; Tehee et al., 2009). In one study (Troy, Connolly, & Novak, 2007), mothers were also reported to have lower levels of coping compared to fathers. None of the studies included in this synthesis reported that mothers experienced less stress than fathers. Although fathers of children with ASD may have experienced less overall stress than mothers in the majority of included studies, fathers in 2 studies still demonstrated higher levels of stress compared to fathers of typically developing children and children with other disabilities (Herring et al., 2006; Olsson & Hwang, 2001). In contrast, Dabrowska and Pisula (2010) reported that differences in stress levels by gender did not exist for either parents of typically developing children or parents of children with Down syndrome. Thus, parents of children with ASD may be at risk for elevated levels of stress, with mothers possibly experiencing greater levels than fathers.

Perhaps even more clinically important than examining differences in overall levels of stress of mother and fathers is examining different sources of stress. For instance, in a study by Ornstein Davis and Carter (2008), participating mothers of children with ASD reported problems with their child's regulatory behavior (e.g., sleeping, eating) as their greatest

Table 3
Summary of Studies Comparing Parental Stress and Coping
for Mothers and Fathers of Children With Autism
Spectrum Disorders

Reference	Participants	Findings Reported
Baker-Ericzen et al. (2005)	37 M/F pairs of toddlers with ASD; 23 M/F pairs of TD children	Both mothers and fathers of children with ASD reported significantly higher levels of child and parent-related stress vs. parents of TD toddlers. Following child's participation in inclusion program, mothers of children with ASD reported significant reductions in child-related stress, but no reduction in parent-related stress. For fathers, no changes were reported in either child or parent-related stress. Child's level of social skills was a significant negative predictor of child-related maternal stress for children with ASD.
Brobst et al. (2009)	25 M/F pairs of children with ASD; 20 M/F pairs of TD children	Compared to parents of TD children, parents of children with ASD experienced more intense child behavior problems, greater parenting stress, lower relationship satisfaction (groups did not differ on perceived spousal support, respect for partners, or commitment). For mothers, parental stress was negatively related to relationship satisfaction, spousal support, and commitment. For fathers, parental stress was negatively related only to total social support.
Dabrowska & Pisula (2010)	26M/25F of children with ASD; 27M/F pairs of children with DS; 28M/29F of TD children	Parents of children with ASD had higher levels of stress than parents of children with DS or TD. Mothers of children with autism scored higher than fathers in parental stress; these gender differences were not found in the group of parents of children with DS and TD.
Epstein et al. (2008)	39 Scottish parents of children with AS ages 5–12 years	Both mothers and fathers of children with AS reported elevated levels of parenting stress. For mothers, there was a significant positive correlation between parenting stress and the child's level of impairment, with respect to both executive dysfunction as well as sensory difficulties.
Gray (2003)	Australian parents 32M/21F of children with ASD or AS (53 parents from 21 families)	Different gender roles for mothers and fathers affected the ways they were influenced by child's autism. Mothers were more likely to experience emotional distress and career disruption, to be taking primary responsibility for medical referral process, to have dealt with child's educational problems, and to have primary responsibility for child's behavior both by husband and people outside family. Fathers claimed child's condition did not have significant personal effect on them; fathers believed most serious impact child's ASD had on them was via stress experienced by their wives.
Hastings (2003)	18 M/F pairs of children with ASD	Mothers and fathers did not differ in their levels of stress and depression, but mothers reported more anxiety than fathers. For mothers, stress was associated with teacher ratings of child behavior problems and fathers' mental health. For fathers, neither child behavior problems nor mothers' mental health was associated with stress.

(continued)

Table 3 (continued)

