

# Loneliness and Social Isolation in Children with Autism Spectrum Disorders

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Autism spectrum disorders (ASD) are a group of developmental disorders (autism, Asperger syndrome, and pervasive developmental disorder not otherwise specified) characterized by impairments in communication and social interaction and restricted repetitive and stereotyped patterns of behavior, interests, and activities. Difficulties with social interaction are considered the core feature of ASD and impact multiple aspects of daily life, including the ability to establish and maintain relationships with others. Some individuals with ASD may seek relationships but do not have the skills needed to successfully engage with others; on the other hand, some individuals with ASD may prefer to be alone and do not appear motivated to establish relationships with others. Both scenarios could result in aloneness.

In his description of 11 children with autism, Kanner (1943) noted that “There is from the start an extreme autistic aloneness that, whenever possible disregards, ignores, shuts out anything that comes to the child from the outside” (p. 242). Contact with people was seen as an interference that was dealt with quickly so that the child could “return to the still much desired aloneness.” “Profound aloneness dominates all behavior” (p. 247).

Kanner’s early observations suggested that aloneness was a *desired* state for children with autism. The children appeared to have a good relationship with objects, but not with people. Indeed, the parents of Donald (Case 1) described him as “happiest when left alone” (p. 218).

The distinction between aloneness and loneliness is critical for understanding children with an ASD. As with the case of Donald, aloneness and/or social isolation can be a situation that is pleasurable, similar to when an individual seeks solitude or a desirable state away from the presence/interference of others (Galanaki,

*The Handbook of Solitude: Psychological Perspectives on Social Isolation, Social Withdrawal, and Being Alone*, First Edition. Edited by Robert J. Coplan and Julie C. Bowker.  
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2004). Indeed, this appears to be what Kanner implied when describing the behavior of children with autism.

Loneliness, on the other hand, results from negative, undesirable feelings of being alone (e.g., without relationships) or dissatisfaction with one's current relationships (Margalit, 1994; Perlman & Peplau, 1982). Loneliness implicates social desire or a need for contact with others. Thus, a critical distinction between aloneness and loneliness has to do with perceptions about one's relationships. To feel lonely, one must feel that something is missing, perhaps between desired and actual relationships. But aloneness does not have this requirement. From Kanner's descriptions, it seems clear that many children with autism do not have *social desires* for relationships with people and therefore would likely not feel lonely.

### **Theoretical Basis of Loneliness**

The cognitive discrepancy model of loneliness (Perlman & Peplau, 1982) suggests that individuals develop a personal expectation against which they judge their relationships. Simply interpreted, this model suggests that if an individual's relationships are less than the standard they have set for themselves (their own internal representation), they feel dissatisfaction with their relationships and can experience feelings of loneliness. Thus, the discrepancy between desired and actual friendships can result in feelings of loneliness.

According to Weiss (1973), there are two basic types of loneliness, emotional loneliness and social-cognitive loneliness. Emotional loneliness refers to feelings related to a poor affective bonding with others, resulting in feelings of emptiness and sadness. Social-cognitive loneliness is related more to self-perceptions and social comparison as suggested by the cognitive discrepancy model earlier. Loneliness due to social-cognitive factors may include feeling dissatisfied with relationships, not having access to a peer group, or being excluded or marginalized from peer groups. When asked to define loneliness, typical school-aged children often cite both forms of loneliness – that of being alone, being left out, and also feeling sad (Asher & Wheeler, 1985; Renshaw & Brown, 1993).

### **Loneliness and Autism**

The theoretical perspectives described earlier have a number of underlying assumptions. For example, to feel lonely, children must be missing something in their relationships with others. At a very basic level, children must desire and seek out relationships, especially friendships, and they need to understand the discrepancy between desired and actual friendships. Ultimately, they must possess the ability for social comparison, which relies on an understanding of self, different from others (Lee & Hobson, 1998).

