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Emotion regulation in children with autism spectrum disorder : the link with social functioning and psychopathology

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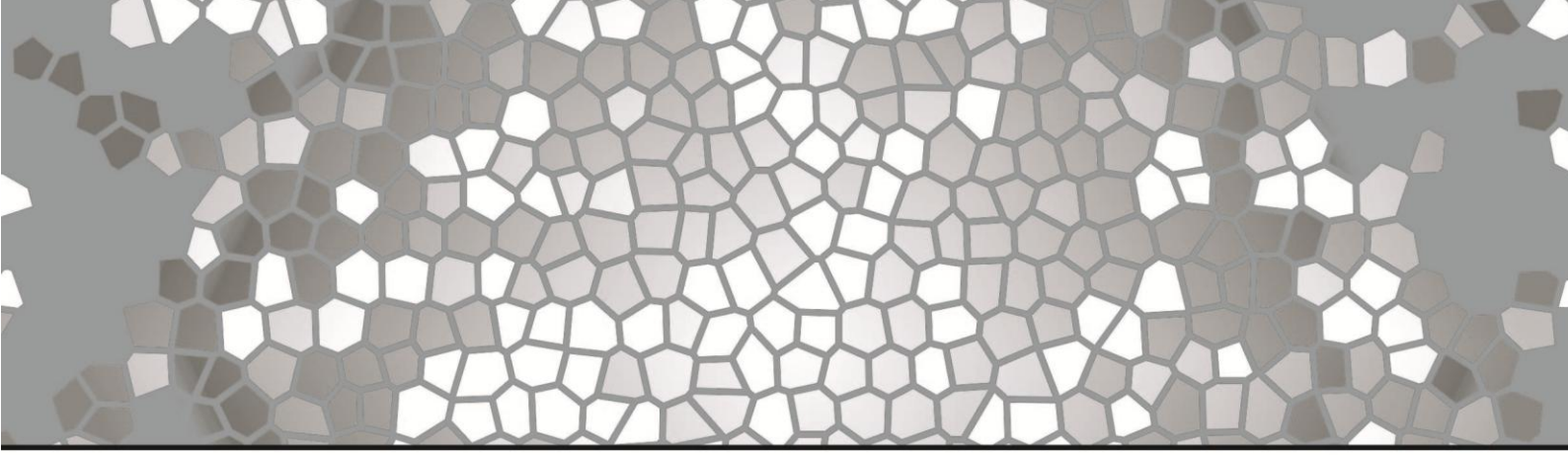


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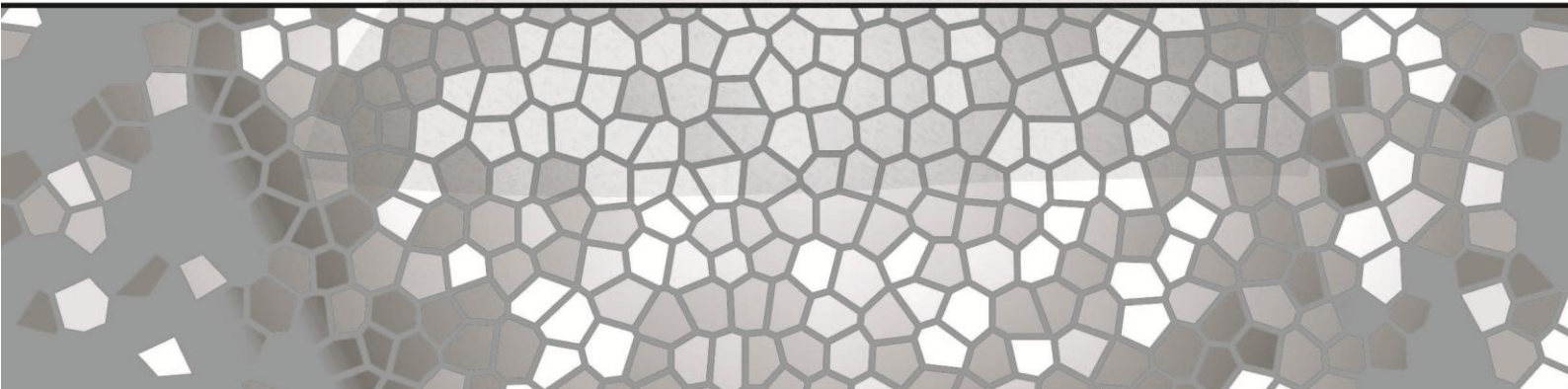
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Chapter 6