Reference	Participants	Findings Reported
Hastings, Kovshoff, Brown, et al. (2005); Hastings, Kovshoff, Ward, et al. (2005)	Sample 1: 26M/20F of school-age children with ASD; Sample 2: 48M/41F of pre-school children with ASD	Comparable levels but different sources of stress in mothers and fathers: for mothers, stress was related to child problem behaviors and fathers' mental health. For fathers, stress was not significantly related to either. Parental stress and positive perceptions were predicted by maternal depression.
Herring et al. (2006)	79M/72F of children with PDD; 38M/34F non-PDD group	Fathers consistently reported less stress than mothers, regardless of whether their child had a PDD or not, though fathers of children with PDD were significantly more stressed than other fathers at Time 2. Partner mental health problems were not a source of stress for mothers or fathers.
Kayfritz et al. (2010)	23 M/F pairs of children with autism ages 5–11 years ($M = 7.39$)	Mothers reported significantly more positive experiences parenting their child with ASD than fathers. Mothers' and fathers' reports of their positive experiences were negatively related to their reports of parenting stress. Fathers', but not mothers', positive experiences were negatively related to their partners' reports of parenting stress.
Little (2002)	103 M/F pairs of children with AS and NLD	Mothers reported significantly higher levels of stress and pessimism for themselves and their family than fathers. Mothers also reported seeking professional help and taking medication for depression more often than fathers.
Moes et al. (1992)	18M/12F of children with ASD	Mothers reported significantly more stress than fathers, with a pattern suggesting that stress may be related to the differing responsibility assigned to child rearing for each parent.
Olsson & Hwang (2001)	216 families of children with ASD and/or ID and 214 control families.	50% of mothers with children with ASD had elevated depression scores. Mothers of children with ASD had higher depression scores than mothers of children with ID without ASD > fathers of children with ASD > fathers of children with ID without ASD > control mothers > control fathers.
Ornstein Davis & Carter (2008)	54 M/F pairs with children with ASD	All parents experienced stress related to children's social relatedness and parent-child relationship problems; however, mothers and fathers are stressed by different child characteristics. Mothers experienced more stress associated with child regulatory problems. Fathers experienced more stress related to child's externalizing behaviors.
Sharpley et al. (1997)	219 Australian parents of children with ASD	Mothers reported significantly more parenting stress, anxiety, depression, and a higher frequency of feeling stretched beyond their limits and greater levels of confidence in handling their child's major problem than fathers.
Tehee et al. (2009)	23M/19F of children with ASD	Mothers were significantly more stressed, were more involved, and reported higher levels of stress and coping related to caregiving than fathers.
Twoy et al. (2007)	29M/22F of children with ASD	Overall, for both mother and fathers, coping levels were within normal limits. Fathers had slightly higher levels of coping than mothers.

Note: ASD = autism spectrum disorder; M = mother; F = father; AS = Asperger's syndrome; ID = intellectual disability; NLD = nonverbal learning disability; PDD = pervasive developmental disorder; DS = Down syndrome; TD = typically developing.

source of child-related stress. In contrast, fathers reported that their child's externalizing behaviors (e.g., tantruming) were the greatest source of their child-related stress. Differences in sources of stress may partly explain different effects of parenting a child with ASD as well as explain differential effects of parent-implemented interventions on parental stress for mothers and fathers. For example, in a quasi-experimental study of the effect of parent-implemented intervention on parental stress levels, only mothers reported reductions in child-related but not in parent-related stress. In contrast, fathers reported no changes in levels of either parent- or child-related stress (Baker-Ericzen et al., 2005). Thus, identifying specific predictors of stress for mothers and fathers may be an important component in tailoring early autism intervention to meet the needs of all parents.

In addition to different levels and sources of child-related stress experienced by mothers and fathers, another interesting finding of this synthesis is the mixed results for the relationship-related stress. Although one study reported that partner mental health problems were not a source of stress for parents of children with ASD (Herring et al., 2006), other studies suggest that fathers and mothers may each be affected by partner-related stress. For example, for mothers in one study by Hastings and colleagues (Hastings, Kovshoff, Ward, et al., 2005) stress was predicted by both the child's behavior problems and their partner's depression. Fathers, however, also seem to be affected by the mother's mental health. In three of the included studies, mothers' mental health predicted fathers' positive parenting experiences (Hastings, 2003; Hastings, Kovshoff, Ward, et al., 2005; Kayfitz, Gragg, & Orr, 2010). In addition, in a qualitative study of Australian mothers and fathers of children with high-functioning ASD or Asperger's syndrome, Gray (2003) reported that fathers claimed their child's ASD did not have a personal effect on them directly but that it affected them through their spouses' stress. Thus, mothers and fathers of children with ASD may both be affected by partner-related stress.

Taken together, results of this synthesis suggest that, overall, parents of children with ASD are at greater risk of increased stress levels and that mothers are particularly vulnerable to higher levels of child-related stress. High levels of overall and child-related stress experienced by mothers may be, in part, the result of the greater role they play in their child's primary care and in early intervention services (Tehee et al., 2009). Fathers may experience less child-related stress than mothers. However, both mothers and fathers reported relationship stress related to their partner's mental health. This may be particularly important for fathers, given that mothers were shown to experience higher levels of depression in three studies (Little, 2002; Olsson & Hwang, 2001; Sharpley et al., 1997).