This ability to differentiate self from others is central to understanding loneliness in autism. Autism involves impairment in self–other perceptions, particularly in viewing self in relation to others (Capps, Sigman, & Yirmiya, 1995; Lee & Hobson, 1998). This has been described as a difficulty differentiating oneself from others (perhaps contributing to the often observed challenge in using personal pronouns), which is also related to a lack of self-consciousness, self-reflection, and self-concept (see Lee & Hobson, for review). As a result, children with autism may not consider themselves in terms of their relationships with others, and they may less often see themselves as a friend to others (Locke, Ishijima, Kasari, & London, 2010). Thus, studies of loneliness in children with ASD must be examined in light of their understanding of their relationships in general and friendships in particular.

In this chapter, we present the results of studies that have examined the construct of *loneliness* in autism, and then we consider these findings in light of studies with children with ASD in terms of their understanding and self-perceptions of friendships, their reported quality of friendships, and their reciprocity and connectedness to social networks. We next describe the potential negative sequelae of poor peer relationships, including loneliness, anxiety, and depression in older children with autism, and the potential for early prevention and intervention efforts.

## Understanding and Endorsing Loneliness in Autism

A first question is whether children with autism understand the meaning of loneliness. In a study of highly verbal 8- to 14-year-old children with an ASD, children with ASD defined loneliness more in terms of the social-cognitive qualities (no one around, no one to play with) than the affective/emotional (sadness) qualities (Bauminger & Kasari, 2000). The identification of social-cognitive qualities was similar between children with ASD and typical children matched on gender and age; however, children with ASD were less likely to refer to the emotional dimension. Only 30% of children with ASD included both qualities (emotional and cognitive) in their definitions of loneliness compared to 74% of matched typical children. The implications of this study are that children with autism may have an incomplete understanding of loneliness.

However, when children were asked to give a specific and personal example of loneliness, the differences between children with and without autism were nonsignificant. In both groups, about 10% of children could not think of an example. Of children who did give examples, they were mostly similar in terms of the locus of control (internal, e.g., I don't know how to make friends, so I am lonely, versus external, e.g., children make fun of me, so I am lonely), presence of an audience (e.g., I feel lonely when the other boys are playing handball at recess), and general versus specific descriptions (reflecting whether children can describe a time that they felt personally lonely rather than a general example; e.g., I feel lonely when I am by myself) (Bauminger & Kasari, 2000; Seidner, Stipek, & Feschbach, 1988). Thus, children with and without ASD were similar in the attributes they assigned

to loneliness; this finding is in contrast to other emotional states especially those that are socially derived (e.g., pride and embarrassment), in which children with autism were less likely to give a personal example of an emotion, more often relying on rote or scripted responses (Capps, Yirmiya, & Sigman, 1992; Capps et al., 1995). This may reflect a greater understanding of loneliness attributes compared to other emotions or the difficulty both groups have in defining loneliness.

A number of factors could influence how children with ASD understand loneliness. These include individual differences such as age and the degree of cognitive impairment as well as personal histories. Developmental age is an important factor affecting whether all children can identify feelings of loneliness. Using a loneliness self-report scale (Loneliness Rating Scale; Asher, Hymel, & Renshaw, 1984), Chamberlain, Kasari, and Rotheram-Fuller (2007) found that most 7- to 9-year-old children with or without autism did not endorse loneliness at school. It may be that these young children indeed are not lonely; on the other hand, it may not be a construct they completely understand until they are much older. On the same self-report measure, studies of older high-functioning (i.e., with IQ in the average to above average range) adolescents with ASD find they often report more loneliness compared to same-aged typical adolescents (Bauminger & Kasari, 2000; Locke et al., 2010; Storch et al., 2012; Whitehouse, Durkin, Jaquet, & Ziatas, 2009). These findings suggest there may be developmental changes in the way children with ASD understand or feel loneliness, although longitudinal studies have not been conducted.