Friendships of children and adolescents with ASD: Quality, stability, and emotional value



Abstract

Children with autism spectrum disorder (ASD) are known for their difficulties in initiating and maintaining affective relationships. Still little is known about the quality and stability of friendships in children with ASD. In Therefore, in this study we examined friendship quality, friendship stability, and emotional value of friendships in children with ASD ($N=74$, $Mage=11.6$ years) as compared to TD children ($N=113$, $Mage=11.5$ years). Children with ASD reported less stability, more negative friendship features and less positive friendship features, compared to TD children. However, friendships in children with ASD appeared to have an emotional value in a sense that emotional functioning was related to friendship quality. Although children with ASD seem to appreciate having friendships, impaired emotion understanding and social difficulties seem to hamper the development and stability of friendships.

Introduction

High-quality friendships have positive effects on children in terms of increasing self-esteem, improving social adjustment and coping skills (Berndt & Keefe, 1995). Children with autism spectrum disorder (ASD) are known for their difficulties in initiating and maintaining affective relationships (Hobson, 2005). Especially during adolescence, a time during which peer influence increases, social problems may increase and that could prevent children with ASD from developing high-quality and long-lasting friendships. Although research on friendships in children with ASD is emerging, still little is known about the quality of their friendships, in terms of positive *and* negative friendship features. In Typically Developing (TD) children friendship stability partly determines the relationship between friendship quality and psychosocial factors (Savin-Williams & Berndt, 1990). Therefore, in this study we aim to examine friendship quality as well as friendship stability in children with ASD as compared to TD children. Additionally, in order to explore to what extent friendships in children with ASD have an emotional value, we examined associations between emotion awareness, empathy and friendship quality.

What we know about friendships in ASD

In TD development friendships involve a strong, affective and reciprocal bond between two people, and are considered as significant for social development (Hartup & Stevens, 1997). By nature, friendships are characterized by positive features such as companionship, support, and intimacy, but they also include negative features such as conflict, dominance, and jealousy (Berndt & Keefe, 1995). Both positive and to some extent negative friendship features offer children and adolescents the possibility to develop social and cognitive skills. However, friendships characterized by many conflicts and negative emotions could also have adverse effects, such as an increase in disruptive behavior (Berndt & Keefe, 1995).

Autism Spectrum Disorders are characterized by impairments in social interaction and communication. Therefore, it is not surprising that children with ASD experience difficulties in peer relationships. To illustrate, children with ASD are found to have fewer friendships than their TD peers (Rowley et al., 2012), and to experience difficulties with establishing friendships (Daniel & Billingsley, 2010). A case study with seven boys with ASD (aged from 10 to 14 years) showed that the main reasons for difficulties in establishing friendships emerge from the fact that they rather not initiate contact with a potential friend. Furthermore, they are not sure which child has the potential to be their friend in terms of social hierarchy or the risk to being exploited (Daniel & Billingsley, 2010). Additionally, friendships of children with ASD are marked by less positive features, as compared to TD children's friendships (Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011; Locke, et al., 2010; Whitehouse, et al., 2009). Whitehouse and colleagues (2009) also found that friendships of children with ASD are characterized by more conflict/betrayal. Whereas the study from Whitehouse (2009) included only conflict/betrayal as a negative friendship feature, this study also includes other negative friendship features such as dominance and jealousy. Another aspect of friendship which is relatively understudied in children with ASD is friendship stability. In TD development friendship stability is related to higher friendship quality and better coping skills (Bowker, 2004; Furman, 1996). Possibly, friendship stability is also relevant in friendships of children with ASD. Therefore, we examine friendship quality as well as friendship stability in children with ASD compared to TD children.