Recommendations

Although much research is needed, the differences between mothers and fathers in levels and sources of stress and coping found in this synthesis suggest that directly involving fathers in their child's intervention may relieve some of the pressure mothers experience and in turn may affect positively the entire family system. Involving fathers may be especially important, given the negative impact parenting stress has on intervention outcomes for children with ASD (Osborne et al., 2008). The results may include developmental gains for the child with ASD, reduced stress levels for parents, and greater cohesion for families. Therefore, another reason to engage fathers in early intervention activities may be to share responsibilities as well as the joys, and thereby reduce familial stress that accrues from the

challenges of parenting a child with ASD. In addition, in future research and clinical work, focusing on known stressors for both fathers (i.e., child's externalizing behaviors) as well as mothers (i.e., child's self-regulatory behaviors) may be an important component of effectively including all parents in early intervention for their children with ASD. Finally, given the associations between partner's mental health and spousal stress levels found in several of the included studies, relationship and mental health supports for both mothers and fathers may be beneficial components of family-centered early ASD intervention.

Overall, results of this synthesis support the need for greater involvement of fathers in early autism intervention and research. Findings from our synthesis of the literature on parent training for children with ASD revealed that fathers were included in only three studies, only one of which (Elder et al., 2005) involved more than one father. In addition, our search found no published studies examining fathers' contributions to symbolic play, although the expanded search revealed that mothers of children with ASD and fathers of children with Down syndrome were making important contributions to higher symbolic levels of their children's play. Finally, the review of studies comparing stress and coping experienced by fathers and mothers of children with ASD suggests that parents of children with ASD experience greater levels of stress than parents of typically developing children and children with other developmental disabilities. In several studies, mothers demonstrated higher levels and different sources of stress than fathers; and several studies reported that both gender parents experienced partner-related stress. Taken together, results of this synthesis highlight the need to involve fathers in communication and play intervention for young children with ASD. Exactly how to effectively involve fathers, however, is a more complex question.

Toward More Effective Father Involvement in Early ASD Intervention

Interventions to address social communicative skills in children with ASD have proven to be effective when delivered by professionals (Goldstein, 2002) and mothers of children with ASD (McConachie & Diggle, 2007). In contrast, as noted, there are few studies that have specifically examined father-implemented interventions (Elder et al., 2003; Elder et al., 2005). To date, most of the literature on parent-child interaction in ASD has focused on mothers, with the assumption that findings will generalize to fathers (Rodrigue, Morgan, & Geffken, 1992). There is interesting evidence from the social work literature, however, that interventions that are effective for mothers do not work well for some fathers. In a series of studies of children with behavioral difficulties, for example, mothers reported increases in self-efficacy and decreases in parenting stress following a parent education intervention that included discussion of videotaped vignettes of parent-child interactions and weekly written homework (Gross, Fogg, & Tucker, 1995). In contrast, even after a year of intervention, there was no significant influence on fathers (Tucker, Gross, Fogg, Delaney, Lapporte, 1998). In fact, only 40% of fathers participated in the intervention. In addition, those fathers who did participate missed more than 50% of the sessions (compared to 10% for mothers), and only half of the fathers completed any of the assigned homework (compared to 100% of mothers; Gross et al., 1995). Parallel results were seen by Lundahl and colleagues (Lundahl, Tollefson, Risser, & Lovejoy, 2008), who conducted a meta-analysis of father involvement in parent training for children with behavioral

problems. Their findings indicated that although including fathers had positive outcomes for the children, the fathers themselves did not appear to benefit. Specifically, participating fathers did not experience the same changes in behavior and perception of child rearing resulting from training, as did mothers. Low father involvement (i.e., 51% of fathers) has also been reported in large surveys conducted with fathers of children in Early Head Start (Raikes, Summers, & Roggman, 2005).