Because the ability to feel lonely likely requires the development of social comparison, knowledge of desired and actual friendships, and an understanding of one's own standing within their social milieu, children with ASD may experience loneliness later in development relative to children without ASD. Alternatively, loneliness may occur later for children with ASD because they have experienced a history of many negative social interactions. For example, some reports indicate that children with ASD are at increased risk of peer victimization and bullying and feel the need to *masquerade* as if they were normal to fit in, creating a great deal of stress on the individual (Carrington, Templeton, & Papinczak, 2003; Humphrey & Lewis, 2008). After time, a pattern of repeated rejection and victimization may contribute to the development of loneliness. Better understanding of these social interactions, particularly within the context of friendships, may inform our understanding of how children and adolescents with ASD perceive themselves in relationships and how they experience loneliness.

### **Autistic Children's Understanding and Self-Perceptions of Friendships**

As noted earlier, one distinction between aloneness and loneliness involves one's perceptions about their own relationships. Loneliness depends on the feeling that something is missing or that there is a discrepancy between desired and actual

friendships. To explore this phenomenon in ASD, the self-perceptions of peer relationships in children and adolescents with ASD must be fully understood. There is some evidence to suggest that individuals with ASD experience a shift in self-perception of friendships over time.

### Identification of friends

Despite the fact that older individuals with ASD report not having friends, younger children often identify friendships. In three studies, we found that the majority of children with autism could identify their top three friends, including a best friend (Bauminger & Kasari, 2000; Chamberlain et al., 2007; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011). In most studies, only a very small percentage of school-aged children could not identify any friends in their classroom.

There are, however, some discrepancies between the numbers of friends children with ASD nominate and the numbers of friends that others (parents, peers) agree are friends. For example, in the Bauminger and Kasari (2000) study, parents reported *more friends* than did their children with ASD. Follow-up comments from mothers indicated that the friends they named were often more desired than actual friends, as evidenced by the interactions between the children. For example, while the children might engage in joint activities, their child with ASD mostly ignored the other child. In this case, the child with autism was likely more accurate than their parents in distinguishing between a friend and an acquaintance. Perhaps parents were unaware of the true social intricacies and nature of their children's relationships; alternatively, their reports may have reflected optimism regarding their children's friendships.

Peer nomination studies also yield conflicting evidence of friend nominations for children with ASD in the school setting. In a sample of second and third grade children, Chamberlain et al. (2007) found that children with ASD nominated *more children* in the class as their best friends than did their classmates. However, in a sample of first to fifth graders, Kasari et al. (2011) found the opposite. Children with ASD nominated *fewer classmates* as friends than did the other children in the class. Findings from both studies may reflect limited awareness and inaccurate perceptions regarding the social milieu or structure in their classes, and difficulty recognizing when peers initiated to them or when peers were available as potential friends (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012). The overall number of nominated friends does appear to decrease with age for individuals with autism. Several reports indicate that adolescents and adults with ASD nominate few friends with nearly half indicating they have no friends at all in late adolescence and adulthood (Howlin, Goode, Hutton, & Rutter, 2004; Orsmond, Krauss, & Seltzer, 2004). The developmental shift may reflect a change in perception of friendship rather than in actual number of friends. And awareness of having fewer friends could impact their feelings about relationships and their perception of loneliness.

### Self-perceptions: Meaning of *friend* and *self as friend*

It is possible that the concept of a friend is not well developed in children with ASD. Lee and Hobson (1998) note that children with ASD are less likely to view themselves in relation to others. Thus, they may less often see themselves as a friend or consider themselves in terms of their relationships with others. These self-perceptions (or lack of self-understandings) likely contribute to their feelings of friendship quality, loneliness, and reciprocity in their relationships with peers.

Some researchers have commented that adolescents with autism see friends as a stressful, difficult part of growing up (Carrington et al., 2003; Humphrey & Lewis, 2008). According to adolescents with ASD, a friend is someone with whom one interacts without too much conflict (Carrington et al.). They are there, but perhaps not sought after, or necessary for one's happiness. When asked to define *what is a friend?*, children with ASD between 8 and 14 years define a friend as being a companion, someone who cares about you, and someone you can tell secrets to. However, in general, the children with ASD were less likely to include all three dimensions of friendship (companionship, intimacy, and affection) compared to typical children (Bauminger & Kasari, 2000).