The emotional value of friendships

(Best) friends are expected to help, praise, and share with each other, which all contain a certain emotional value (Berndt, 2002). In other words, in order to meet these requirements, certain skills in emotional functioning are needed. This idea is imbedded in the idea that emotions have a communicative function to both the person communicating as well as the person that is communicated to. In order to successfully exchange emotional information it is important to be aware of both one's own emotions as well as the other's emotions. Therefore, emotion awareness and empathy are two aspects that are important and related to the quality of TD friendships (Kouwenberg, et al., 2012; Smith & Rose, 2011). Emotion awareness refers to the differentiation between different emotions, determining antecedents and possible consequences of emotions, and the verbal sharing of emotions (Rieffe, et al., 2007b). A better emotion awareness decreases internalizing problems (Rieffe & De Rooij, 2012). Additionally, research has shown that awareness of the own emotions is linked to more positive and less negative friendship features (Kouwenberg, et al., 2012). Children with ASD are less aware of their emotions compared to TD children (Rieffe, et al., 2007a). Although we know that lower levels of awareness in children with ASD are related to more internalizing problems (Rieffe, et al., 2011), the association between lower levels of emotions awareness and friendship quality has not been studied yet.

Besides being aware of the own emotions it is also important to tune into the emotions of others in order to form qualitative social relationships. Empathy refers to the ability to accurately perceive and understand another person's emotions and to react to these emotions appropriately (Rieffe, et al., 2010). Usually, empathy is divided into affective empathy and cognitive empathy (Leiberg & Anders, 2006). Affective empathy or emotion contagion refers to a lower order process in which the observer is affected by the emotional state of the other. Cognitive empathy refers to the ability of the observer to adopt another's point of view or take the other's perspective, and therefore understand causes and consequents of the other's emotion. From an evolutionary perspective empathy is supposed to induce prosocial behaviors, such as helping or comforting (Leiberg & Anders, 2006). In TD children, both affective and cognitive empathy are found to be positively linked to more positive friendship features, such as intimacy and helping, and less negative friendship features, such as conflict and rivalry (de Wied, Branje, & Meeus, 2007; Kouwenberg, et al., 2012). Furthermore, a study from Smith and Rose (2011) showed that especially more cognitive empathy was associated with more positive friendship features.

Research on empathy in children with ASD points to the idea that these children are mainly impaired in cognitive empathy as opposed to affective empathy (Jones, et al., 2010; Pouw, et al., 2013). This so-called empathy imbalance theory refers to the idea that although children with ASD are affected by the other's emotions, they are unable to adequately react on other's emotions because they have a limited understanding of how and why the other's emotions emerge. Therefore, the empathic arousal they experience become self-focused and as a consequence they misinterpret other's emotions as their own (Smith, 2009). Consequently, children with ASD appear to show less prosocial behaviors, because they are less able to attend to the other one's needs (Sigman, et al., 1992). How this imbalanced development of empathy is related to their friendship quality has never been studied. By examining emotion awareness and empathy in relation to friendship quality in children with ASD, we gain more knowledge about the emotional value of their friendships, which is currently an understudied topic.

Present study

The overall aim of this study was to examine friendship quality in children with ASD compared to TD children. First, we examined friendship quality in terms of negative and positive friendship features by means of self-reports and parent-reports. Second, we examined the stability of the children's friendship. Third, in order to examine the emotional value of friendships, we examined the link between friendship quality and emotion awareness and empathy (affective, cognitive, and prosocial behavior).

We expected children with ASD to have less positive friendship features and more negative friendship features than TD children (Kasari, et al., 2011; Locke, et al., 2010; Whitehouse, et al., 2009). In line with this hypothesis, we expected children with ASD to experience less stable friendships, compared to TD children. Furthermore, we expected emotion awareness, affective/cognitive empathy, and prosocial behavior to be positively associated with positive friendship features and negatively associated with negative friendship features in the TD group (Kouwenberg, et al., 2012; Smith & Rose, 2011). In the ASD group, examining the relationship between friendship quality and emotion awareness and empathy was explorative. However, based on a previous study showing a positive relationship between affective empathy and (Pouw, et al., 2013), we expected that affective empathy is positively related to negative friendship features.

Based on previous research it was expected that language scores were positively associated with positive friendship features in both groups (Bauminger et al., 2008; Bauminger, Solomon, & Rogers, 2010; Durkin & Conti-Ramsden, 2007). Examining the relation between friendship quality and IQ as well as the relation between negative friendship features and IQ and language was explorative by nature.

