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The relationship of social anxiety and bullying with positive social interactions amongst autistic and non-autistic youth

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ABSTRACT

Background: Social relationships and social interactions are vital for developing children and youth as it is important for their development such as social skills and communications. Social supports create social and emotional support for individuals and provide resilience against mental health issues and other difficult situations. Interpersonal relationships help more positive outcomes during childhood and adolescence and into adulthood. Social anxiety is a mental health condition in which individuals fear what others think of them and can prevent interpersonal relationships from happening or having positive experiences. Youth who experience social anxiety are more likely to have poor quality interpersonal relationships and ineffective interactions with new and familiar peers. The current study examined how social anxiety impacts positive social interactions with novel peers, and how the experience of being bullied plays a role in this relationship. **Methods**: A total of 148 participants (36 females, 112 males) participated in this study. Positive social behaviors were quantified by blinded observers using a three-part paradigm consisting of interacting with unfamiliar peers (1) in a minimally structured setting, a pizza party (i.e. pizza is laid out in the room with participants sitting at the table), (2) an activity with a physical component, and (3) an activity with a verbal component. Participants also completed self-report measures regarding social anxiety, bullying, and social interactions. **Results**: While social anxiety did not relate to positive social interactions overall, more endorsement of bullying was positively correlated with social interactions. Mediation analyses suggested there is an indirect effect of bullying on the relationship between social anxiety and positive social interactions. **Conclusion**: The findings provide insights into the unexpected role of bullying in social interactions with novel peers across neurodiverse youth who may also be experiencing social anxiety.

MONTCLAIR STATE UNIVERSITY

The Relationship of Social Anxiety and Bullying with Positive Social Interactions Amongst Autistic and Non-Autistic Youth

By

Nicole Macapagal

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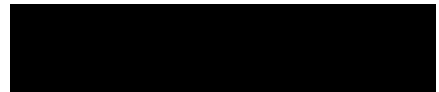College of Humanities and Social Sciences

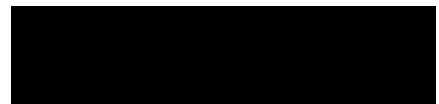Department of Psychology

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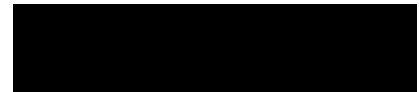
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The Relationship of Social Anxiety and Bullying with Positive Social Interactions Amongst

Autistic and Non-Autistic Youth

Social/peer relationships (i.e. interpersonal relationships and/or interactions amongst peers) vitally contribute to child and adolescent development and well-being (Goswami, 2012). Meaningful social and peer relationships provide youth with the ability to develop social skills, especially when the relationships are positive (Parker et al., 1995; Smith & Pollak, 2021). These relationships amongst young individuals usually develop through common interests, mutual attraction, and environmental factors (Chang & Dean, 2022), such as being in the same classroom(s), participating in extracurricular activities in and out of school, and living in the same neighborhood (i.e. formally and/or informally structured settings). Social development advances throughout an individual's childhood as personal, social, and romantic relationships emerge and they teach and learn from others social skills and behaviors (Chang & Dean, 2022). Positive social development is related to more positive attitudes, better academic outcome, and positive mental health (Sørlie et al., 2020), as well as developing social perception and cognition (Orben et al., 2020).

Social supports—the phenomenon of people's interactions that offers physical and psychological benefits to an individual's well-being (Harandi et al., 2017; Leigh & Clark, 2018)—emerges throughout youth development leading to more positive outcomes from instances such that peer networking, peer crowd affiliation and positive subsequent behavior (Wang & Hu, 2021). Social supports are developed through the interpersonal relationships established from peer social interactions (La Greca & Harrison, 2010; Wang & Hu, 2021) and, in turn, these social supports provide social and emotional support for individuals (Chang & Dean, 2022). Social support could be as simple as having another peer to talk to, offering comfort and

safety. In this way, social support creates deeper bonds in peer relationships in youth, as well as promoting positive social interactions with others.