Within the ASD literature, there is also emerging evidence that parent training that is successful for mothers may not be amenable to fathers. For example, in the studies of father-implemented communication intervention, Elder and colleagues (2005) trained 18 fathers to learn two common milieu intervention strategies: imitation and waiting. Although fathers were able to learn the imitation strategy, they reported difficulty in learning and implementing the waiting strategy with their child. Another study, focused on explicitly reducing the stress of both mothers and fathers of children with ASD, also failed to meet the unique needs of fathers (Baker-Ericzen et al., 2005). At the start of the intervention, both mothers and fathers of preschool children with ASD reported significantly higher levels of stress than parents of typically developing preschoolers. Only mothers, however, reported less stress after completing the intervention; fathers demonstrated no significant change in levels of stress by their report. Thus, from the findings across these studies and those with children with other disabilities, fathers may require more tailored training and intervention adaptations to support their interactions with their children with ASD and to address their stress levels. Two aspects of making interventions more amenable to fathers could include adapting the context of the intervention sessions and modifying the ways that information is shared with fathers.

Recommendations for Making Intervention Contexts More Father Friendly

In looking at fathers' styles of interacting with their children, it is clear that fathers have unique ways that they play with their children. Incorporating more play activities that reflect fathers' play models, including more physical or "rough-and-tumble" play and more active sessions with fathers, versus more didactic sessions, is a likely first step in making interventions more father friendly. An innovative example of this more physical and active father involvement is provided by Fabiano and colleagues (2009) in their work with fathers of children ages 6 to 12 years diagnosed with attention-deficit/hyperactivity disorder. This father-coaching program follows a little league model. Over an 8-week intervention, participating fathers attend a training meeting for one hour, while the children work on soccer-related skills. During the second hour, the dads and children join together for a soccer game. Fathers help manage the game, while simultaneously practicing skills they learned in the parent coaching session. Although participation in this model resulted in similar effects on frequency of disruptive behaviors for children compared to those in the control parent intervention, the effects for fathers were significant. Fathers in the little league model program had greater attendance, completed more homework, and were generally more satisfied overall than fathers in the traditional behavioral parent training program. Support for more active father-child sessions was also found with fathers of younger children who participated in Head Start programs (Turbiville & Marquis, 2001). In that nationwide study, the two

coaching formats rated as most popular by fathers were those that included activities fathers could do with their child and those that included the entire family. Thus, adapting the context of intervention sessions to be more active and physical, with greater family involvement, may make early interventions sessions more amenable and appealing to fathers of children with ASD.

One limitation to making early intervention sessions more amenable for fathers with ASD, however, is that additional information is needed to understand specifically how fathers of children with ASD play with their children. Although it is likely that these fathers will demonstrate play styles somewhat similar to those used by fathers of typically developing children, it may also be the case that the impact of a child's ASD may affect the type of play these fathers use. Thus, a child's disability may have a bearing on a father's ability to enhance the child's play. Furthermore, for fathers who have a child with ASD and another child without ASD, it may be of value to examine the varying styles fathers use across their children. Therefore, more observational and experimental research on fathers' play styles with their children with ASD is needed to better understand fathers' contributions and eventually how best to incorporate communication and play interventions into father-child routines.

Recommendations for Providing Information in More Father-Friendly Ways

An additional means to make early intervention more amendable to fathers is to consider making the context and activities for sharing information more father friendly. For instance, it may be beneficial to take into consideration how parents learn new information. As both learners and instructors, gender differences are evident between women and men and, by extension, between mothers and fathers. This is not to say that all women or men follow the trends noted, but research has shown significant differences between a number of men and women. For example, as learners, women often prefer receiving support and feedback from instructors and working with others in a cooperative and collaborative environment (Grossman & Grossman, 1994). Women also prefer to receive explanations and directions and in general delay decisions until all the available information is gathered. As trainers, women tend to be relationship oriented and provide supportive feedback to students, using an implied teaching style (Brady & Eisler, 1999). This female style of learning and training is reflected throughout our collaborative model of early intervention and likely has resulted both from the traditional focus on mothers and from early intervention being a predominantly female field.

In contrast, men as learners prefer receiving feedback from peers rather than from an instructor (Grossman & Grossman, 1994). Men also prefer working independently within a competitive environment. As opposed to watching and waiting until all the information is gathered, men are more comfortable jumping in to manipulate materials and problem solve when old solutions no longer apply. It follows that as trainers, men tend to be subject centered and task oriented and to use a direct teaching style (Brady & Eisler, 1999). It may also follow that men typically learn best when instruction is delivered in a way that they have become familiar with in their own lives. However, in regard to early intervention,

male learning and training styles are not typically incorporated or even taken into account. This may be one reason why fathers find it more challenging to become or remain involved, particularly when compared to mothers, in their child's early intervention services. Effectively involving fathers will likely require employing learning and teaching styles that appeal to fathers. As clinicians, we can learn to incorporate more male-friendly teaching and learning strategies such as peer feedback, task-oriented learning, and perhaps even friendly competition in our father training. For example, two strategies used successfully with fathers are video modeling of target strategies and providing graphic feedback detailing parent performance from the previous session (Elder et al., 2005).