Method

Participants

The total sample included 187 children (74 ASD, 113 TD). The clinical sample included high functioning children (9 girls, 65 boys), diagnosed with ASD ($M_{\text{age}} = 139$ months, $SD = 15.4$ months, age range: 110 – 177 months) based on the Autism Diagnostic Interview-Revised (Lord, Rutter, & Lecouteur, 1994) by child psychiatrists. The ASD participants met the inclusion criteria (i) IQ scores above 80, (ii) diagnosed with ASD according to the DSM-IV (American Psychiatric Association, 1995). Participants were recruited from 1. Centre for Autism, Leiden, the Netherlands; 2. Dr. Leo Kannerhuis, Doorwerth, the Netherlands; 3. C.P. Van Leersumschool, Zeist, the Netherlands. These institutions are specialized in treating and diagnosing children with ASD. A letter was sent to the parents of children with an ASD diagnosis between 9 and 15 years of age. A total of 83 parents of ASD children (73 boys) gave their consent to participate in the study. Only children who completed all self-report questionnaires were included in this study.

The TD group included 114 (54 girls, 59 boys) typically developing boys ($M_{\text{age}} = 138$ months, $SD = 14.8$ months, age range: 107 – 176 months) and was drawn from primary and secondary schools in the Netherlands. Inclusion criteria for the TD group were: (i) IQ above 80, (ii) no diagnosed developmental disorders. Again, only children who completed all self-report questionnaires were included in this study. The ASD group was matched with the TD group on mean age, IQ, and language scores. From two ASD children and fifteen TD children IQ scores could not be obtained. From seven children with ASD and fourteen TD children language scores could not be obtained. Nine months later, at Time 2, 64 children with ASD and 96 TD children were tested again.

The children were visited at home or institutions. Children were asked to answer questions on a notebook. Questions were presented on the screen with underneath the possible answers in boxes. Participants could answer the questions by clicking on the corresponding box. Children were ensured that their answers would stay anonymous. Parents were asked to fill in questionnaires. The Ethics Committee of the Centre for Autism granted permission for the study.

Materials

IQ

An indication for IQ was computed with two nonverbal subtests of the Wechsler Intelligence Scale (WISC) (Kort, et al., 2005; Wechsler, 1991): Block Design (copying small geometric designs with four or nine plastic cubes) and Picture Arrangement (sequencing cartoon pictures to make sensible stories). The mean of the norm-scores on the two subtests was used. In a study from Theunissen and colleagues (Theunissen, et al., 2013) it is found that the total scores of the two subtests highly correlate with complete IQ test scores.

Language

Language skills of the children were assessed; (a) sentence comprehension task and (b) a narrative comprehension task. These subtests are part of the *Clinical Evaluation of Language Fundamentals – Fourth Edition* (CELF-4) (Semel, Wiig, & Secord, 1987).

Self-report friendship quality and stability

Friendship quality was measured by the *Best Friend Index* (BFI) (Kouwenberg, et al., 2012) consisting of 20 items. The Positive Friendship Features (PFF) Scale consists of 11 items which measure positive friendship features such as companionship and support (i.e., “My friend and I have fun together”). The Negative Friendship features (NFF) Scale consists of 9 items, which measure negative features such as conflict and dominance (i.e., “My friend and I are angry at each other”). First, children were asked whether or not they had a best friend. Only if the answer was ‘yes’, they were asked to fill in the questionnaire. Children could answer the items on a 3-point scale ranging from 1 = *(Almost) Never*, to 3 = *Often*. In order to examine the stability of friendships, children were asked to write down their best friend’s name during two time measurements with 9 months in between.

Parent-report friendship quality

The *Parent-Report Friendship Quality* (PFR) (Kouwenberg, et al., 2012), consisting of 6 items was used to measure positive features of the child’s friendship reported by parents (e.g., “The friendship of your child makes your child happy”). The items could be rated on a 5-point scale ranging from 1 = *Never*, to 5 = *Very often*.

Emotional Functioning

Children filled in the *Emotion Awareness Questionnaire* (Rieffe et al., 2008; Rieffe, et al., 2007b), consisting of 30 items. For this study the scale ‘Emotions of Others’ was excluded from the analyses, due to overlap with the Empathy Questionnaire. The 25 items from remaining the five scales; (a) Differentiation (e.g., “I am often confused about how I feel”), (b) Verbal Sharing (e.g., “I find it difficult to tell other people how I feel”), (c) Hiding Emotions (e.g., “Other people don’t have to know how I feel”), (d) Bodily Symptoms (e.g., “If I’m sad, my body feels weak”), and (e) Awareness own Emotions (e.g., “My feelings help me understand what has happened”) were summed and a mean total score was calculated. The questionnaire was designed with a 3-point scale (1 = *Not true*, 2 = *Sometimes true*, 3 = *Often true*).

