

Friendships and Mental Health in Autistic and Non-Autistic Adolescents

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Abstract

Friends rise in importance during adolescence (Siegal et al., 2009). Additionally, friends have an impact on internalizing symptoms as adolescents begin to seek approval from friends. High quality friendships are characterized by a variety of factors such as help, security, closeness, companionship, and low conflict (Bukowski et al., 1994). The limitations of current research entails a lack of observation of the quantity of reciprocated friendships alongside marked friendship quality, compared to self-reported internalizing symptoms in autistic and non-autistic youth; thus fueling our research's objective. The present study investigated **1)** group differences in friendship quality, friendship security, and internalizing symptoms. Additionally, we investigated **2)** whether reciprocated friendships or friendship quality were associated with internalizing symptoms in autistic and non-autistic adolescents. . Participants were 84 adolescents (64 autistic, 20 non-autistic) aged 11-14 ($M = 12.87$, $SD = 1.79$). Friendship security and help were significantly lower in autistic adolescents compared to non-autistic adolescents. However, group accounted for the largest variance in internalizing symptoms. Significant results were not found for our second aim. These outcomes seem to emphasize that non-autistic adolescents may tend to have a higher sense of security and help in their friendships compared to their autistic peers, emphasizing the need for supporting a sense of security and help in autistic youth and their friendships.

Friendships and Mental Health in Autistic and Non-Autistic Adolescents

Adolescence is a time of transformation in social and family life, along with major changes in the brain. Friend networks expand and friends become more salient, which affects social learning (Siegel et al., 2009). With these significant changes, adolescents are vulnerable to mental health challenges (Siegel et al., 2009). During this vulnerable time, friends tend to rise in importance, thus allowing for more impact to an individual's emotions (Siegel et al., 2009). For example, unreciprocated friendships can cause maladjusted emotional functioning, alongside symptoms of depression and/or social anxiety (Siegel et al., 2009). Though friendships are a base of emotional support, not all friendships are created equal (Hiatt et al., 2015). It is essential to examine the role of high quality, reciprocated friendships on the development of mental health.

Adolescence is an especially important time to observe the impact of friendship in autistic adolescents, as they are at increased risk for mental health difficulties, and quality friendships may buffer this risk. According to Bernardin and colleagues (2021), autistic adolescents experience higher rates of co-occurring psychopathology than their non-autistic peers. Specifically, autistic peers experience higher rates of internalizing symptoms relative to non-autistic peers, and part of this can be explained by difficulties with social interactions such as facial emotion recognition, a trait that those who are autistic struggle to recognize (Rosen & Lerner, 2016). At the time of adolescence where friendship quality importance is on the climb, it is vitally important that research explores how the quality of friendship impacts internalizing mental health in autistic and non-autistic adolescence.

Friendships are essential to key developmental, social, and cognitive changes (Lin & Weinberg, 2014). In adolescence, close friendships often surpass parents as the primary source of

social support (Siegal et al., 2009). Friend affiliation becomes significant in the years of adolescence (La Greca & Harrison, 2005). Friend affiliation has influence upon one's sense of self and well-being (La Greca & Harrison, 2005). Friendships, depending on friendship quality, provide a foundation for belonging and support, often helping individuals go through difficult situations (O'Connor et al., 2022). During adolescence, friendships become dynamic and more complex. Adolescence is a time in which one may spend most of their time with friends, allowing friendships more influence on one's well-being.

As adolescents undergo noteworthy development during these years, friendships may also grow to have an impact on internalizing symptoms of mental health such as anxiety and depression (La Greca & Harrison, 2005). This may stem from seeking approval and a sense of belonging from friends. Should this approval by friends be unfulfilled, well-being may be compromised and manifest itself as anxiety and depression (Rudolph, 2021). Whether a friendship is reciprocated or not can significantly affect the development of adolescents (Lin & Weinberg, 2014). Bendt (1982) emphasizes that during the transition from childhood to adolescence, there is an expectation of mutual responsiveness in friendships. Reciprocated friendships in turn inform friendship quality.

Friendship quality plays a major role in our psychological well-being, particularly the effect it may have upon mental health and internalizing symptoms. According to O'Connor and colleagues (2022), high friendship quality often combats negative mental health outcomes in non-autistic populations. My research aims to expand upon prior research as past studies have not examined how reciprocal friendships and friendship quality relate to internalizing mental health in autistic and non-autistic early adolescents. High quality friendships are characterized by

a variety of factors. There must be friend reciprocity, as well as enjoying time together, reliability, companionship, trust, support, and expression of affection (O'Connor et al., 2022). Reciprocal friendships that are high in friendship quality are influential on an adolescent's adaptive development. O'Connor and colleagues note that the positive outcomes of high friendship quality as observed by non-autistic populations include increases in happiness and increases in realization of self-worth (2022). Negative friendship quality can be classified by feelings of jealousy, lack of companionship, constant conflict, as well as betrayal and consistent competition (O'Connor et al., 2022).

According to Bukowski et al. (1994), friendship quality is categorized into five subscales of companionship/play, conflict, help, security, and closeness. High levels of help are an essential process to high friendship quality as it serves as a form of protection (Bukowski et al., 1994). Protection and aid indicates safety and reliability within friendships. Another marker of a reciprocal friendship is the ability to perceive a friend as a secure base. This is exemplified by adolescents viewing their friends with security, emphasizing feelings of trust. It is argued that security is one of the most important properties when observing friendship quality (Bukowski et al., 1994). This is especially important to observe differences in autistic and non-autistic individuals as Bauminger and colleagues emphasize that autistic children identify importance in security of attachment as it pertains to the development of children's friendship intimacy (Bauminger et al., 2009). Feeling a sense of security in friendships indicates the ability to trust and move forward in spite of conflict and reliance (Bukowski et al., 1994). This is an essential aspect in observing the level of friendship quality because these factors correlate to the strength

of that friendship. A strong friendship that has security can work against negative external and internal influences.