Social Interactions

Social interactions refer to social exchange between two or more individuals in a setting (Rubin, 2008). When they are young, individuals usually develop meaningful relationships with family members and interact mainly with parents and/or siblings. As an individual goes into childhood and adolescents, individuals start to find relations amongst peers. Positive social interactions can occur through verbal or nonverbal social behaviors between peers (McNair et al., 2023), such as close conversations, making eye contact, sharing experiences with others. Positive social interactions can look such as having conversations about mutual interests (e.g. video games, sports, tv-shows, etc.), having shared experiences through extracurricular activities and/or in school (e.g. being in the same class(es), same team/group, participate in similar activities like sports). During the time of middle childhood and adolescence, youth interact with more peers and teachers, and are exposed to varied situations and environments that can impact social skills development (Sørlie et al., 2020).

As mentioned above, positive influences and relations increase the chances of promoting positive interactions amongst peers, and this can further influence children's later outcomes through shaping their perceptions of relationships, safety, and stress (Smith & Pollak, 2021). Therefore, it is vital for children and adolescents to create and maintain such relationships that can serve as a protector factor from low self-esteem, bullying, peer victimization, and mental health issues (Chang & Dean, 2022). On the other hand, research has shown that poorer mental health, negative interactions with others, and poor relationships can result in negative outcomes

(Ogden & Hagen, 2018; Sørlie et al., 2020). A possible factor that can impinge on maintaining social relationships and positive social interactions can be the presence of social anxiety.

Social Anxiety

Social anxiety can be defined as marked fear or anxiety about one or more social situation to which the individual feels they will be negatively evaluated. (American Psychological Association, 2024; Leigh & Clark, 2018). Social anxiety can begin as early as 7 or 8 years of age (Brook & Schmidt, 2008), as well as when individuals go into adolescence as their vulnerability of mental health problems heightens (Orben et al., 2020). Furthermore, social anxiety may be more present amongst adolescent females as they are more susceptible to experience social anxiety developing from the fear of not fitting in or maintaining close bonds (Storch & Masia-Warner, 2004).

Social anxiety has been shown to interfere with development amongst children as it prevents the ability to create and maintain social and personal relationships (i.e. fewer friends, limited peer interactions, and interpersonal difficulties; Inderbitzen-Nolan & Walters, 2000; Ralph et al., 1997), and with ripple effects into adulthood (Pickering et al., 2020). That is, when an individual appears to be socially anxious, it can hinder social relationships from being formed and/or maintained to which research has indicated that social anxiety perceives low positive social interactions (Alden et al., 2008). La Greca and Lopez conducted a study (1998) investigating the relationship between peer interactions and anxiety using *Social Anxiety Scale for Adolescents* (SAS-A; La Greca, 1998), and found that individuals with high levels of social anxiety were prone to negative and/or lower quality peer relationship. In this way, social anxiety can negatively influence one's well-being and subsequent interpersonal peer experiences by

lowering peer acceptance and quality of friendships and leading to fear of social situations (Pickering et al., 2020; La Greca & Lopez, 1998).

On the other hand, it is important to note that bidirectional relationship may exist between social anxiety and negative social interactions (Miers & Warner, 2023). Social rejection is an example of negative social interactions and experiencing social rejection can increase the risk of developing anxiety and/or depression (Gurbuz et al., 2024). Long-term experiences with peer victimization and rejection are likely to contribute to overly negative social perceptions of others, and in turn, reinforce social anxiety in youth, such that social anxiety is maintained in adolescence (Miers & Warner, 2023). Therefore, social anxiety can create discrepancies in social development for individuals especially at a young age, and the discrepancies may be more pronounced in youth who may struggle with social interactions and maintaining peer relations, such as those who may have autism spectrum disorder (ASD).

Social Anxiety in Autistic Youth. Autistic individuals present with various social communication and interaction differences (McNair et al., 2023) as they are more likely to show differences in social skills and processing social cues amongst other challenges. Autistic individuals may also experience comorbid anxiety, including social anxiety (Spain et al., 2018, Briot et al., 2020). Therefore, with various social communication and interaction differences combined with social anxiety, can lead to challenges in facilitating positive interactions and relationships in autistic youth (Spain et al., 2018). For example, that with the presence of social anxiety within autistic individuals may be more susceptible to avoidance of social situations, interactions with others to be awkward, and isolation other others (White et al., 2009; White & Nay, 2009). Autistic youth may be more likely to be vulnerable to be frequently socially rejected compared to non-autistic youth individuals which can lead to a decline in mental health (e.g.

social anxiety and depression; Gurbuz et al., 2024). And as well that autistic individuals have reported experiences of social isolation, lack of social support, and bullying, which also can cause a development of social anxiety and/or depression for autistic individuals (Gurbuz et al., 2024). Autistic individuals while stereotypically assumed of their character, it can also be a cause to not just a negative mental health, however also reduced social connectedness with others preventing from an individual to be able to experience positive social interactions (Gurbuz et al., 2024).