When adolescents with autism in high school are asked to define a friend, they too can identify elements such as security and intimacy (Locke et al., 2010). Desired qualities in a friend included someone who is kind, patient, trustworthy, and helpful. Yet when asked about their own qualities as a friend, these adolescents with ASD commented on their talents and abilities, "I am really smart" and "My knowledge about cars." When asked what they did not like about themselves, these adolescents with ASD identified personality characteristics, such as impatience, intolerance, and temper, the opposite of the qualities they wanted in a friend. Thus, they appear to have a negative view of their own qualities to be a *friend* (Locke et al.).

### Friendship Quality and Reciprocity

Poor quality and the lack of reciprocity in a relationship can contribute to dissatisfaction in friendships, ultimately contributing to loneliness. It has often been reported that even a single friend can protect a child from loneliness (Ladd, Kochenderfer, & Coleman, 1996). In nearly all of our studies of school-aged children with ASD, the majority of children can identify at least one friend or multiple friends in their class. Despite being able to identify a friend, children with ASD, particularly over age 9 years, report more loneliness than do children without ASD (Bauminger & Kasari, 2000). Thus, the mere presence of a friend does not appear to lessen feelings of loneliness for children with ASD. Having a good friend may not mitigate the negative feelings associated with loneliness because the friendship may not be truly reciprocated or mutual and/or the friendship may be of poor relationship quality.



### Reciprocity

An important consideration in friend nominations is reciprocity (e.g., whether a child's friendship nomination is reciprocated), which may be a protective factor in the development of loneliness. Most studies in children and adolescents with ASD are limited in their evidence regarding friendship because the authors did not gather friendship nominations as in the Baumaner and Kasari (2000) study, in which only parent reports of friendship were available. However, in two studies (Chamberlain et al., 2007; Kasari et al., 2011), peer nomination data at the classroom level was obtained. In both studies, when children named their friends in the classroom, reciprocity was lower for children with ASD than for typical peers in the classroom. Depending on the study, 18–34% of children with ASD received reciprocated nominations as friends, compared to 60% for typical peers (Chamberlain et al., 2007; Kasari et al., 2011). While these low rates of reciprocity for children with ASD are concerning, it has long been believed that children with ASD may have reciprocal relationships with friends who are outside of their classroom, although this issue has not been thoroughly tested. To this end, school inclusion with typical age-mates has sometimes been associated with more mutual friendships (Baumaner et al., 2008) or making little difference in increasing friendships (Orsmond et al., 2004).

### Friendship quality

As mentioned previously, in most studies, nearly all children with ASD can identify a best friend. When they rated the quality of this friendship, however, the quality was rated lower than gender- and age-matched typically developing children. The finding of poorer relationship quality has been consistently found for younger (Chamberlain et al., 2007; Kasari et al., 2011) and older children with ASD (Baumaner & Kasari, 2000; Whitehouse et al., 2009). In most situations, the quality of companionship and helpfulness are lower than what typical friends report (Baumaner & Kasari, 2000; Locke et al., 2010). One study found increased endorsement of conflict (Whitehouse et al.), although others have not (Baumaner & Kasari, 2000; Chamberlain et al., 2007; Locke et al., 2010). Thus, children with ASD across ages appear to view the quality of their best friendships more poorly than do typical children of their best friendships. It may be that lowered friendship quality contributes to children's feelings of loneliness at school.

### Feelings of Belonging and Social Connectedness

The academic environment of the general classroom has been less of a challenge to most children with ASD than has been the difficulty in navigating the social challenges (Mayes & Calhoun, 2008). There have been several recent studies on the social inclusion of children with ASD in school. Inclusion refers to the idea that all

children, including those with ASD, should be included in regular classrooms, whereas non-inclusive settings refer to the separation of children with ASD in specialized/self-contained classrooms in order to provide them with special help or support as needed.

Some researchers have advocated the inclusion setting as preferable for improving social outcomes, while others have expressed caution. Some studies find that children with autism demonstrate their motivation for friendships and social inclusion by interacting mainly with typical peers in the inclusion setting, making regular initiations toward them, but feeling lonely from unsuccessful attempts (Bauminger, Shulman, & Agam, 2003). Still such friendships seem to offer benefits to students with autism. For instance, Bauminger et al (2008) found that children with autism and with friendships with typical peers, rather than peers with a disability, displayed more social responsiveness, stronger receptive language skills, greater positive social orientation and cohesion, and more complex coordinated play.

### Views of peers and social networks

Some children with ASD are able to form friendships, but it is important to emphasize that peers are not always accepting of children with ASD. Swaim and Morgan (2001) showed third and sixth graders video clips of a typical 12-year-old boy who, in one clip, acted normal and, in the other, acted *autistic*, through characteristic behaviors such as gaze aversion, rocking, hand flapping, and echolalia. Sometimes the boy was given a label of autism and other times he was not. Children rated the boy in the video acting *autistic* less favorably regardless of whether they had a label for his behavior. However, when children are given both descriptive and explanatory information about the child with autism's behavior, their intentions toward the child are improved (Campbell, Ferguson, Herzinger, Jackson, & Marino, 2004), suggesting that understanding why a child behaves in a certain way may help mitigate negative interpretations of their actions or cause children to be more accepting.

Actual experiences with children with ASD also may result in more positive views. In studies of inclusive classrooms of elementary-aged children with ASD, only a small percentage of children were actually isolated (or neglected) in the classroom social networks (Chamberlain et al., 2007; Kasari et al., 2011). Most children were at least marginally connected to other children, most often peripheral to the main social groups in the classroom. Thus, they were often connected to groups of children by just one or two children. Another small percentage of children were nominated to the popular social group, suggesting a great deal of variability in the social position of children with ASD within their classrooms.

However, in classrooms with older children with ASD, some studies find that children with ASD are more rejected than other children (Church, Alisanski, & Amanullah, 2000; Locke et al., 2010), and there are qualitative reports that children with ASD are frequently targeted for harassment or bullying (Humphrey & Lewis, 2008). There are a number of reasons why children with ASD may be bullied,



including behavior problems, social skills deficits, and social vulnerability (Sofronoff, Dark, & Stone, 2011). Future studies should examine the issue of rejection and isolation and the potential impact on loneliness more closely and over time as these issues may surface more with older children or in the context of less cohesive and supportive classrooms.

### **Influence of self-perceptions on connections with peers**

Not only do peer perceptions affect the social connectedness of children with ASD, but so do the child's own self-perceptions. Some children with autism manage to develop and maintain close friendships with typical peers, and over time these friendships build into informal support for the child with autism's needs, as good friends naturally accommodate and support one another (Bauminger et al., 2008). These friend dyads can still have mutual difficulty understanding and supporting one another, however. The child with autism's quirks can provide selective strengths as a friend, such as original thinking rather than passively following a crowd, not playing games of social hierarchies, and lacking strong material interests (Brownlow, 2010). Despite these strengths, the friendship often operates at lower levels of engagement states, with more parallel relative to coordinated play and less shared fun, closeness, intimacy, and help (Bauminger et al., 2008).

Apparent preferences for typical peers may relate to the individuals with autism's significant amount of self-awareness about their differences, for which they self-report a tendency to stigmatize as an obstacle to their social goal of fitting in (Humphrey & Lewis, 2008). Especially for children with higher intelligence, the self-doubt seems more present. Knott, Dunlop, and McKay (2006) report that children with high-functioning autism or Asperger syndrome rate themselves far below typical age-mates in social skills and social competence, such as the ability to develop a close friendship. These children often have little confidence in their own social abilities. Indeed, because children with ASD who have higher intelligence and social skills stand out less, they may be at risk for more mistreatment by peers, as the invisible nature of the disability may render an appearance of being unacceptably odd rather than as having a disability.

### **Summary**

Peer relationships are critical in children's feelings of isolation and loneliness. From the extant literature on peer relationships of individuals with ASD, there are several key findings. First, nearly all children with ASD can identify a friend, and most are connected at least peripherally with social networks at school. Thus, children with ASD appear to have the social desire to be involved in peer relationships, and reports from older individuals and their parents suggest that obtaining friends is very important in their lives. However, as a result of dissatisfaction with the quality of these relationships, and perhaps the stress that accompanies difficulties in understanding

the social nuances of relationships, children with ASD report more loneliness. Loneliness increases at older ages, likely because of increased self-reflection and social comparison and perhaps due to accumulated negative peer interactions. These negative self-perceptions and expectations can serve as *risk factors* for the development of loneliness, consistent with the cognitive discrepancy model. Further, significant and persistent loneliness can lead to further negative outcomes.

### Potential Negative Sequelae of Loneliness

Mild levels of loneliness are viewed as potentially motivating for typical children to seek friendships (Parker & Asher, 1993); however, loneliness is also related to depression. While loneliness and depressive symptoms influence one another reciprocally in the adolescent years (Vanhalst et al., 2012), there is evidence to suggest that depression in adolescence may be a negative outcome of loneliness in early childhood. For example, parent- and peer-rated loneliness at age 8 has been found to predict depressive symptoms at age 13 (Qualter, Brown, Munn, & Rotenberg, 2010). Similarly, high probability of being isolated from social cliques at age 11–13 years predicts depressive symptoms at age 14 years; this association is mediated by loneliness (Witvliet, Brendgen, van Lier, Koot, & Vitaro, 2010). This developmental trajectory suggests loneliness could be a risk factor for the development of depression in later life.

Unfortunately less is known about the relationship between loneliness and depression among youth with ASD, especially in the adolescent years. Puberty has been associated with increased problems among individuals with ASD including development of psychiatric symptoms such as depression (e.g., Simonoff et al., 2012). It may be that social isolation and loneliness contribute to the development of psychopathology, including depression, as it does in typically developing youth. However, no studies to our knowledge have investigated the developmental trajectory of depression in ASD, particularly whether loneliness precedes it in early childhood. Adolescence itself may confer psychological risk for individuals with ASD, given increased demands on social adaptation and daily living skills in combination with neurohormonal and physical changes.

Loneliness may become particularly salient for adolescents with ASD who have experienced a pattern of repeated social failures. This is likely to emerge as social interaction becomes more desirable (as the result of intervention or maturation) and the gap between themselves and their peers becomes more evident. Increased awareness of these failures and differences may contribute to negative feelings; for example, in a study of 39 adolescent boys with ASD, 21% reported often or always feeling lonely (Lasgaard, Nielsen, Eriksen, & Goossens, 2010). Perceived social support was negatively correlated with loneliness, suggesting this may be a protective factor and target for intervention. Social rejection and awareness of shortcomings can impact self-esteem, promote social isolation, and increase risk

for psychopathology, especially depression and anxiety (Capps et al., 1995; Butzer & Konstantareas, 2003). Social pressures can cause adolescents to self-isolate, perhaps contributing to the development of psychopathology; in turn, development of psychiatric conditions such as anxiety and depression can actually exacerbate core behaviors related to ASD (e.g., Magnuson & Constantino, 2011), promoting further social isolation.

Alternatively, individuals with ASD may socially isolate without perceiving themselves as being lonely. In a review of the literature on older adults with ASD, Happe and Charlton (2012) suggest that a subset of individuals may be *protected* from some of the negative outcomes of social isolation if they had not established social networks through their work environment or friendship groups (i.e., the loss of or change in these networks would therefore not impact them). Perhaps in certain individuals, less awareness of perceived differences and decreased motivation to socialize with others serve as protective factors from the negative outcomes associated with loneliness. The authors also go on to note that for individuals who have established few friendships but have close family connections, shrinking family networks over time may be particularly impactful. More longitudinal research is clearly warranted in this area to determine the long-term effects of social isolation and loneliness and which individuals are at greatest risk for the development of associated problems (e.g., depression) as a result.

The field may benefit from modeling studies after the typically developing literature, that is, examining loneliness in a longitudinal framework to fully understand the potential impact in ASD (see Goossens, Chapter 9, this volume). Other aspects of social engagement should be included in these investigations, including perceived social support, since it appears to mediate the relationship between loneliness and depression among typical youth (Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Witvliet et al., 2010). Given possible limitations in self-awareness and ability to report emotions, multiple informants may be beneficial. Moreover, given the propensity for loneliness in early life to contribute to the development of depression and other psychiatric symptoms, it may be useful for interventions to target both loneliness and depression in youth with ASD. A review of five randomized control trials for social skills groups in individuals with ASD ages 6–21 indicates these studies may result in decreased loneliness, but have no effect on depression (Reichow, Steiner, & Volkmar, 2012). More targeted treatments are warranted to fully address the negative outcomes potentially associated with loneliness.

## Potential for Prevention/Interventions

### Peer experiences

The development and maintenance of friendships can lead to a sense of connectedness and belongingness, potentially protecting children from isolation and loneliness (see Bukowski & Verroneau, Chapter 2, this volume). Friendships

develop out of repeated experiences with peers where shared interest, mutual caring, and negotiation can grow. One issue for children with autism is the reduced number of experiences they have with peers, thus limiting the amount of time they are engaged with their peers and the number of opportunities they have to learn from these interactions. Even in the presence of other children, children with autism may not fully benefit from peer exposure. As noted by Kanner (1943), children may not notice others in the midst of children playing around them. Similarly on playgrounds filled with children, the child with ASD may be isolated or playing alone; it is not uncommon to find the child with ASD running the periphery of the yard. At times other children may be playing in the same area and even in the same activity, but the child with autism will make few attempts to engage with another child or to respond when bids from the other child are made to him or her (Sigman et al., 1999). The children with ASD may distance themselves from interactions and not take advantage of the social opportunities around them. This may explain the finding that children in inclusive settings may not develop friendships despite a great deal of exposure to typical children and presumably good social models (Orsmond et al., 2004). Thus, placing a child in a situation that will provide frequent peer experiences, as implied by inclusive school practices, may not be realized unless there are active attempts at engaging the child with ASD. Inclusion alone as a preventative practice may need further study for its effects on children with ASD.

To date, we have little evidence that children with ASD improve in their social acceptance and involvement in peer relationships without some type of intervention. There are three basic types of interventions. These include the support of an adult assigned to the child during school, peer-mediated interventions, and social skills groups.

### Adult paraprofessional as support

A common intervention for ASD children in inclusive programs is to assign the child to a paraprofessional assistant (e.g., shadow teacher). While the adult is expected to help the child in times of need, they are often explicitly told to fade away, to be in the background so as not to mark or stigmatize the child with ASD. Often, however, this appears to be precisely what happens. Individuals with ASD may view these support services as accentuating their stigmatized differences or as generally unhelpful (Humphrey & Lewis, 2008).

In a study of elementary students with ASD, nearly 60% of the children had a 1:1 paraprofessional aide to help them during recess. Observations of peer engagement during recess by independent observers found that children with ASD who were assigned an aide were the least engaged children on the playground. They were not engaged with peers or even with their assigned aide (Kasari et al., 2011). Thus, these data raise questions about the usefulness of assigned aides for the purpose of social inclusion.

### Peer-mediated interventions

For most children with ASD, the support from peers provides a powerful intervention to increase social inclusion. This social support from classmates protects against peer victimization in this population, offering a more powerful shield than social support from adults, such as teachers or parents (Humphrey & Symes, 2010). Peer social relationships thereby offer critical resilience to children with autism, who overwhelmingly experience frequent peer victimization (Little, 2001) and who sadly self-report that they come to expect it (Tobias, 2009). Children with autism appear especially sensitive to the effects of ridicule, as they commonly fear being laughed at, which positively correlates with the frequency and severity of remembering past mocking experiences (Samson, Huber, & Ruch, 2011). Their social-cognitive difficulties exacerbate this vulnerability, as children with autism often misunderstand playful banter behaviors as critical teasing and the friendly cues that teasing can convey (Heerey, Capps, Keltner, & Kring, 2005).

Peer-mediated interventions involve other students (usually typically developing) taking an active, supportive role with their classmates with ASD by helping to increase social opportunities within the school setting. These interventions appear to increase children's social connections in the classroom to a greater extent than adult-child interventions (Kasari et al., 2012). While these interventions can help connect children to social groups, significant modification is needed to successfully engage children on the playground. Elementary-aged children with ASD in peer-mediated interventions decreased their levels of isolation on the playground, but were unable to increase the amount of time they were jointly engaged with others, suggesting specific playground interventions may be needed. Moreover, these interventions need further study for their potential to increase reciprocity of friendships and lessening of loneliness at school.

Another perspective to peer experiences comes from the notion of homophilic affiliation, in which individuals choose friends who are similar to them in social and demographic characteristics (Farmer & Farmer, 1996). Such a theory argues for children with ASD to develop closer friendships with children who are more like themselves. Indeed, Locke et al. (2010) found that children with ASD clustered together in an integrated drama class and were friends with each other rather than the typical children in the class whom they knew well. Such findings raise questions about the expectations of parents and teachers for children to develop friendships in classrooms in which they are the only student with ASD. To this end, social skills groups of children who share similar social difficulties have demonstrated some success in increasing friendships among the children with ASD, although the long-term effects have not been tested (Laugeson, Frankel, Gantman, Dillon, & Mogil, 2012).

### Social skills interventions

There has been a proliferation of social skills interventions in the past 10 years (Kasari & Lawton, 2010). Most of these are carried out in clinics, often composed of groups of individuals with ASD. The typical model is a structured didactic



group therapy session followed for 12–16 weeks. Although these groups have been helpful in reducing associated features such as anxiety (Chalfant, Rapee, & Carroll, 2007), the generalization and long-term effects of social skills training have been poor (Bellini, Peters, Benner, & Hopf, 2007). In particular, generalization to school settings where children are experiencing the most difficult social situations is either limited or untested.

There is also debate in the field and from individuals with ASD as to the usefulness of social skills interventions (Kapp, Gillespie-Lynch, Sherman, & Hutman, 2013). Indeed, not all children with ASD need or desire an intervention for their social difficulties; and, as noted earlier, children with ASD may choose to self-isolate but not be at risk for experiencing loneliness. At older ages, adolescents and adults can determine for themselves the extent they wish to work on relationship-related skills. For younger children, whose parents or teachers may request social skills interventions, obtaining information from several sources can help gauge the type and intensity of these interventions. Information from the child, peers, parent, and teacher along with observations greatly informs the need for intervention (Kasari et al., 2011). Perhaps future work elucidating the relationship between social skills difficulties, social isolation, and loneliness will facilitate individualization of social skills intervention with the goal of mitigating loneliness for those individuals at greatest risk.

## Conclusion

Loneliness is a significant problem for individuals with ASD and differs from their tendency to self-isolate or seek aloneness. Future studies need to determine the extent to which loneliness changes over time and/or results from experiences that children with ASD have with peers. Longitudinal designs are needed, as well as the development of interventions that can function to prevent some of the negative consequences of poor peer interactions and feelings of marginalization and loneliness.

Finally, we may be able to learn from some of the positive outcomes that individuals with ASD achieve in terms of the peer relationships and friendships (Cederlund, Hagberg, Billstedt, Gillberg, & Gilberg, 2008; Szatmari, Bryson, Boyle, Streiner, & Duku, 2003). Some are not lonely, nor isolated, and indeed have satisfying personal relationships. Thus, there is an important place for descriptive studies that highlight positive practices and outcomes among individuals with ASD and that might yield keys to an individual's successful adaptation.

## Acknowledgements

This paper was supported in part by HRSA Autism Intervention Research Network for Behavioral Health (AIR-B) [UA3MC11055] to Connie Kasari. We thank Matthew Goodman and Caitlin McCracken for assistance on an earlier version.

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