Next, closeness is a common theme in friendship quality as it pertains to feelings of attachment, acceptance, and validation (Bukowski et al., 1994). Friendship quality within the subscale of closeness observes the affective bond (feelings about the friend) and reflected reappraisal. This subscale emphasizes the importance of introspection of friendships. Should an adolescent feel a lack of closeness with their friend, they may be at risk for negative emotionality. Furthermore, conflict is a salient feature of friendship quality (Bukowski et al., 1994). Conflict observes continuity within the friendship, identified by if the friends get into fights, disagreements or arguments (Bukowski et al., 1994). Lastly, companionship, the fifth marker of friendship quality, is represented by time spent together (Bukowski et al., 1994). All of these facets aid in informing what makes up friendship quality. Should friendship quality be low and there be a presentation of a non-mutual friendship, adolescents are then at risk for lower well-being (Bukowski et al., 1994).

Autistic adolescents who struggle in peer reciprocation have a heightened sense of negative social experiences (Cresswell et al., 2019). Moreover, Cresswell and colleagues (2019) note that autistic adolescents have differing understandings of friendships and reciprocation in comparison to their non-autistic peers. In a study conducted by Sedgwick and colleagues (2016), they found that autistic adolescents aged 11-18 reported more conflict in their friendships compared to their non-autistic peers. Autism involves neurodevelopmental differences in social communication, such as preferences for certain non-verbal communications and for consistency on a daily basis (APA, 2013). Furthermore, Calder and colleagues (2012), note that children with

autism rank their friendships to be of poorer quality than their non-autistic peers. This is often highlighted by their differences in social communication in comparison to their non-autistic peers. Those on the autism spectrum are often assumed to not have the same desire for friendship based on their social communication style; however, this is not the case (O'Connor et al., 2022). In fact, pre-adolescent autistic individuals have emphasized the importance and desire they hold for friendships (O'Connor et al., 2022). Research that investigates peer reciprocity and internalizing symptoms, particularly noting any differences between autistic and non-autistic adolescents is crucial to explore because it can inform a better understanding of adolescent friendship and of the nature of friendship and autism.

Due to these social differences, there is a cause for great concern in autistic individuals and internalizing symptoms. For example internalizing mental health, such as depression, displays itself during early adolescence more prevalently in autistic individuals than their non-autistic peers (Menezes et al., 2018). The onset of internalizing symptoms coincide with the rise of salience that friendships hold during adolescence. There is limited research that observes the effects of low quality friendships and lack of peer reciprocity on internalizing mental health in autistic youth. There is a larger variety of literature that explores the association between friendship quality and internalizing mental health in non-autistic adolescents, making it essential to further research this association in autistic adolescents, including observing whether there are differences between these two groups. Results to date suggest a link between good quality friendships and lower levels of anxiety, depression, and loneliness in autistic adolescents (O'Connor et al., 2022). Reciprocated friendships tend to increase social interaction for individuals, and therefore are potentially more long-lasting (Lin & Weinberg., 2014). This

creates a secure base within friendships, often highlighting the combative nature of friendships against negative internalizing mental health (O'Connor et al., 2022). The wide spectrum of quality in friendships brings research on peer reciprocity and friendship quality to the forefront (Lin & Weinberg., 2014).

Research on this subject can help us better understand friendships and the significance it may have on well-being, and the potential effects on adolescents with a diagnosis of autism spectrum disorder in comparison to their peers that do not have a diagnosis. Only a small body of research investigates the link between friendship reciprocity and friendship quality as it pertains to internalizing symptoms in autistic and non-autistic youth. This research will expand upon prior research by observing the quantity of reciprocated friendships alongside marked friendship quality, compared to self-reported internalizing symptoms in autistic and non-autistic youth, aiming to examine if autistic youth mark lower friendship quality alongside a prevalence of internalizing symptoms. Once this is found, it can be better understood how to ameliorate the conditions of the environments of adolescents to decrease internalizing symptoms.

Therefore, our study had two aims: 1) to look at group differences in the friendship measures (Friendship Qualities Scale, Friend as a Secure Base, and Peer Reciprocity) and internalizing symptoms, and 2) to assess whether friendship quality and reciprocal friendships were associated with internalizing symptoms. We hypothesized that the presence of higher levels of perceived friendship quality and friendship security, and more reciprocated friendships would predict lower levels of parent-reported internalizing symptoms.

Methods

Participants and Procedure

Participants between 11 and 14 years of age were recruited as part of a larger longitudinal study on the development of loneliness in adolescence in autistic and non-autistic groups. This research was approved by the University of Maryland Institutional Review Board. Participants were recruited from an urban area through a university maintained listserv as well as advertising and community outreach efforts. Furthermore, SPARK research match aided in obtaining access to recruit participants on SFARI Base.

Participants completed a behavioral session either in person at the University of Maryland or virtually via zoom. Data collection for this study concluded at the end of February 2024. There were 84 participants with an average age at the time of the visit of 12.87 years-old ($SD = 1.79$). Sixty-four participants were non-autistic (76%) and 20 were autistic (24%). Slightly more than half of the participants identified as male (52%), with the remaining participants identifying as female (45%) and gender-fluid (2%). Most participants were White (58%), with the remainder identifying as Black or African American (10%), Asian (4%), or More than One Race (15%). A few participants opted out of disclosing their race. See Table 1 for more comprehensive demographic information.

Measures

Peer Nominations and Peer Friendship Reciprocity

The variable of Peer Friendship Reciprocity was measured by assessing if the peer listed the original participant as a close friend. As mentioned prior, participants were first asked, “Are there kids that you would consider a friend? These should be people who are about your age and do not live in your house.” If so, participants were then asked to list their names and how they know their friends. If participants could not list ten close friends, research assistants encouraged

them to list anyone they may know well. From those ten close friends, they would pick their closest three. Next, participants were asked “Of the friends you listed, can you tell me which 3 you feel closest to, that is, are your best friends?” Contact information of the listed friends was then collected.