The *Empathy Questionnaire* (Overgaauw, Rieffe, Güroğlu, Crone, Lelieveld, & Banerjee, in prep.), with a total of 21 items was filled in by the children, of which three scales were used: (a) Affective Empathy was measured by the Contagion scale (e.g., “When my mother is happy, I am happy too”), and (b) Cognitive Empathy was measured by the Understanding scale (e.g., “I often don’t understand why someone is angry”), and (c) Prosocial Behavior (e.g., “When a friend is sad, I want to do

something to make it better”). The questionnaire was designed with a 3-point scale (1 = *Not true*, 2 = *Somewhat true*, and 3 = *True*). Cronbach’s Alpha’s for all the questionnaires were moderate to good and are shown in Table 1.

Statistical Analyses

First, in order to make a comparison of Positive Friendship Features (PFF), Negative Friendship Features (NFF), Parent-report Positive Friendship Features (PPFF), Emotion Awareness, and Empathy (Affective, Cognitive, and Prosocial Behavior) between children with ASD and TD children, ANOVA’s were carried out with main effect for group (1. ASD boys; 2. TD boys; 3. ASD girls; 4. TD girls). Second, in order to examine the stability of friendships it was checked whether they kept the same best friend over nine months (‘stable’), changed best friend (non-stable), or no best friend on the two time measurements (‘no friends’). Differences between the groups on the three categories were tested with the chi-square test. For this analyses, only boys were included, because the sample of girls with ASD was too small. Finally, correlation analyses were carried out for each group (ASD;TD) separately, in order to test relations between PFF, NFF, and PPFF on the one hand, and Emotion Awareness and Empathy on the other hand. Again, also for this analyses only boys were included.

Results

1. Does friendship quality differ between ASD and TD group?

With respect to differences between the scores on the study variables, results show that boys with ASD scored lower on PFF (ANOVA, $F(3, 172) = 14.28, p < .001$), and PPF (ANOVA, $F(3, 138) = 9.45, p < .001$), and higher on NFF (ANOVA, $F(3, 172) = 3.00, p < .05$) than TD boys. There were no differences in friendship quality between girls with ASD and TD girls. Additionally, there were no differences found between the groups in terms of IQ, language, Emotion Awareness, and Affective Empathy. As expected, boys with ASD scored lower on Cognitive Empathy (ANOVA, $F(3, 183) = 7.92, p < .001$). At last, both boys with ASD as well as girls with ASD scored lower on Prosocial Behavior compared to their peers from the same gender in the TD group (ANOVA, $F(3, 183) = 13.20, p < .001$).

Table 1

Mean, SD, and T-tests for IQ, Language Scores, Friendship Quality and Emotional Functioning

	N items	Cronbach's α		<i>M, SD, and N</i>			
		ASD	TD	Boys		Girls	
				ASD	TD	ASD	TD
IQ				11.38 ^a (3.87) N = 63	10.68 ^a (3.11) N = 53	10.22 ^a (4.21) N = 9	10.54 ^a (3.86) N = 46
Language				8.83 ^a (2.87) N = 59	9.64 ^a (2.31) N = 53	8.38 ^a (3.22) N = 8	10.07 ^a (2.17) N = 47
<i>Friendship</i>							
PFF	11	.75	.64	2.40 ^a (.32) N = 60	2.60 ^b (.22) N = 58	2.70 ^a (.27) N = 8	2.72 ^a (.23) N = 50
NFF	9	.74	.66	1.31 ^a (.30) N = 60	1.20 ^b (.20) N = 58	1.10 ^a (.16) N = 8	1.21 ^a (.22) N = 50
PFR	6	.90	.82	3.23 ^a (.87) N = 52	3.90 ^b (.61) N = 45	3.57 ^a (.83) N = 5	3.83 ^a (.42) N = 40
<i>Emotional Functioning</i>							
Emotion Awareness	25	.64	.74	1.99 ^a (.24) N = 65	2.11 ^a (.28) N = 59	2.07 ^a (.22) N = 9	2.09 ^a (.26) N = 54