Experience of Being Bullied

Bullying (i.e. negative actions to another individual whether physical, verbal, and/or emotional repeatedly on part of one or more other persons (Olweus, 1994) is seen as a widely major problem within schools and communities (Swearer et al., 2012) that is common amongst young individuals (Schroeder et al., 2014). Moreover, those who endorse bullying were likely to see a decrease in social skills and poorer quality interpersonal relationships (Fox et al., 2005). When there is a lack of interpersonal relationships and social support, it can also be a risk for individuals to be susceptible to bullying and peer victimizations. Bullying is seen to be associated with social anxiety in that social anxiety may be elevated in those with experience with bullying. It is also important to note that the relationship is bidirectional between and the experience of being bullied and elevated social anxiety (Miers & Warner, 2023; Siegel et al., 2009; Tillfors et al., 2012).

Bullying and Social Interactions Within Autistic Individuals. Youth with ASD are likely to have an increased risk of peer victimization and social isolation due to impairment in social functioning (Gates et al., 2017; McNair et al., 2023). Similarly, as seen within individuals who may suffer with social anxiety, autistic individuals have a harder time with maintaining

positive peer relationships, which poses a challenge with fewer peer networking and social interactions (Kasari et al., 2016). When having to interact in minimally structured settings (e.g. recess, free play, gym class, etc.), autistic youth are seen to have fewer social interactions (McNair et al., 2023). This then creates less opportunities for having positive interactions with peers and shaping positive outcomes into adulthood, as seen by Pearson et al. (2023) conducted a study with autistic adults and they had reported to have experienced peer victimization from childhood and some individuals have said it followed through with them through the lifespan. Moreover, research has shown that individuals with ASD are more at risk of bullying given that individuals with ASD have difficulties with social interaction, verbal and nonverbal communication and interpersonal relationships (Schroeder et al., 2014). Therefore, it is important to understand how social anxiety and experience of being bullied in autistic youth can impact the quality of their interactions in social settings (Liu et al., 2021; Spain et al., 2018;) such that repetitive behaviors (e.g. hand mannerisms, body movements, etc.) or idiosyncratic speech (i.e. peculiar speech or vocalizations) may appear odd to a non-autistic youth individual, therefore subject individual to bully another individual due to differences (Spain et al., 2018).

Familiar vs. Unfamiliar Others

Most studies on social interactions have focused on examining either an individual's social interactions with familiar peers or within a group setting. Most peer relationships and interactions amongst the youth occur during school hours, extracurricular activities, neighborhood proximity, and other typically environmentally controlled settings. Consequently, children and adolescents are typically around the same groups of people through these environments, and more times than not are introduced to unfamiliar peers constantly. However, emerging research also suggest social anxiety can cause impairments when interacting with

unfamiliar peers (Cannon et al., 2020), and when in group settings/peer group (Englund et al., 2000), such that socially anxious individuals experience increased levels of distress with social situations and social engagements in general but also in novel settings (Cannon et al., 2020).

This is also seen amongst autistic youth that when presented in an unfamiliar environment and amongst unfamiliar peers, less social reciprocity (i.e. eye contact, and lack of communicating) is observed in autistic youth (McNair et al., 2023). There is a likelihood for social anxiety to further impact social interaction quality with autistic and non-autistic youth. However, there has been minimal research examining the impact of social anxiety on positive social interaction amongst unfamiliar others in an unfamiliar environment, as well in a "minimally structured" environment.

Current Study

Recent studies have shown the importance of understanding how and why social anxiety may develop and why individuals may be at risk (Cannon et al., 2020; Tillfors et al., 2012). As mentioned above, research has consistently shown that making and maintaining relationships has a positive effect on individuals; however, when social anxiety or experience of bullying is present it can interfere with said relationships resulting in negative effects on development of social skills and ability to engage in positive social interactions. This study examined the relationship of social anxiety and bullying with positive social interactions with novel peers across neurodiverse youth. It was hypothesized that there would be a negative correlation between social anxiety and positive social interactions, and between experience of bullying and positive social interaction with unfamiliar peers. This study also examined how diagnostic group placement (autistic vs. non-autistic) might moderate the relationship of social anxiety or experience of being bullied with positive social interactions. It was hypothesized that autistic

youth will show stronger negative relationships of social anxiety or experience of being bullied with positive social interactions in the context of novel peers.