Peers were then reached out to at a later time and asked if they would like to complete a survey. These friends were asked: “Please list the names of the three people you consider to be your best friends. Please list the names one at a time.” This measure notes if the nominated friend listed the original participant as best friend.

Friendship Quality

Friendship Quality was measured using the Friendship Qualities Scale (FQS) and the Friend as a Secure Base Scale (FSB) separately for each of the nominated peers. Determining which FQS and FSB would be used was based on the following criteria: 1) we chose the FQS of the original participant for the peer they listed as their closest friend if they listed their closest friend, and 2) then if that was not listed/available we chose the first peer that a peer nominee also completed the FQS for the participant as a determinant for the explored FQS of the original participant.

Friendship Qualities Scale (FQS)

Participants completed the Friendship Qualities Scale (FQS) as a measure of peer friendship quality (Bukowski et al., 1994). The FQS measures five dimensions of friendship: Conflict, Companionship, Help, Security, and Closeness. Questions on Security were removed and in place the *Friend as a Secure Base Scale* was used to measure Security. The FQS measure has 18 items in which participants can rate each statement as it pertains to their nominated friend

(See Appendix A). Participants could have answered “Not at all true,” “A little true,” “Somewhat true,” “Pretty true,” or “Really true.” Example items from the FQS include: “I can get into fights with (friend),” “If I forgot my lunch or needed a little money, (friend) would loan it to me,” and “If (friend) had to move away, I would miss them.”

Friend as a Secure Base Scale

This scale was used in order to assess how friends serve as an attachment figure (Cassidy et al., 2021). Secure bases are relationships that serve as a reliable source of support. It is meant to assess the degree to which the participant views their peer as a secure base. This measure begins by asking participants to click the circle that indicates how true they feel the statement is for their first nominated friend. The measure emphasizes that the friend will not be able to see the participant’s answers. This scale included 13 items in which participants were asked to rate how true they feel the statements are on a scale from “Not at all true,” “A little true,” “Somewhat true,” “Pretty true,” to “Really true.” Some examples of the items are “(Friend) understands the way I feel about things,” “(Friend) cares how I feel,” and “(Friend) doesn’t understand me very well” (See Appendix B). These items were scaled to discover the assessment of the participant and if they perceived their peer as a secure base.

Mental Health

Internalizing Symptoms

Internalizing symptoms were assessed using the *Child Behavior Checklist (CBCL) - Internalizing Subscale* (Achenbach, 2001). The CBCL Internalizing subscale consists of 35 items for the parent/guardian of the child to fill out (see Appendix C). All items are scaled as 0 (not true), 1 (somewhat or sometimes true), and 2 (very true or often true). This measure asks for the

parent/guardian to pick the answer that best describes their child at the time of the survey or within the past six months. Example items include: “Acts too young for their age,” and “Fails to finish things they start.”

Results

Data Analytic Plan

Aim 1 assessed group differences in the number of reciprocated peers and perceived friendship quality, as well as in internalizing symptoms. An independent samples *t*-test was used to examine these.

Aim 2 assessed whether reciprocated peer relationships and internalizing mental health symptoms were associated in autistic and non-autistic adolescents, as well as assess whether perceived friendship quality and internalizing mental health symptoms were negatively associated. Six separate linear regressions were used to test if friendship security and friendship quality significantly predicted internalizing symptoms. Group (0 = non-autistic, 1 = autistic) was included as a covariate. Internalizing symptoms were log transformed in order to account for the non-normality of the data. The skewness of the data was 1.90, indicating the distribution was right-skewed. Bonferroni corrections were applied to adjust for multiple comparisons in the analysis. The adjusted *p*-value ($p = 0.008$) was used to determine statistical significance.

Group Differences

Friendship security ($t(77) = 3.53, p < .001$) and quality through friendship help ($t(81) = 3.15, p < .002$), differed by group with autistic individuals showing lower overall values than non-autistic individuals. See Table 2 for full details. Group differences in Friendship Security, Friendship Quality, and Number of Reciprocated Peer Nominations are shown in Figures 1 -3 respectively.

Group differences in Internalizing Symptoms (See Figure 4) are shown in Table 3.

Friendship Security, Conflict, Help, Closeness, and Companionship as a Predictor of Internalizing Symptoms

The overall regression for security was not statistically significant ($R^2 = 0.10$, $F(2, 67) = 3.64$, $p = 0.04$) when controlling for multiple comparisons. Additionally, friendship security did not significantly predict internalizing symptoms ($\beta = 0.13$, $p = 0.29$).

The overall regression for assessing conflict was statistically significant ($R^2 = 0.14$, $F(2, 70) = 5.82$, $p = 0.005$). However, the conflict subscale did not significantly predict internalizing symptoms, ($\beta = -0.20$, $p = 0.08$).

The overall regression for help was statistically significant ($R^2 = 0.10$, $F(2, 71) = 4.10$, $p = 0.02$); however, the help subscale did not significantly predict internalizing symptoms, ($\beta = 0.01$, $p = 0.92$).

The overall regression for closeness was statistically significant ($R^2 = 0.12$, $F(2, 71) = 4.60$, $p = 0.01$). However, the closeness in friendship did not significantly predict internalizing symptoms, ($\beta = 0.11$, $p = 0.34$).

The overall regression for companionship was statistically significant ($R^2 = 0.12$, $F(2, 71) = 4.62$, $p = 0.01$). However, the companionship did not significantly predict internalizing symptoms, ($\beta = 0.11$, $p = 0.34$).