Affective empathy	4	.75	.75	1.57 ^a (.49)	1.53 ^a (.44)	1.75 ^a (.52)	1.86 ^a (.51)
				N = 65	N = 59	N = 9	N = 54
Cognitive empathy	4	.67	.67	2.18 ^a (.46)	2.45 ^b (.42)	2.20 ^a (.47)	2.53 ^a (.39)
				N = 65	N = 59	N = 9	N = 54
Prosocial Behavior	6	.83	.71	2.32 ^a (.50)	2.60 ^b (.37)	2.54 ^a (.50)	2.78 ^b (.26)
				N = 65	N = 59	N = 9	N = 54

Note. Means in the same row that do not share subscript letter differ at $p < .05$ (ANOVA).

2. How stable are the friendships in boys with ASD as compared to TD boys?

Figure 1 shows the stability in friendships for boys with ASD and TD boys. Of the boys with ASD, 29 % report having the same friend over a period of 9 months, against 48 % of the TD boys, which was significantly different between the two groups ($\chi^2= 3.72$, $df = 1$, $p = .042$). Sixty-one percent of the boys with ASD against fifty percent of the TD boys did not have the same friend nine months later ($\chi^2= .403$, $df = 1$, $p = .326$). They either changed friends or they went from having a friend to no friend and vice versa. Ten percent of the boys with ASD report having no best friend at Time 1 and Time 2 against two percent of the TD boys ($\chi^2= 2.42$, $df = 1$, $p = .128$).

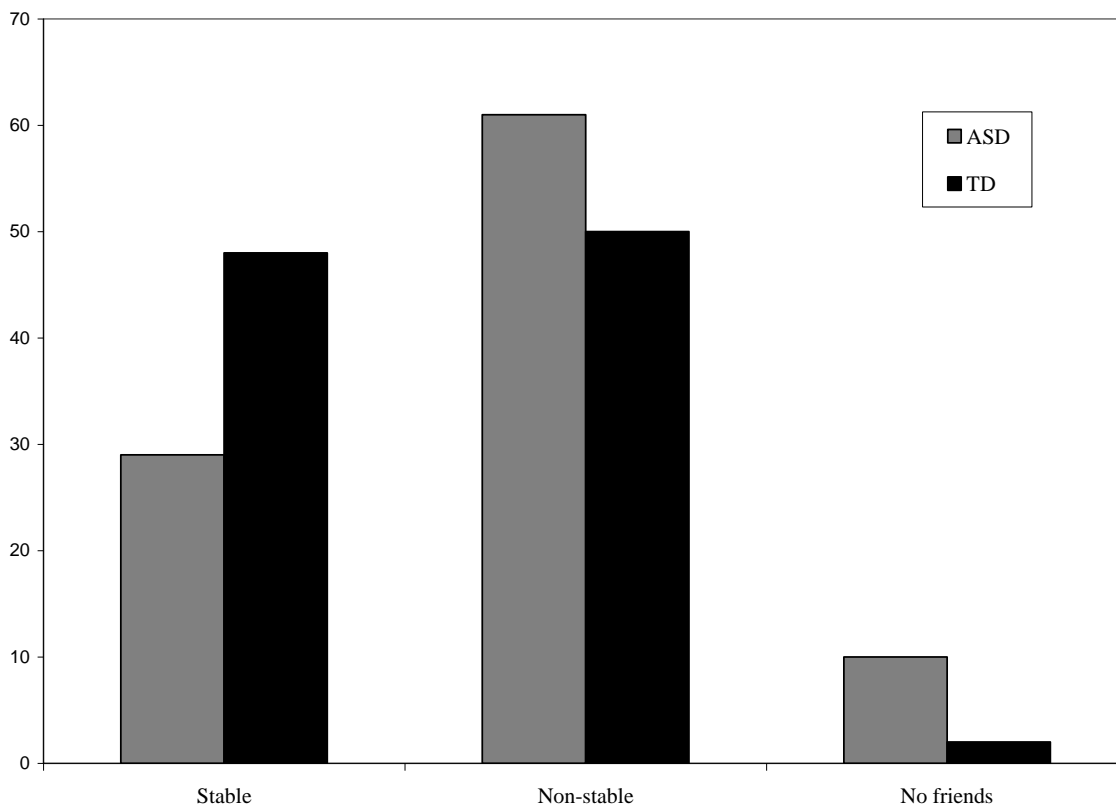


Figure 1. Histogram with percentages for continuity in friendship.