In addition to incorporating more father-friendly learning styles, another option for making the context of parent intervention more amenable to fathers may be to pair fathers of children with ASD with other parents of children with ASD. This type of parent-to-parent feedback was found to be especially helpful in a study by Mahoney and colleagues (Mahoney, Wiggers, & Lash, 1996) of father involvement and matches the reported peer-to-peer learning style preference of men (Grossman & Grossman, 1994). The two fathers in the Mahoney et al. study who made the greatest gains in training were parents of children with Down syndrome who were paired with a trainer who was also the mother of a child with Down syndrome. Thus, similarities between coaches and parents in their child's disability category may be another key factor in successful father intervention. In summary, adapting parent intervention approaches to incorporate fathers' learning styles and the child's particular disability may help fathers be more successful in interventions with their children with ASD. However, effectively infusing communication and play interventions into fathers' interactions with their children with ASD will first require a better understanding of the kinds of interactions that are common (and/or optimal) between fathers and their children with ASD and their impact on the child's social and communicative development.

Limitations and Future Directions

The increase in father research in recent years has added to our understanding of the contribution of fathers to communication and other areas of development for children who are typically developing. However, despite their important and unique interaction styles, language, and play models, fathers are largely overlooked in our current ASD research, particularly studies aimed at intervention efficacy. Even in today's world of increased coparenting by fathers, participants in "parent" studies in ASD are almost exclusively mothers. Furthermore, there continues to be very little attention paid to fathers throughout the early intervention system unless parents themselves focus professionals' efforts on fathers. Our aim in this systematic review was to present a theoretical rationale for more effective father involvement in early autism intervention by reviewing the literature to determine the extent of father involvement in communication and symbolic play intervention for young children with ASD to date and to compare the levels of stress and coping experiences of mothers and fathers of children with ASD. One limitation is that this review may not have captured all possible studies that met inclusion criteria. A second limitation is that our search yielded no studies specifically reporting the impact of fathers on the symbolic play skills of children with ASD. However, as symbolic play is an important intervention target as well as

outcome for children with ASD, we thought it necessary to highlight the paucity of studies examining fathers' contributions to the symbolic play development of their children with ASD. Despite these limitations, our findings reveal several important gaps in the ASD literature and recommendations for future research and intervention.

Overall, findings from this synthesis prompt a call to redirect our efforts in the study of father-child interactions and their potential contributions to children with ASD. It is striking that few observational studies of father-child interactions focused on fathers of children with ASD have yet to emerge. In fact, little knowledge exists as to how and why father-child interactions with a child with ASD may parallel or differ from the types of interactions fathers have with their children who are typically developing. To understand the significance of this relationship and its bearing on development of children with ASD, detailed information based on observations of father-child interactions is warranted. Such knowledge would facilitate greater understanding of the relationships among father language and play models and the developing language and play skills in children with ASD. Furthermore, with this type of knowledge, the foundation could be laid to study the factors that may affect fathers' involvement in early intervention programs for their children. Further research is also needed to examine the feasibility and efficacy of father-implemented interventions. For example, in the ASD literature to date, only one group of researchers has specifically examined father-implemented interventions, with mixed results (Elder et al., 2003; Elder et al., 2005; Seung et al., 2006). Given the unique contributions that fathers make to a child's communication and play development, the need to include fathers in intervention is evident. However, for father-implemented interventions to be successful they must be responsive to the unique interaction and communication styles of fathers. We suggest that interventions that can increase fathers' responsiveness while still maintaining the integrity of their play and communication styles are more likely to improve outcomes for children with ASD than those that ignore fathers' styles. Finally, formatting the training to be more amenable to fathers' unique learning styles and needs and to be more feasible for fathers may improve the likelihood that training will be effective for fathers and their children. Moreover, focusing on communication and play interventions that support fathers' communication styles and learning needs will likely help fathers feel more effective in their interactions with their child with ASD. In turn, effectively involving fathers of children with ASD in communication and play interventions may have collateral effects for the family, including reduced maternal stress and greater family cohesion.

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