Number of Nominations and Friendship Quality as Predictors of Internalizing Symptoms

The overall regression was not statistically significant ($R^2 = 0.03$, $F(2, 22) = 0.37$, $p = 0.70$). Additionally, the number of nominations did not significantly predict internalizing symptoms, ($\beta = -0.01$, $p = 0.96$).

Discussion

Results largely did not support the hypothesis that friendship measures would be related to internalizing symptoms. However, we did find group to be the largest predictor of internalizing symptoms. Similarly, we found that friendship measures did differ by group.

Significant group differences in friendship security suggest that adolescents that are non-autistic may view their friendships as more secure in comparison to their autistic peers. Bukowski (1994) emphasized that feeling secure in friendships may potentially be one of the most important aspects of a friendship. The lower perceived friendship security in autistic adolescents may reflect disparities in social communication between autistic and non-autistic youth. Additionally, significant differences in friendship helpfulness between groups may display that non-autistic adolescents have a greater perception of help in their friendships, indicating greater support and aid.

Following these analyses, a post-hoc analysis was done through a bivariate correlation to further explore the relationship between friendship security and internalizing symptoms within the autistic and non-autistic group separately. Results of this post-hoc analysis showed that a distinct pattern emerged from each group. For the autistic group, a nonsignificant negative correlation was found between friendship security and internalizing symptoms, $r(15) = -0.12, p > 0.05$ (See Figure 5). For the non-autistic group, a positive correlation was found between friendship security and internalizing symptoms, $(r(57) = 0.26, p = 0.05)$ (See Figure 5). Contrary to predictions, higher levels of friendship security were associated with increased levels of internalizing symptoms within non-autistic adolescents.

This finding challenges the idea that friendship security plays a role as a potential safeguard against internalizing symptoms. In this particular context, within our non-autistic youth sample, it was found that friendship security coincided with increased internalizing

symptoms. One possible reason for this finding is that if adolescents feel a sense of safety and security in their friendships, they may be more willing to disclose internalizing symptoms to their friends and parents. Rose (2002) found that higher quality friendships may lead to co-rumination and internalizing symptoms. Additionally, Havewala et al., (2019) found that positive friendship quality was associated with greater levels of child-reported internalizing symptoms in adolescents as well, though they did not observe differences in autistic and non-autistic youth. One potential explanation listed by Havewala and colleagues is the idea that anxious/depressed adolescents may associate themselves with other peers that exacerbate internalizing symptoms (2019).

Limitations and Future Directions

A limitation of the current study lies in its autistic sample size. This may be due to a lack of parental consent to our peer nominations project. Additionally, if parents do not consent to the peer portion of our study, our participants do not report on their friendships even if their friends are not contacted. Future efforts should be geared towards recruiting a larger and more representative autistic sample in order to enhance statistical power and acquire a more diverse autistic representation in the study.

Additionally, the low response rate to participate in reciprocal peer nominations posed a challenge in exploring capacity and significance of reciprocal peer relationships. It is especially important to further explore this among autistic adolescents who may deal with differences in social communication compared to their non-autistic peers. Further expansion of this study to counteract the low response rate may include stronger and more frequent recruitment strategies in reciprocal nominations tasks. Additionally, training more research assistants on this task would be beneficial to the frequency of recruitment. Furthermore, in order to strengthen

generalizability of the findings, it is vital to recruit participants of a wider variety of background demographics. This may include gender, sex, various ethnic and racial backgrounds, etc.

At the time of concluded data collection (February 2024), approximately 14% of nominated peers agreed to participate. This number may reflect a lack of contact information of nominated peers. In order to strengthen peer participation, it may benefit to take more time at the time of the visit to ensure peer's contact information is collected, rather than following up over email. Following up over email has at times resulted in loss to follow up.

Furthermore, the reports of internalizing symptoms come from the parent or guardian of the participant. As Siegal and colleagues (2009) emphasize, friends become more salient during adolescence and surpass parents as a primary source of support. As such, it would be essential to collect child-reported internalizing symptoms to explore the youth's understanding of their internalizing symptoms, and its relation to friendship quality.

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Table 1***Demographics by Group***

| Demographics | Autistic | Non-Autistic |
|---------------------------|-----------------|---------------------|
| Gender | | |
| Female | 2 | 33 |
| Male | 16 | 25 |
| Gender Fluid | 1 | 1 |
| Ethnicity | | |
| Hispanic or Latino | 2 | 9 |
| Not Hispanic or Latino | 15 | 50 |
| Race | | |
| Black or African American | 1 | 7 |
| Asian | 1 | 3 |
| White | 14 | 35 |
| Does not wish to disclose | 0 | 1 |
| More than one race | 1 | 13 |
| Household Income | | |
| Less than \$20,000 | 0 | 1 |
| \$21,000 - \$35,000 | 1 | 0 |
| \$36,000 - \$50,000 | 0 | 2 |
| \$51,000 - \$65,000 | 0 | 2 |
| \$66,000 - \$80,000 | 1 | 1 |
| \$81,000 - \$100,000 | 3 | 3 |
| \$101,000 - \$130,000 | 3 | 7 |
| \$131,000 - 160,000 | 1 | 6 |

| | | |
|----------------|----|----|
| Over \$161,000 | 8 | 35 |
| Schooling | | |
| Public School | 12 | 40 |
| Private School | 2 | 14 |
| Homeschool | 3 | 3 |

Note. Participants' average age at time of visit was 12.87 years old ($SD = 1.79$), and participant age did not differ by condition.