3. To what extent do friendships have an emotional value in ASD boys as compared to TD boys?

To examine the emotional value of the friendships of boys with ASD and TD boys, we carried out correlation analyses between friendship quality and IQ, Language, Emotion Awareness, and Affective and Cognitive Empathy for the ASD group and TD group separately (Table 2). There were no significant correlations for IQ, and Language only correlated negatively with NFF in ASD boys. In both groups, Cognitive Empathy and Prosocial Behavior correlated positively with PFF. Interestingly, Affective Empathy only correlated positively with PFF in TD boys, but not in ASD boys. Furthermore, Affective empathy as well as Cognitive Empathy correlated positively with Negative Friendship Features, only in ASD boys. Emotion awareness correlated negatively with Negative Friendship Features only in ASD boys. Whereas for TD boys there were no correlations for PFR, in ASD boys only Emotion Awareness correlated

positively. Using Fisher transformation, the correlation coefficient between PFF and Language and between PFF and Affective Empathy differed significantly between the boys with ASD and TD boys

Table 3

Correlations Between Friendship Quality and IQ, Language, and Emotional Functioning

	IQ	Language	Emo. Aw.	Aff. Emp.	Cogn. Emp.	Prosocial Emp.
<i>Correlations ASD boys</i>						
PFF	<i>-.10</i>	<i>.21</i>	<i>.22</i>	<i>.16</i>	<i>.34**</i>	<i>.34**</i>
NFF	<i>.13</i>	<i>-.35**</i>	<i>-.34**</i>	<i>.28*</i>	<i>.16</i>	<i>.28*</i>
PFR	<i>-.12</i>	<i>.21</i>	<i>.34*</i>	<i>-.21</i>	<i>.15</i>	<i>.07</i>
<i>Correlations TD boys</i>						
PFF	<i>-.04</i>	<i>-.26</i>	<i>.20</i>	<i>.52***</i>	<i>.43**</i>	<i>.42**</i>
NFF	<i>-.10</i>	<i>-.13</i>	<i>-.20</i>	<i>.02</i>	<i>-.03</i>	<i>.01</i>
PFR	<i>.01</i>	<i>-.12</i>	<i>.14</i>	<i>-.05</i>	<i>.08</i>	<i>.20</i>

Note. When correlations were found to be significant different for the two groups, they are shown in italics.

p<.05 **p<.01 *p<.001*

Discussion

This study examined the quality, stability, and emotional value of friendships in children with ASD, compared to their TD peers. First, the friendships of boys with ASD were found to be lower in quality than of TD boys, i.e., less positive friendship features as reported by the boys themselves and by their parents, and more self-reported negative friendship features. This result are consistent with previous studies, such that they also found children and adolescents with ASD to have lower friendship quality than their TD peers (Kasari, et al., 2011; Locke, et al., 2010; Whitehouse, et al., 2009). Note however, that we did not find any differences in friendship quality between TD and ASD girls. Because this study included a very small sample size, this result could only be considered as tentative. Due to the high male to female ratio in ASD, not much is known about the presentation of ASD in girls, compared to boys. However, research did found that girls with ASD have better (superficial) social skills, and less hyperactivity and aggression than ASD boys (Gillberg & Coleman, 2000), which could account for relatively better friendship quality. Future research should look at social functioning and friendships in girls with ASD more closely by using larger sample sizes.

Second, boys with ASD were found to have less stable friendships than TD boys. Research shows that there is an association between friendship quality and friendship stability (Bukowski, Hoza, & Boivin, 1994), and it is therefore not surprising that boys with ASD experience less stability in their friendship. Locke and colleagues (2010) argue that although friendship quality in children with ASD appears to be lower, to have a best friend could be just as valuable for children with ASD as it is for TD children. The motivation for having friends also becomes clear in the study from Locke and colleagues (2010), showing higher rates of loneliness in children with ASD compared to TD children. Additionally, most of the children with ASD reported to have a best friend. Note however, that this result is based on self-report. Possibly, and accordingly to what parents say about their children with ASD, some boys with ASD misinterpret their relation with a peer as a friendship. Future research should examine reciprocity in friendships in children with ASD, whereas in TD children this appears to contribute to the beneficial outcomes of friendships (Vaquera & Kao, 2008).

Third, we examined the emotional value of friendships in boys with ASD compared to TD boys. An important finding is that whereas a better understanding of other's emotions and more prosocial behavior were related to more positive friendship features in both groups, an important difference emerged between the groups in the relation between affective empathy and positive friendship features. In TD boys to emotion contagion was related to more positive friendship features and in ASD boys these variables were unrelated. Previous research has also shown that affective empathy in children with ASD does not have the same beneficial outcomes as it has for TD boys (Pouw, et al., 2013). Plausibly, impaired cognitive empathy in children with ASD, which our results along with results from other studies seem to indicate (Jones, et al., 2010), could account for this lack of beneficial outcomes of affective empathy. In other words, being affected by the other's emotions could be confusing if one does not understand the cause of these emotions. This situation becomes even more troubling if you are unable to comfort or react to the other's emotions, especially in friendships where caring and sharing are important prerequisites (Berndt, 2002). The finding that more affective empathy is related to more negative friendship features in boys with ASD and not in TD boys further supports this idea.

Another interesting finding is that more prosocial behavior is related to more negative friendship features in boys with ASD. Note that the questions concerning prosocial behavior (e.g., “I want everyone to feel alright” and “I want to help when a friend is angry”) are actually about the *motivational* aspect of prosocial behavior and it does not say that much about the actual prosocial behavior. To illustrate, research shows that children with ASD do show less prosocial behavior compared to TD children (Sigman, et al., 1992). Possibly, for a child with ASD wanting to help someone, but not succeeding in that, could be frustrating. Personal experiences from the first author underline this idea. During a test session a child was talking about his peers and said: “When another child in class is sad, I really don’t know what to do. Especially when he is crying, it’s just weird. Sometimes I start laughing because I get nervous. Not because I think it’s funny.” If these interactions occur between two friends it is imaginable that this could lead to negative interactions, such as anger or arguing. Future research should include observations of prosocial behavior in order to examine its relation with friendship quality.

Emotion awareness was found to be related to both more positive friendship features and less negative friendship features, although not all associations in TD boys reached significance. Given the significant association between emotion awareness and friendship quality in a previous study with a larger but partly the same sample, it is presumable that a larger sample size would account for significant associations (Kouwenberg, et al., 2012). These findings underline the idea that to be aware of your own emotions and to be able to communicate them adequately to the other, defines the quality of the friendship. That these associations also appeared in ASD boys show that friendship in ASD also have an emotional value, such that aspects of emotional functioning, and emotion awareness in particular, determines the nature of friendship interactions. Except for emotion awareness in ASD boys, parent-report positive friendship features were not related to any other study variable. Despite the fact that this is partly due to low power, this underlines the idea that the influence and monitoring of parents decrease as children get older. It also confirms that as children reach adolescence, self-reports are a reliable and appropriate way to measure both behavior as well as emotions.

We also examined the relation between IQ and language scores and friendship quality. Whereas there were no correlations with IQ, better language skills were related to less negative friendship features and (although not significant) to more positive friendship features, only in the ASD group. This confirms the idea that children with ASD have to lean on neurophysiologic processes, such as language, to compensate for their affective impairments (Kasari, et al., 2001).

Conclusions and implications

This study shows that however friendships of children with ASD are of less quality and stability, they have an emotional value in a sense that emotional functioning is related to friendship quality. Recent research shows that children with ASD behave less concerned about their social reputation, and this could partly account for their difficulties in peer relationships (Izuma, Matsumoto, Camerer, & Adolphs, 2011). However, personal experiences from the last author point to the idea that children with ASD have a strong wish for friendship, but they lack a capacity to initiate and maintain such relationships, mainly due to the fact that they are less able to take the other’s perspective (Theory of Mind). Furthermore, these children often experience difficulties with simple ‘friendship activities’, such as role playing or making jokes. It is important to find out what the difficulties in friendships exactly are for children with ASD, in order to implement better counseling in how to establish and maintain peer relationships. For example, counseling could concentrate on

improving self-presentation in children with ASD. Furthermore, children with ASD should be taught about causes and consequences of others' emotions in order to reduce empathic arousal.