Method

Participants

For the study, 148 participants were recruited (36 girls and 112 boys; majorly White, Non-Hispanic) as a part of the *Investigating Social Patterns in Youth* (I-SPY) study at Stony Brook University. Group placement (i.e. autistic or non-autistic; 77 autistic, 71 non-autistic) was determined through the Autism Diagnostic Observation Scale, 2nd Edition (Lord et al., 1989), the Social Communication Questionnaire (Rutter et al., 2003; Snow, 2021), and the Autism Diagnostic Interview, Revised (Rutter et al., 2003).

Measures

Sample Characterization.

Autism Diagnostic Observation Schedule, 2nd Edition. The ADOS-2 is a clinician administered and semi-structured assessment that is considered the "gold standard" for evaluating autism symptomatology (Hus & Lord, 2014). This measure was used to determine group placement (autistic vs. non-autistic) and for sample characterization.

Kaufman Brief Intelligence Test, 2nd Edition. The KBIT-2 is an intelligence test assessing verbal and nonverbal intelligence amongst children and adults 4 to 90 years old to which full-scale IQ is measured. It consists of three sections: verbal knowledge, matrices, and riddles, and is commonly used to assess cognitive abilities (Kaufman & Kaufman, 2004). This measure was used for sample characterization.

Pizza Party Paradigm. Throughout the study, participants were a part of a peer interaction assessment group between the ages of 11-17 years of age to which there were at least

two autistic and two non-autistic participants. Placements for peer interaction assessment groups were determined by age and gender matching procedures and parent response to scheduling polls, however, were also random (McNair et al., 2023). Assessments for peer interaction, also known as the Pizza Party Paradigm, was conducted through a 50-minute interaction that took place in a laboratory space at Stony Brook University and recorded using Noldus cameras installed in the room (McNair et al., 2023). The Pizza Party Paradigm was separated into three minimally-structured naturalistic interaction settings (MSNIS), settings for opportunity for self-directed, free-form interactions and varying by degrees of social demands and type (McNair et al., 2023) to which the first MSNIS participants were given pizza and snacks, in the second MSNIS, participants were asked to play a game of Giant Jenga, and in the third MSNIS, participants were asked to play the card game Apple-to-Apples (McNair et al., 2023).

In the first MSNIS, participants were welcome by staff with pizza and snacks set up in the room. Participants were not given direct instructions on interacting with one another. In the second MSNIS, participants were given Giant Jenga, a tower-building game with large blocks. No further instructions were given nor were participants told explicitly to play the game, rather how to play the game. In the third MSNIS, participants were asked to play a game of Apples-to-Apples, a card game to choose the "best" card from their hand to the theme card per round, for 15 minutes. Like the second MSNIS, staff only gave instructions on how to play the game, however, not necessarily to play the game. Throughout the Pizza Party Paradigm, no adults were in the room throughout the assessments, however the only time staff would intervene was in between each MSNIS to switch out materials and provide new instructions.

Social Interaction Observation Scale. The SIOS is a measure of peer interaction behaviors (e.g. verbal and nonverbal social behaviors such as eye contact, greeting, affection,

and more to encourage effective social process with peers; McNair et al., 2023), typically used in studies of autistic youth. Positive peer interactions are seen as verbal and nonverbal social behaviors resulting in successful social processes amongst peers. Negative peer interactions were seen to be verbal and nonverbal unpleasant social behaviors that would result in a decrease in developing successful social interactions. Low-level peer interactions were seen as verbal and nonverbal behaviors that consisted of behaviors of minimal interactions such that individuals will be near another individual however not initiate interactions. For the purposes of the study, trained, blinded coders used the modified version of SIOS to code participants' behaviors during the Pizza Party Paradigm and the SIOS was used for objective coding of the positive social interactions. Researchers had met excellent reliability (i.e. Intraclass correlations (ICCs) > .95; Shrout & Fleiss, 1979; McNair et al., 2023) on the observational coding for overall positive social interactions using the SIOS, and the average of each pair of codes were used for subsequent analyses for each peer interaction (McNair et al., 2023).

Social Anxiety Scale for Adolescents and Children-Revised. The SAS-A-CR is a self-report assessment to measure social anxiety. The SAS-A-CR includes four subscales: fear of negative evaluation, social avoidance and distress-general, social avoidance and distress in new situations (La Greca & Stone, 1993, La Greca & Lopez, 1998). The assessment includes 22 parallel items rated on a Likert scale from 1 (not at all) to 5 (all the time), then eighteen items are summed, yielding a score ranging from 18 to 90 (La Greca & Stone, 1993, La Greca & Lopez, 1998).

Olweus Bully/Victim Questionnaire. The OBVQ is a self-report measure that measures the degree of victimization by a bully through a 10-item sum (Olweus, 1996). It is a widely used bullying self-report measure assessing bullying in different ages and groups (Cikili-Uytun et al.,

2022). The OBVQ is widely used to provide a clear definition of bullying for individuals such that it includes 36 items asked about bullying/experience of bullying (Gaete et al., 2021). The questions individuals will be asked would be on various situations/settings of bullying and individuals will answer on the occurrence of bullying: (1) It has not happened to me in the past couple of months, (2) Only once or twice, (3) 2 or.3 times a month, (4) About once a week, (5) Several times a week. An individual could be asked "How often have you been bullied at school in the past couple of months?" and provide an answer between the four choices.

Data Analytic Plan

Bivariate correlations were conducted among variables of interest in SPSS. Moderation examining autistic group placement as a potential moderator of relationship between social anxiety and positive social interaction was conducted using SPSS PROCESS Model 1 (Hayes, 2012.

Results

Social anxiety and endorsement of being bullied was positively correlated, but social anxiety and positive social interaction were not significantly correlated for all portions of the pizza party (see Table 1). However, a significant positive relationship was observed between social anxiety and bullying such that endorsement of bullying was positively related to positive social interactions during all segments of the pizza party (See Table 1).

Table 1. Correlation among variables of interest

	1	2	3	4	5
1. SAS Total	1	-	-	-	-

2. 10-Item OBVQ	.339**	1	-	-	-
3. Positive Interactions (Pizza)	.035	.186*	1	-	-
4. Positive Interactions (Jenga)	.111	.191*	.628**	1	-
5. Positive Interactions (Apples to Apples)	.023	.166*	.412**	.692**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Sample size for the Olweus Bullying/Victim Questionnaire (OBVQ) and Social Anxiety Scale (SAS) was reported to be 167 participants for the correlation and for the final moderation model run. Every other analysis (i.e. correlations, mediations, moderations) involving the pizza party had a sample size of 148 participants.

Moderation

Moderation was used to investigate whether autistic traits moderated the relationship between social anxiety and positive social interactions. It was found autistic traits did not moderate the relationship between social anxiety and positive social interactions during any of the segments of the pizza party. For the first segment, the interaction between bullying and autistic traits was insignificant ($b = -.07$, $p = 0.52$), indicating that the relationship between bullying and the pizza party was not moderated by autistic traits. For the second segment, the interaction between bullying and ADOS/autistic traits was insignificant ($b = -.12$, $p = 0.13$), indicating that the relationship between bullying and Jenga segment was not moderated by ADOS scores. For the third segment, the interaction between bullying and ADOS/autistic traits was insignificant ($b = -.07$, $p = 0.43$), indicating that the relationship between bullying and Apples to Apples was not moderated by autistic traits. Furthermore, the interaction between

bullying and autistic characteristics was insignificant ($b = -.19$, $p = 0.16$), indicating that the relationship between bullying and social anxiety was not moderated by autistic traits.

Moderation analyses were conducted to investigate whether autistic traits moderated the relationship between endorsement of being bullied and positive social interactions. During the first segment of the pizza party (pizza), there was a trend toward an interaction ($b = -1.26$; $p = .09$), such that the relationship between being bullied and positive social interactions was stronger for the non-autistic group than for the autistic group. During the second segment of the pizza party (Jenga), there was a marginally significant interaction ($b = -1.06$; $p = .06$), such that the relationship was stronger for the non-autistic group than for the autistic group. During the third segment of the pizza party (Apples to Apples), there was no interaction ($p = .10$).

Post hoc **Exploratory Mediation**

Given the unexpected findings around lack of significant correlation between social anxiety and positive social interaction, as well as positive correlation of being bullied with both social anxiety and positive social interaction, mediation analyses were conducted to further investigate if the endorsement of being bullied could explain why social anxiety and social interactions were not significantly positively correlated, as had been expected.

Rationale for Mediation Analysis. In a recent study by Zhao et al. (2010), it was discovered that a mediation can still be examined despite the total effect of X on Y not being significant (e.g. as seen with the current research with the relationship between social anxiety and positive social interactions during the Pizza Party Paradigm). According to a typical framework for mediation by Baron and Kenny (1986), in order to find investigate a mediation, there should be a: "(*a*) variation in levels of independent variable significantly account for variations in presumed mediation, (*b*) variations in the mediator significantly account for

variations in the dependent variable, (*c*) when Paths *a* and *b* are controlled, a previously

significant relation between the independent and dependent variables is no longer significant

with the strongest demonstration of mediation occurring when Path *c* is zero." (Zhao et al.,

2010). However, with recent research, rather instead of dismissing the whole procedure,

additional points were made that an unexplained direct path can suggest an omitted mediator

(Zhao et al., 2010). Moreover, that researchers can examine possible meaning of unexplained

direct effects and omitted indirect paths, not completely dismissing a nonsignificant variable in a

mediation analysis, as well as having a significant positive correlation despite having a

significant negative indirect effect (Zhao et al., 2010).

Therefore, while the initial hypothesis predicting that social anxiety would negatively

affect positive social interactions, was not supported, mediation analyses were conducted to

examine the role of endorsement of being bullied in the relationship between social anxiety and

positive social interactions.

Partial Mediation. Indirect effects of being bullied were observed during the first and

third segment of the pizza party. Endorsement of bullying partially mediated the relationship

between social anxiety and positive social interactions during open chat/pizza time, with an

indirect effect = 0.0569, CI [0.01, 0.11] (see Figure 1).

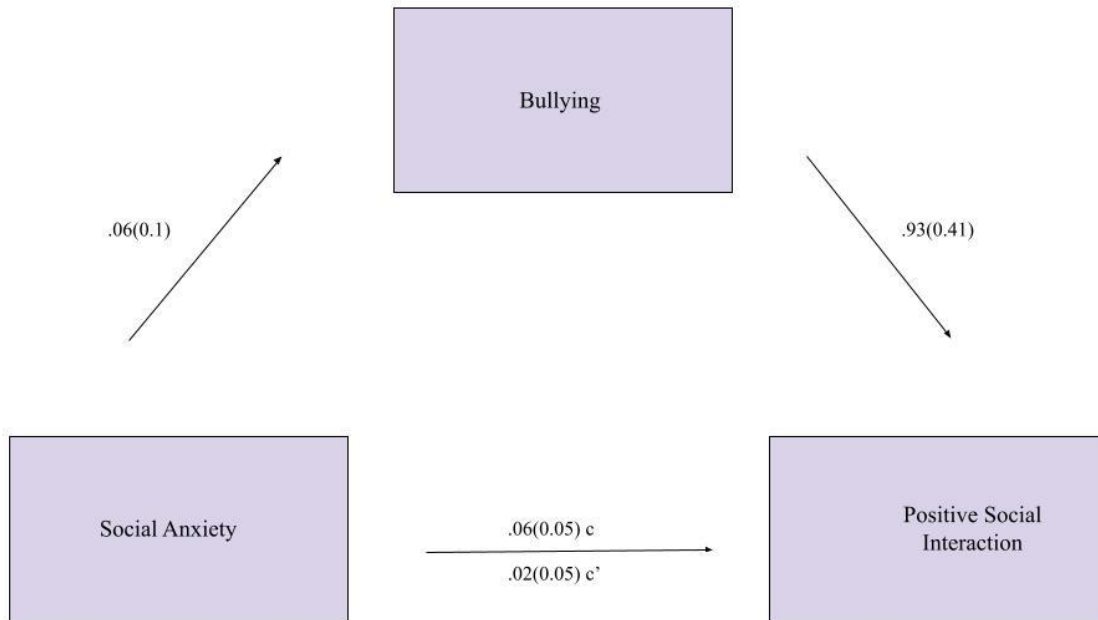Figure 1. First Segment: Pizza Time Positive Social Interactions

Likewise, endorsement of bullying mediated the relationship between social anxiety and positive social interactions during [card play/Apples to Apples], with an indirect effect = 0.04, CI [0.0017, 0.08] (see Figure 2). No indirect effects of endorsement of bullying were observed during the second segment, Jenga (CI [-0.0013, 0.08]).
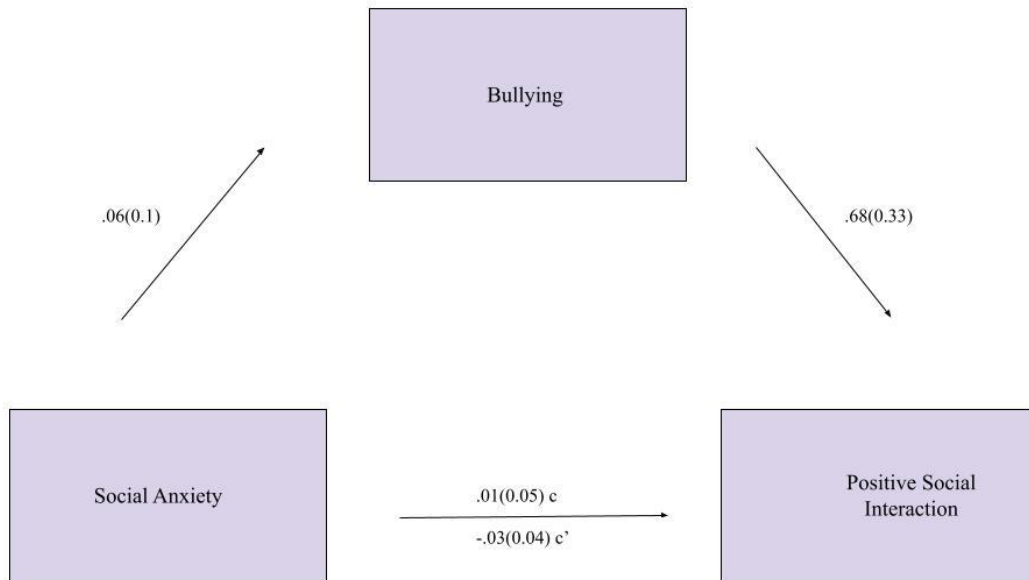
Figure 2. Third Segment: Apples-to-Apples Positive Social Interactions

Discussion

This study examined the relationships among social anxiety, experience of being bullied, and positive social interactions in a sample of neurodiverse youth. Contrary to the initial hypothesis, social anxiety was not found to be related to positive social interactions during minimally-structured naturalistic interaction settings. Rather, it was found that endorsement of bullying was related to positive social interactions such that the greater the endorsement of being bullied, the more positively participants interacted with peers during the pizza party.

It was surprising to see the results given that previous research on social anxiety suggests that positive social interaction would be decreased in youth experiencing higher degree of social anxiety as it would likely impact the quality and quantity of social relations and social interactions. Moreover, based on the prior literature that social anxiety can cause disparities with social skills and ability to process social cues within individuals, it is interesting that this lack of

relationship also did not differ between autistic and non-autistic youth in the current sample of neurodiverse youth.

In addition, it is surprising that the experience of being bullied has shown to have a *positive* effect on positive social interaction in the context of novel, unfamiliar peers. This is also in contrast to the previous literature suggesting prosocial behavior (Swearer et al., 2012) and social competence more broadly (Cook et al., 2008) to be negatively related to the endorsement of being a victim of bullying. Possible explanations for these findings include participants' awareness of the time-limited nature of the pizza parties or cognizance of how novel peers might perceive them (e.g., not expecting to experience negative peer interactions such as bullying during the pizza party from novel peers unassociated with their typical social settings). Moreover, it is possible that participants who endorsed being bullied may have been able to cultivate positive relationships with family and friends that may serve as a protective factor against the negative impact of bullying on well-being (Goswami, 2012), as having such relationships and experiences creating personal and close can help mitigate impacts difficult situations such as bullying and peer victimization. Moreover, although they were marginal, stronger relationships between endorsement of being bullied and positive social interaction seen in non-autistic youth during several activities suggest potential group differences in processing information from the experience of being bullied. Future research should examine the role of specific autistic traits as a moderator in this relationship (Schroeder et al., 2014). Another explanation to the findings may be that each of the Pizza Party Paradigm segments compose of different skills for each task. Such that pizza time and Apples-to-Apples segments requires verbal communication, meanwhile the Jenga segment requires more fine motor skills. Therefore,

communication/interaction between participants may have occurred fewer compared to the other required tasks.