Table 2***Group differences in Friendship Security, Friendship Quality, and Number of Reciprocated******Peer Nominations***

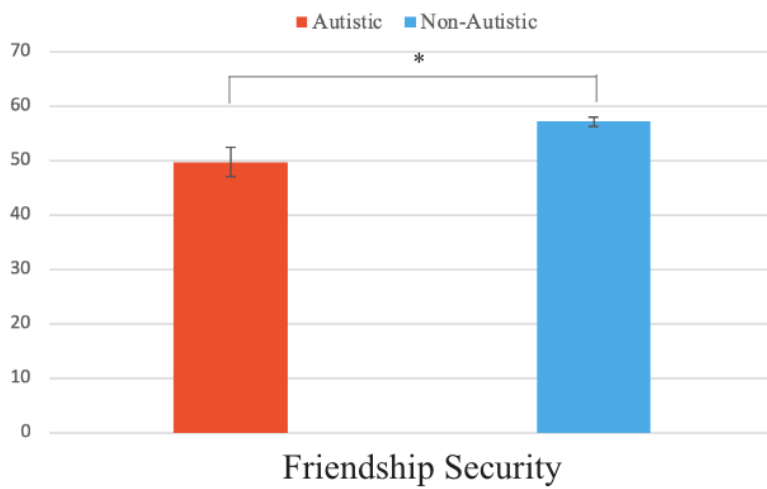
| Friendship Measure | Autistic M, SD | Non-Autistic M, SD | <i>p</i> - value | <i>t</i> - value |
|-----------------------------------|--|---------------------------------------|-------------------------|-------------------------|
| Friendship Security* | <i>M</i> = 49.76, <i>SD</i> = 11.31 | <i>M</i> = 57.19, <i>SD</i> = 0.76 | < 0.001 | 3.53 |
| Number of Reciprocated Peers | <i>M</i> = 0.78, <i>SD</i> = 0.44 | <i>M</i> = 1.28, <i>SD</i> = 0.83 | 0.10 | 1.69 |
| Friendship Quality: Conflict | <i>M</i> = 1.55, <i>SD</i> = 0.76 | <i>M</i> = 1.80, <i>SD</i> = 0.77 | 0.23 | 1.22 |
| Friendship Quality: Help* | <i>M</i> = 3.29, <i>SD</i> = 1.18 | <i>M</i> = 4.08, <i>SD</i> = 0.88 | 0.002 | 3.15 |
| Friendship Quality: Closeness | <i>M</i> = 3.67, <i>SD</i> = 1.09 | <i>M</i> = 4.07, <i>SD</i> = 0.86 | 0.10 | 1.67 |
| Friendship Quality: Companionship | <i>M</i> = 3.16, <i>SD</i> = 1.00 | <i>M</i> = 3.47, <i>SD</i> = 0.79 | 0.17 | 1.40 |

**p* < 0.05*Note.* This table explores group differences (autistic and non-autistic) within friendship.

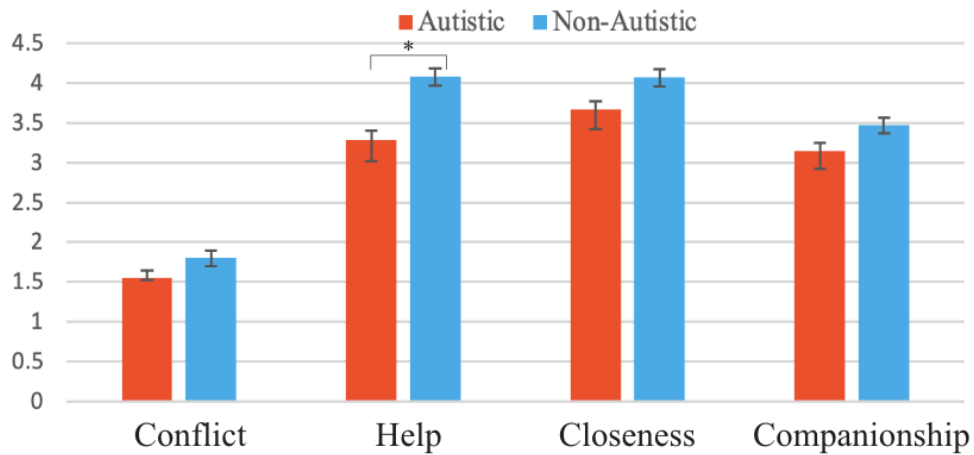
Table 3***Group differences in Internalizing Symptoms***

| | Autistic | Non-Autistic | <i>p</i> - value | <i>t</i> - value |
|--------------------------------|---------------------------------------|-------------------------------------|-------------------------|-------------------------|
| Internalizing Symptoms* | <i>M</i> = 15.21 <i>SD</i> = 12.12 | <i>M</i> = 5.82 <i>SD</i> = 4.79 | < 0.001 | -4.95 |

Note. This table explores group differences (autistic and non-autistic) within internalizing symptoms. The asterisk indicates a significant difference.

Figure 1*Friendship Security Score by Group*

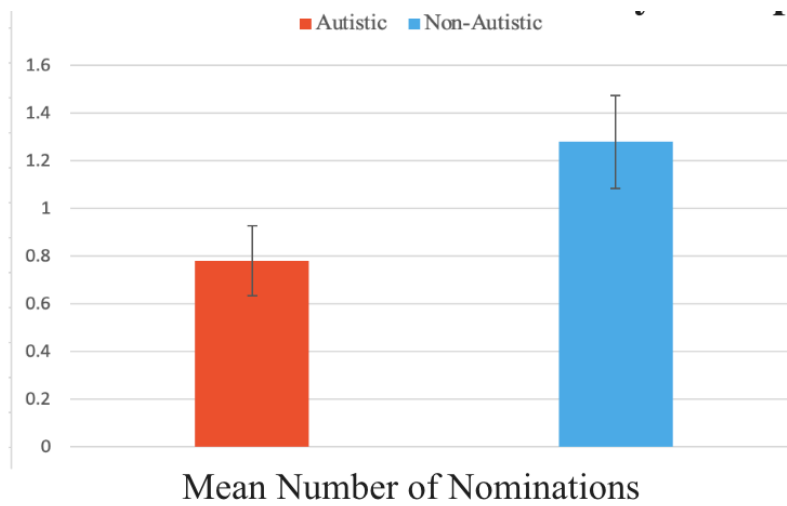
Note. This figure demonstrates group differences between autistic and non-autistic as it pertains to friendship security, ($t(77) = 3.53, p < .001$).

Figure 2*Friendship Quality Score by Group*

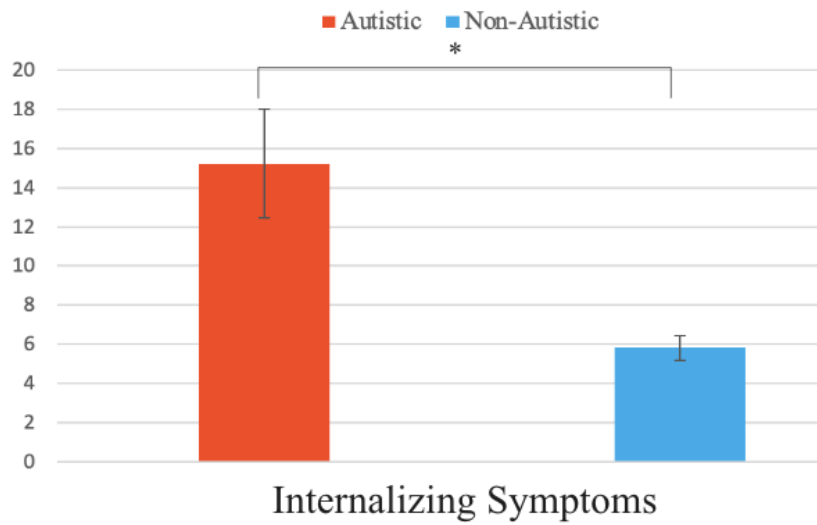
Note. This figure demonstrates group differences between autistic and non-autistic as it pertains to friendship quality subscales. Friendship help ($t(81) = 3.15, p < .002$) were significantly greater in the non-autistic group compared to the autistic group.

Figure 3

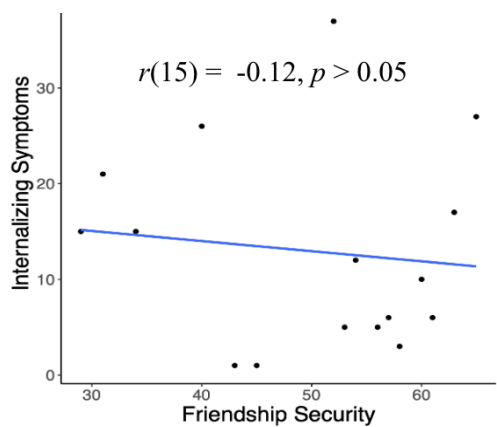
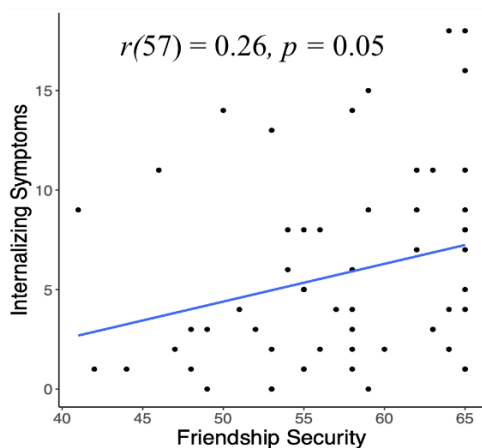
Mean Number of Nominations by Group



Note. This figure demonstrates non-significant group differences ($t(25) = 1.69, p = 0.10$), between autistic and non-autistic as it pertains to the mean number of peer nominations.

Figure 4*Internalizing Symptoms by Group*

Note. This figure demonstrates group differences between autistic and non-autistic as it pertains to internalizing symptoms. There is a significant difference between groups in internalizing symptoms ($t(77) = -4.95, p < .001$).

Figure 5*Friendship Security and Internalizing Symptom Scatterplots**Friendship Security and Internalizing Symptoms in Autistic Adolescents**Friendship Security and Internalizing Symptoms in Non-Autistic Adolescents*

Note. Scatterplot of correlation between Friendship Security and Internalizing Symptoms in Autistic Adolescents, as well as scatterplot of correlation between Friendship Security and Internalizing Symptoms in Autistic Adolescents.

Appendix A

Friendship Qualities Scale (FQS) (Bukowski et al., 1994)

Please answer each question in reference to your relationship to [peer name] . Rate each statement with how true it is for your relationship to [peer name] . You can answer "Not at all true," "A little true," "Somewhat true," "Pretty true," or "Really true." We won't show your answers to [peer name] or to anyone else, so please answer honestly.

Please think about each item carefully and rate each statement about your relationship to [Peer name] the way it is right now.

I am completing this questionnaire about [peer name] .

1. and I spend all our free time together.
2. I can get into fights with .
3. If I forgot my lunch or needed a little money, would loan it to me.
4. If had to move away, I would miss them.
5. thinks of fun things for us to do together.
6. can bug me or annoy me even though I ask them not to.
7. helps me when I am having trouble with something.
8. I feel happy when I am with .
9. and I go to each other's houses after school and on weekends.
10. and I can argue a lot.
11. would help me if I needed it.
12. I think about even when is not around.

13. Sometimes ____ and I just sit around and talk about things like school, sports, and things we like.
14. ____ and I disagree about many things.
15. If other kids were bothering me, ____ would help me.
16. When I do a good job at something, ____ is happy for me.
17. ____ would stick up for me if another kid was causing me trouble.
18. Sometimes ____ does things for me, or makes me feel special.

Appendix B

Friend as a Secure Base Scale (FSB) (Cassidy et al., 2021)

I am completing this questionnaire about [peer name] .

Please click on the circle that indicates how true you feel the following statements are about [peer_name] . We won't show your answers to [peer_name] or to anyone else, so please answer honestly.