Our results also suggest that the experience of being bullied can account for the relationship (or lack thereof) between social anxiety and positive social interaction. That is, social anxiety strongly predicts endorsement of being bullied, which in turn predicts positive social interaction. It is possible that the surprising relationship between experience of being bullied and positive social interaction may mitigate the impact of social anxiety. For example, in this time-limited interaction settings with unfamiliar peers, participants may be aware that it is part of a research study and may not feel as anxious of the unfamiliar peers around them, therefore not feeling as susceptible to social anxiety influencing their decisions or experiences. Moreover, it is possible that participants were able to engage in a more positive way with novel peers who are less likely to be perceived as perpetrators of peer victimization. Additionally, the experience of being bullied in the past could be related to having external protective factors as discussed above. Overall, the results underscore the importance of examining various factors that could relate to positive social interactions.

Clinical Implications

Given the elevated risk of developing social anxiety as well as susceptibility toward experiences of peer victimization in youth populations, findings of current study highlight various factors that can be considered when supporting positive social development in youth. Specifically, the impact of mental health issues like social anxiety or negative peer experiences like being bullied may have complex relationships with social interactions with others. For example, when working with youth with social anxiety, it may be especially important to consider if they also have experiences of being bullied, and whether they have positive

relationships in their social settings that can be beneficial for promoting positive social interactions with novel peers. The findings are encouraging in a way that, despite the experience of being bullied, youth may be able to interact positively in novel peers and it may be helpful to consider which settings may help socially anxious youth or those with experience of being bullied interact more positively with peers. Moreover, clinicians can work with youth with experience of being bullied in identifying protective factors that can further promote positive interactions with new and unfamiliar peers.

Limitations

One major demographic limitation of the current study is that the sample was composed mainly of non-Hispanic White participants, therefore showing lack of diversity within the sample. Moreover, the sample had overrepresentation of male participants compared to female participants, which is important to note given potential differences in how social anxiety may present in boys vs. girls, as well as different types of bullying common amongst boys vs girls. It is unknown within the current study whether there would be a difference between sexes, although previous research suggests young females were more prone to developing social anxiety and further affecting their social skills and relationships (Pickering et al. 2020). Other limitations may include that it was not possible to examine whether participants' positive relationships with family and friends served as a protective factor against negative impact of bullying on well-being (Goswami, 2012). Another limitation could be due to the participants' being aware of the nature of the time-limit of the pizza party or cognizance of how novel peers might perceive them. Therefore, in relation to having interpersonal relationships outside of the study, knowing that the study was going on for a certain amount of time, participants may not

feel as anxious or stressed about participating or interacting with others within the study as they are aware it will only be a certain duration of time.

Future Directions

For future research, researchers should examine the role of specific autistic traits in this relationship (Schroeder et al., 2014). Future research should also consider having a larger sample size for a future study with a diverse sample of participants to allow for generalizability of the findings. Future replications of the study would also benefit from a gender- and racially-diverse sample given that the sample size was primarily white and male participants. As previous research had suggested that female youth were more prone to peer victimization and social anxiety during childhood and adolescents (Pickering et al., 2020; Tillfors et al., 2012). Further research can examine the different gender groups following previous findings and if there may be an effect. Other suggestions for researchers would look more into minimally structured settings as it is important to see how most social relationships and social interactions are created and maintained with certain environments such as classrooms, extracurricular activities, and neighborhoods therefore are around familiar peers constantly. Researchers should investigate further young individuals in minimally structured settings amongst unfamiliar peers if it induces stress and anxiety being around others that they may not have created interpersonal relations and experiences. Given that throughout youth and adolescence, young individuals would be going through various situations and environments that would later shape their adulthood. Researchers should also consider potential mediation analysis, when applicable, if the relationship being found to be nonsignificant, rather than "immediately throwing away the project" as there may be an unexplained direct and/or indirect path explaining the relationship being researched (Zhao et al., 2010). Researchers can consider longitudinal designs for future research to measure social

skills and social engagement and address questions about directionality that can add to observational measures.

Conclusion

Social relations and social interactions during youth is important in promoting positive outcomes for individuals, and adequate social support and experiences can function as a protective factor against negative outcomes such as mental health issues, peer victimization, and overall poor experiences within youth, which can negatively impact social interaction with others. The current research finds more nuanced relationships between social anxiety and positive social interactions, as well as between the experience of being bullied and positive social relationships. In the current sample, the more endorsement of being bullied related to more positive social interactions during various tasks with unfamiliar peers. Future researchers should continue to examine factors that can impact positive social interactions in youth in more diverse samples, as well as examine potential differences among sexes and neurodivergent groups.

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