1. listens to me.
2. understands the way I feel about things.
3. cares how I feel.
4. isn't really there for me when I'm in trouble.
5. doesn't understand me very well.
6. is someone I can go to when I'm upset.
7. is someone I can count on when I need help.
8. accepts me.
9. truly cares about me.
10. gets annoyed if I turn to them for help.
11. rejects me.
12. is there for me in times of trouble.
13. is happy that they are my friend and wants to stay close to me

Appendix C

Child Behavioral Check List (CBCL) Scale (Achenbach, 2001)

| Parent Child Behavior Checklist Ages 6-18 | | ID # <input style="width: 80px;" type="text"/> |
|---|---|--|
| Date <input style="width: 20px;" type="text"/> / <input style="width: 20px;" type="text"/> / <input style="width: 40px;" type="text"/> | Child's Age: <input style="width: 20px;" type="text"/> Years <input style="width: 20px;" type="text"/> Months | |
| Your relationship to the child: <input type="checkbox"/> Mother <input type="checkbox"/> Father | | Child's Sex: <input type="radio"/> Male <input type="radio"/> Female |
| Please fill out this form to reflect <i>your</i> view of <i>your</i> child's behavior even if other people might not agree. Feel free to write additional comments beside each item and in the space provided. Be sure to answer all items. | | |
| Below is a list of items that describe children. For each item that describes your <i>child now or within the past 6 months</i> , please mark the 2 if the item is <i>very true or often true</i> of your child. Mark the 1 if the item is <i>somewhat or sometimes true</i> of your child. If the item is <i>not true</i> of your child, mark the 0 . Please answer all items as well as you can, even if some do <i>not</i> seem to apply to your child. | | |
| 0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True | | |
| 1. Acts too young for his/her age | 0 0 | 0 1 0 2 |
| 2. Drinks alcohol without parents' approval Describe: <input style="width: 500px; height: 20px;" type="text"/> | 0 0 | 0 1 0 2 |
| 3. Argues a lot | 0 0 | 0 1 0 2 |
| 4. Fails to finish things he/she starts | 0 0 | 0 1 0 2 |
| 5. There is very little he/she enjoys | 0 0 | 0 1 0 2 |
| 6. Bowel movements outside toilet | 0 0 | 0 1 0 2 |
| 7. Bragging, boasting | 0 0 | 0 1 0 2 |
| 8. Can't concentrate, can't pay attention for long | 0 0 | 0 1 0 2 |
| 9. Can't get his/her mind off certain thoughts; obsessions Describe: <input style="width: 500px; height: 20px;" type="text"/> | 0 0 | 0 1 0 2 |
| 10. Can't sit still, restless, or hyperactive | 0 0 | 0 1 0 2 |
| 11. Clings to adults or too dependent | 0 0 | 0 1 0 2 |
| 12. Complains of loneliness | 0 0 | 0 1 0 2 |
| 13. Confused or seems to be in a fog | 0 0 | 0 1 0 2 |
| 14. Cries a lot | 0 0 | 0 1 0 2 |
| 15. Cruel to animals | 0 0 | 0 1 0 2 |
| 16. Cruelty, bullying, or meanness to others | 0 0 | 0 1 0 2 |
| 17. Daydreams or gets lost in his/her thoughts | 0 0 | 0 1 0 2 |
| 18. Deliberately harms self or attempts suicide | 0 0 | 0 1 0 2 |
| 19. Demands a lot of attention | 0 0 | 0 1 0 2 |
| 20. Destroys his/her own things | 0 0 | 0 1 0 2 |
| 21. Destroys things belonging to his/her family or others | 0 0 | 0 1 0 2 |
| 22. Disobedient at home | 0 0 | 0 1 0 2 |
| 23. Disobedient at school | 0 0 | 0 1 0 2 |

**Parent
Child Behavior Checklist Ages 6-18**

ID

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

| | | | |
|---|----|----|----|
| 24. Doesn't eat well | 00 | 01 | 02 |
| 25. Doesn't get along with other kids | 00 | 01 | 02 |
| 26. Doesn't seem to feel guilty after misbehaving | 00 | 01 | 02 |
| 27. Easily jealous | 00 | 01 | 02 |
| 28. Breaks rules at home, school, or elsewhere | 00 | 01 | 02 |
| 29. Fears certain animals, situations, or places, other than school | 00 | 01 | 02 |
| Describe: <input style="width: 500px; height: 20px;" type="text"/> | | | |
| 30. Fears going to school | 00 | 01 | 02 |
| 31. Fears he/she might think or do something bad | 00 | 01 | 02 |
| 32. Feels he/she has to be perfect | 00 | 01 | 02 |
| 33. Feels or complains that no one loves him/her | 00 | 01 | 02 |
| 34. Feels others are out to get him/her | 00 | 01 | 02 |
| 35. Feels worthless or inferior | 00 | 01 | 02 |
| 36. Gets hurt a lot, accident-prone | 00 | 01 | 02 |
| 37. Gets in many fights | 00 | 01 | 02 |
| 38. Gets teased a lot | 00 | 01 | 02 |
| 39. Hangs around with others who get in trouble | 00 | 01 | 02 |
| 40. Hears sounds or voices that aren't there | 00 | 01 | 02 |
| Describe: <input style="width: 500px; height: 20px;" type="text"/> | | | |
| 41. Impulsive or acts without thinking | 00 | 01 | 02 |
| 42. Would rather be alone than with others | 00 | 01 | 02 |
| 43. Lying or cheating | 00 | 01 | 02 |
| 44. Bites fingernails | 00 | 01 | 02 |
| 45. Nervous, highstrung, or tense | 00 | 01 | 02 |
| 46. Nervous movements or twitching | 00 | 01 | 02 |
| Describe: <input style="width: 500px; height: 20px;" type="text"/> | | | |
| 47. Nightmares | 00 | 01 | 02 |
| 48. Not liked by other kids | 00 | 01 | 02 |
| 49. Constipated, doesn't move bowels | 00 | 01 | 02 |
| 50. Too fearful or anxious | 00 | 01 | 02 |
| 51. Feels dizzy or lightheaded | 00 | 01 | 02 |
| 52. Feels too guilty | 00 | 01 | 02 |
| 53. Overeating | 00 | 01 | 02 |
| 54. Overtired without good reason | 00 | 01 | 02 |
| 55. Overweight | 00 | 01 | 02 |
| 56. Physical problems without known medical cause | | | |
| a. Aches or pains (not stomach or headaches) | 00 | 01 | 02 |
| b. Headaches | 00 | 01 | 02 |
| c. Nausea, feels sick | 00 | 01 | 02 |
| d. Problems with eyes (not if corrected by glasses) | 00 | 01 | 02 |
| Describe: <input style="width: 500px; height: 20px;" type="text"/> | | | |

**Parent
Child Behavior Checklist Ages 6-18**

ID _____

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

| | | |
|--|---|---|
| Physical problems without known medical cause | | |
| e. Rashes or other skin problems | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| f. Stomach aches | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| g. Vomiting, throwing up | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| h. Other | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 57. Physically attacks people | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 58. Picks nose, skin, or other parts of body | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 59. Plays with own sex parts in public | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 60. Plays with own sex parts too much | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 61. Poor school work | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 62. Poorly coordinated or clumsy | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 63. Prefers being with older kids | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 64. Prefers being with younger kids | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 65. Refuses to talk | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 66. Repeats certain acts over and over; compulsions | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 67. Runs away from home | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 68. Screams a lot | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 69. Secretive, keeps things to self | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 70. Sees things that aren't there | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 71. Self-conscious or easily embarrassed | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 72. Sets fires | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 73. Sexual problems | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 74. Showing off or clowning | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 75. Too shy or timid | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 76. Sleeps less than most kids | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 77. Sleeps more than most kids during day and/or night | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |
| 78. Inattentive or easily distracted | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| 79. Speech problem | <input type="radio"/> 0 | <input type="radio"/> 1 <input type="radio"/> 2 |
| Describe: | <input style="width: 100%;" type="text"/> | |

**Parent
Child Behavior Checklist Ages 6-18**

ID

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

| | | | |
|--|-----|-----|-----|
| 80. Stares blankly | 0 0 | 0 1 | 0 2 |
| 81. Steals at home | 0 0 | 0 1 | 0 2 |
| 82. Steals outside the home | 0 0 | 0 1 | 0 2 |
| 83. Stores up too many things he/she doesn't need | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |
| 84. Strange behavior | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |
| 85. Strange ideas | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |
| 86. Stubborn, sullen, or irritable | 0 0 | 0 1 | 0 2 |
| 87. Sudden changes in mood or feelings | 0 0 | 0 1 | 0 2 |
| 88. Sulks a lot | 0 0 | 0 1 | 0 2 |
| 89. Suspicious | 0 0 | 0 1 | 0 2 |
| 90. Swearing or obscene language | 0 0 | 0 1 | 0 2 |
| 91. Talks about killing self | 0 0 | 0 1 | 0 2 |
| 92. Talks or walks in sleep | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |
| 93. Talks too much | 0 0 | 0 1 | 0 2 |
| 94. Teases a lot | 0 0 | 0 1 | 0 2 |
| 95. Temper tantrums or hot temper | 0 0 | 0 1 | 0 2 |
| 96. Thinks about sex too much | 0 0 | 0 1 | 0 2 |
| 97. Threatens people | 0 0 | 0 1 | 0 2 |
| 98. Thumb-sucking | 0 0 | 0 1 | 0 2 |
| 99. Smokes, chews, or sniffs tobacco | 0 0 | 0 1 | 0 2 |
| 100. Trouble sleeping | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |
| 101. Truancy, skips school | 0 0 | 0 1 | 0 2 |
| 102. Underactive, slow moving, or lacks energy | 0 0 | 0 1 | 0 2 |
| 103. Unhappy, sad, or depressed | 0 0 | 0 1 | 0 2 |
| 104. Unusually loud | 0 0 | 0 1 | 0 2 |
| 105. Uses drugs for nonmedical purposes (don't include alcohol or tobacco) | 0 0 | 0 1 | 0 2 |
| Describe: <input style="width: 550px; height: 25px;" type="text"/> | | | |

**Parent
Child Behavior Checklist Ages 6-18**

ID () ?

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

| | | | |
|--|-------------------------|-------------------------|-------------------------|
| 106. Vandalism | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 107. Wets self during the day | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 108. Wets the bed | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 109. Whining | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 110. Wishes to be of opposite sex | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 111. Withdrawn, doesn't get involved with others | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 112. Worries | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| 113. Please write in any problems your child has that were not listed above: | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| <input type="text"/> | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| <input type="text"/> | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |
| <input type="text"/> | <input type="radio"/> 0 | <input type="radio"/> 1 | <input type="radio"/> 2 |

About how many close friends does your child have? (Do not include brothers & sisters)

None 1 2 or 3 4 or more

About how many times a week does your child do things with any friends outside of regular school hours?
(Do not include brothers & sisters)

Less than 1 1 or 2 3 or more

Compared to others of his/her age, how well does your child:

| | Worse | Average | Better | |
|---|--------------------------|--------------------------|--------------------------|---|
| a. Get along with his/her brothers & sisters? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Has no brothers or sisters |
| b. Get along with other kids? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| c. Behave with his/her parents? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| d. Play and work alone? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Does your child receive special education or remedial services or attend a special class or special school?

No Yes → Kind of services, class or school:

Has your child repeated any grades?

No Yes → grades and reasons:

Has your child had any academic or other problems in school? No Yes → Please describe:

When did these problems start?

Have these problems ended? No Yes → when?: