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Peer Victimization in Youth with High-Functioning Autism Spectrum Disorder

Danielle Ung
University of South Florida, soundersgirl24@yahoo.com

Peer Victimization in Youth with High-Functioning Autism Spectrum Disorder

by

Danielle Ung

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Co-Major Professor: Eric Storch, Ph.D.
Co-Major Professor: Vicky Phares, Ph.D.
Brent Small, Ph.D.
Jack Darkes, Ph.D.
Tiina Ojanen, Ph.D.

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Abstract

Peer victimization is a serious national concern affecting as many as 54% of typically developing children and adolescents. Although an extensive body of literature on peer victimization in typically developing youth exists, few studies have focused on how this problem affects youth with autism spectrum disorders (ASD) who may be at a higher risk to experience peer victimization due to ASD symptomology and other common comorbid characteristics (e.g., anxiety and depressive symptoms) that may invite peer aggression. In this study, 81 school-aged youth between the ages of 9 and 17 years (*M*= 11.91, *SD*= 2.32) who were diagnosed with ASD and had a full scale intelligence quotient (IQ) equal to or greater than 70 (*M*= 104.10, *SD*= 14.24) and their parents completed questionnaires examining the frequency of peer victimization and clinical characteristics of the youth. Parents (n= 81) and their children (n= 78) reported that peer victimization occurred on average a few times in the past year, and frequency did not significantly differ across gender. Parent and child reports of victimization had a significant positive relationship with child's report of loneliness (*r*(78)= .46, *p*< .001; *r*(78)= .61, *p*< .001, respectively), anxiety and depressive symptoms (*r*(78)= .22, *p*< 0.05; *r*(78)= .61, *p*< .001, respectively), and a significant negative relationship with social skills (*r*(78)= -.38, *p*= .001; *r*(78)= -.30, *p*< .01, respectively). The relationship between child's and parent's report of peer victimization and child's anxiety/depressive symptoms (*b*= -.01, *SE*= .01, *p*= .55; *b*= .01, *SE*= .01, *p*= .34, respectively) and loneliness (*b*= .001, *SE*= .01, *p*= .88; *b*= .01, *SE*= .01, *p*= .48, respectively) did not significantly vary as a function of the overall amount of social support received. Parent and child report of peer victimization did not significantly predict parent reported parental stress above and beyond ASD symptom severity (*p*= .37, R^2 change= .01 and

p= .09, R^2 change= .03, respectively). Lastly, the relationship between the child's and parent's report of peer victimization and parent reported social avoidance was not mediated by a fear of negative evaluation. The results indicate significant predictors of peer victimizations that may assist school staff, parents and healthcare providers identify youth with ASD who may be at risk for peer victimization and may help to shape treatment protocols by targeting the associated factors of peer victimization (e.g., anxiety and depressive symptoms, social skill deficits).

Introduction

Autism Spectrum Disorder

As many as one in every sixty-eight youth in the United States (CDC, 2014) are diagnosed with an autism spectrum disorder (ASD), a chronic neurodevelopmental disorder characterized by social deficits (e.g., difficulty understanding social cues), communication deficits (e.g., delay or lack of speech development), restricted interests (e.g., excessive preoccupation with certain interests) and repetitive behaviors (e.g., hand-flapping, head banging) (American Psychiatric Association, 2013). Within the ASD population, approximately one third are considered to have "high-functioning" ASD because their intellectual functioning is not significantly impaired, as determined by standardized tests (e.g., Stanford-Binet Intelligence Scale, Wechsler Intelligence Scale for Children) (Chakrabarti & Frombonne, 2001; Ozonoff, South, & Miller, 2000; Yeargin-Allsopp et al., 2003). Parents of youth with high-functioning ASD report significant disruptions in home, school and family functioning due to ASD symptomology (e.g., impacted academic functioning, conflict with peers, difficulty carrying out daily life chores, parental stress; Davis & Carter, 2008; Locke, Ishijima, Kasari, & London, 2010; Lounds, Seltzer, Greenberg, & Shattuck, 2007; Rao & Beidel, 2009; Rowley et al., 2012; Wainscot, Naylor, Sutcliffe, Tantam, & Williams, 2008; Whitehouse, Durkin, Jaquet, & Ziatas, 2008). Of particular concern to parents and youth with high-functioning ASD is the youth's ability to develop and maintain healthy peer relationships, which can often be difficult due to ASD symptomology, comorbid conditions (e.g., anxiety), and other factors that will be discussed in this paper (Bauminger & Shulman, 2003; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011;

Locke et al., 2010; Rowley et al., 2012). Healthy peer relationships are associated with a number of positive outcomes (e.g., greater self-control, assertiveness, improvement in academic performance and parental relations; Bukowski, 2003), whereas poor peer relationships can be associated with a number of negative outcomes that can significantly affect the youth's quality of life (e.g., anxiety/depressive symptoms, loneliness, social avoidant behaviors; Cappadocia, Weiss, & Pepler, 2012). Consequently, the goal of this study was to investigate clinical correlates of peer victimization and assist clinicians in the development of a more complete and accurate case conceptualization of youth with ASD, which may further shape treatment protocols.

Peer Victimization in Typically Developing Youth and Youth with ASD

Peer victimization is a serious national concern affecting between 17-54% of typically developing children and adolescents (Bradshaw, Sawyer, & O'Brennan, 2007; Nishina, Juvonen, & Witkow, 2005; Storch & Masia-Warner, 2004; Twyman et al., 2010). It has captured the attention of researchers worldwide and has resulted in over 5,000 published research studies. Peer victimization is commonly defined as when a socially or physically more powerful peer or peer group aggressively attacks a less powerful youth intentionally and repeatedly through physical, verbal, and relational aggression (Crick & Grotpeter, 1996; Hunter, Boyle, & Warden, 2007; Smith & Sharp, 1994). Overt victimization, which involves harm to an individual through physical actions or threats of harm (e.g., hitting, pushing, kicking, yelling), and relational victimization, which consists of purposeful manipulations intended to damage personal relationships (e.g., shunning, ignoring, spreading rumors) are the two primary forms of peer victimization commonly studied (Crick, Casas, & Ku, 1999; Crick & Grotpeter, 1996; Dempsey, Sulkowski, Nichols, & Storch, 2009; Storch, Brassard, & Masia-Warner, 2003a; Storch, Masia-Warner, Crisp, & Klein, 2005; Storch et al., 2012b; Twyman et al., 2010). With the invention of

innovative ways to socialize and communicate (e.g., text messaging, social network websites, instant messaging), cyber victimization, which involves bullying through means of electronic media (e.g., spreading rumors via emails or text messages) may also be especially detrimental to youth, as it can occur at any time and in any place (Tokunaga, 2010).

As many as 77% of youth with ASD experience peer victimization, which exceeds that of typically developing youth and youth with other special educational needs (Batten, Corbett, Rosenblatt, Withers, & Yuille, 2006; Cappadocia, Weiss, & Pepler, 2011; Carter, 2009; Chen & Schwartz, 2012; Humprey & Symes, 2010; Little, 2001; Montes & Halterman, 2007; Twyman et al., 2010; van Roekel, Scholte, & Didden, 2010; Wainscott, Naylor, Sutcliffe, Tantam, & Williams, 2008). Due to the cognitive and social deficits of youth with ASD (e.g., underdeveloped theory of mind, and difficulties interpreting social cues), elevated prevalence rates of victimization in youth with ASD should be interpreted with caution, as youth with ASD may misperceive and misreport some acts of peer victimization (Carothers & Taylor, 2004; Pierce, Glad, & Schreibman, 1997; van Roekal et al., 2010). For example, youth with ASD may misperceive a joke or causal conversation as bullying or, conversely, fail to report an apparent act of victimization ordinarily evident to peers, teachers and parents because they are unaware that they are being bullied. This suggestion is supported by several findings that perceptions of peer victimization can often differ depending on the informant (e.g., self-report versus parent or teacher report; Chen & Schwartz, 2012; Rowley et al., 2012; van Roekal et al., 2010). Consequently, the use of multiple informants may be crucial for accurate reports of peer victimization.

Youth with ASD may be at a higher risk to experience incidents of peer victimization than typically developing youth for a number of reasons (Little, 2002; Wainscot et al., 2008).

First, social, communication, and cognitive deficits (e.g., black and white thinking, deficits in the development of theory of mind) and restricted interests and repetitive behaviors distinguish these youth from their peers and may make them easy targets for teasing, bullying, derision and mockery (Bauminger & Shulman, 2003; Carrington & Graham, 2001; Kasari et al., 2011; Martin & Huebner, 2007; Storch, Krain, Kovacs, & Barlas, 2002; Storch et al., 2012b). For example, youth with ASD commonly have restricted interests and may prefer to discuss only these interests with their peers who may not be interested or to a lesser extent than the youth, which may increase the risk of peer ostracism and/or invite teasing from their peers. Additionally, youth with ASD who have significant social deficits may struggle to initiate conversation, initiate and maintain friendships, and take turns speaking with other youth, which are essential for the development and maintenance of healthy peer relationships (Knott, Dunlop, Mackay, 2006; Little, 2002; Wainscot et al., 2008). Consequently, youth with ASD have reported less satisfaction with their friendships, significantly poorer friendship quality, and less social support and social network status compared to their typically developing classmates (Bauminger & Kasari, 2000; Kasari et al., 2011; Knot et al., 2006; Locke et al., 2010; Wainscot et al., 2008). This could increase the risk that they will be victimized, as they may not have the social support (e.g., a good friend) in place to serve as a protective factor. Moreover, although ASD symptom severity has been found to be significantly associated with increased peer victimization (Cappadocia et al., 2012), these findings have not always been supported (Rowley et al., 2013; Shtayermman, 2007; Storch et al., 2012b), suggesting that this association between social impairment severity, ASD severity and peer victimization remains unclear.

Second, youth with ASD may have salient comorbid psychological symptoms (e.g., clinically significant anxiety) (Kuusikko et al., 2008) and behaviors (e.g., intense emotional and

behavioral responses), which may place them at an increased risk to be victimized (Erath, Tu, & El-Sheikh, 2012; Gray, 2004). For example, youth who cry excessively or engage in temper tantrums after being bullied may encourage further bullying to occur through a process of positive reinforcement. Bullies may continue to victimize the peer to initiate these emotional and behavioral responses and further encourage others to bully and tease the youth.

Lastly, another contributing factor to peer victimization is the school environment youth with ASD sometimes find themselves. Although the inclusion of youth with disabilities in general education classrooms has a number of benefits (e.g., more socially engaged, teaching of social skills) (Sigman & Ruskin, 1999), social integration difficulties may place youth with disabilities at an increased risk of being victimized and rejected by their peers than their typically developing classmates (Little, 2002; Ochs, Kremer-Sadlik, Solomon, & Sirota, 2001). For example, given their communication difficulties, cognitive impairments, and socially awkward behaviors, youth with ASD may be viewed by their peers as "strange" and "odd" when placed in a classroom with typically developing children, which may increase the risk that they are singled out (Humphrey & Lewis, 2008; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011; Ochs et al., 2001). This is particularly concerning as 75% of students with disabilities spend about 40% or more of their school day in general education settings where peer victimization is most likely to occur (Boyer & Mainzer, 2003). Given that youth with ASD may have a high risk of being victimized, there is a dire need to understand the factors that encourage, maintain, and perpetuate bullying.

The Association Between Anxiety/Depressive Symptoms, Loneliness, Social Skill Deficits and Peer Victimization in Youth with ASD

Anxiety/depressive symptoms, loneliness and peer victimization. As many as 50% of youth with ASD experience clinically significant anxiety symptoms (de Bruin, Ferdinand, Meester, de Nijs, & Verheij, 2007; Leyfer et al., 2006; Muris, Steerneman, Merckelbach, Holdrinet, & Meesters, 1998; Sukhodolsky et al., 2008; Ung et al., 2013; van Steensel, Bogels, & Perrin, 2011) and between 10% - 82% of youth with ASD experience a depressive disorder (Barnhill, 2001; de Bruin et al., 2007; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000; Klin, Pauls, Schultz, & Volkmar, 2005; Leyfer et al., 2006; Storch et al., 2012a,b; Ung et al., 2013). In addition to the significant impairments with home, school and family functioning that are associated with these symptoms in typically developing youth (Ginsburg, La Greca, & Silverman, 1998; La Greca & Lopez, 1998; La Greca & Stone, 1993; Langley & Bergman, McCracken, & Piacentini, 2004; Storch et al., 2006; Strauss et al., 1988) and youth with ASD (Chamberlain, Kasari, & Rotheram-Fuller, 2007; Cappadocia et al., 2012; Kim et al., 2000, Storch et al., 2012b) and of particular relevance, anxiety/depressive symptoms are also associated with significant maladjustment in peer relations and interactions (e.g., social withdrawal, submissiveness, un-popularity with peers; Hawker & Boulton, 2000). In relation to peer victimization, it may be that anxiety/depressive symptoms are a direct or indirect consequence of a hostile peer environment. To elaborate, typically developing youth (Fekkes, Pijpers, & Verloove-Vanhorick, 2005; Hawker & Boulton, 2000; Juvonen et al., 2003; Lereya et al., 2013; Scholte, de Kemp, Haselager, & Engels, 2007; Storch et al., 2003ab; Willkins-Shurmer et al., 2003) and youth with ASD (Cappadocia et al., 2011; Shatyermman, 2007; Storch et al., 2012b) who are frequently victimized report more emotional and behavioral problems such as

anxiety/depressive symptoms, loneliness, and are at an increased risk for suicidal ideation and attempts than youth who are not victimized. Frequent victimization may lead to the development of anxiety and depressive symptoms (Cook, Williams, Guerra, Kim, & Sadek, 2010; Hawker & Boulton, 2000). For example, verbal attacks may be internalized and lead to a low self-esteem, which increases the risk of other depressive symptoms. Alternatively, it may be that youth who are more prone to display anxiety and depressive symptoms appear to the bully as weak and defenseless and less likely to retaliate, which makes them easy targets for victimization (Fekkes et al., 2005). Although there is no clear consensus, the relationship between peer victimization and its clinical correlates is likely bidirectional and cyclical (i.e., victimization leads to anxiety/depressive symptoms and anxiety/depressive symptoms leads to peer victimization).

The prevalence of peer victimization in youth with ASD is frequently studied (e.g., Carter, 2009; Chen & Schwartz, 2012; Little, 2002; van Roekel et al., 2010). However, to date, few studies have furthered the research on peer victimization in youth with ASD by investigating its associated impairments and its psychosocial/clinical correlates through quantitative analyses (Cappadocia et al., 2012; Rowley et al., 2012; Shtayermman, 2007; Storch et al., 2012b; Sofronoff, Dark, & Stone, 2010). Their contribution to the peer victimization literature will be briefly described below.

In a study utilizing only parent report, Cappadocia and colleagues (2012) examined the frequency of victimization and the association between victimization and mental health problems and individual and contextual correlates of victimization in 192 parents of children between the ages of 5 and 21 years who were diagnosed with an ASD. Based upon surveys filled online by the parents, 77% percent of the sample had been bullied at school within the last month. Moreover, the child's internalizing and externalizing mental health problems (e.g., conduct

problems, insecure/anxious, hyperactive, self-injury/stereotypic, self-isolated/ritualistic, overly sensitive), communication difficulties, and parent mental health problems predicted the severity of peer victimization. For example, parents reported that their children who were severely victimized were more likely to be younger, have fewer friends and have higher levels of communication difficulties, internalizing mental health problems, and have a parent with high levels of mental health problems. Notably, parent mental health has been rarely investigated in the context of peer victimization of youth with ASD, which makes this study unique and a notable contribution to the peer victimization literature of youth with ASD. The results suggest that peer victimization may not only affect the well-being of the youth but also that of his/her family members.

In another study utilizing parents' report, Sofronoff, Dark and Stone (2010) recruited parents of 133 youth (aged 6-16 years) with Asperger's Syndrome to examine factors that predict bullying in youth with Asperger's Syndrome. Youth with Asperger's Syndrome who were more socially vulnerable reported lower levels of social skills and higher levels of bullying. Together, social vulnerability, anger, anxiety, social skills, and behavioral problems significantly predicted bullying but only social vulnerability independently predicted bullying. Authors suggested that the reason for these results may be that anger, anxiety, and behavioral problems may not be as obvious as social vulnerability (i.e., the propensity to be trusting and easily misled). Social vulnerability may make the youth with Asperger's Syndrome stand out among his/her peers and especially to bullies because these youth appear more naïve and trusting. Consequently, clinicians may wish to assess for social vulnerability in addition to assessing peer relationships of youth with ASD.

In a study utilizing the reports of the child, parent and teachers, Rowley and colleagues (2012) investigated friendship, fighting/bullying and victimization experiences of 95 youth between the ages of 10-12 years who have been diagnosed with ASD. Based upon self-report, three-fourths of the sample reported some experience of teasing, being bullied, exclusion or conflict with other children. For 40% of the group, this led to feelings of exclusion and rejection. Children whose social and communication symptoms were less severe reported higher levels of friendship and higher levels of bullying and victimization. Teachers reported that children with ASD who were less socially impaired experienced higher levels of victimization than more socially impaired children. These results are contrary to previous studies that have found peer victimization to be associated with higher levels of social impairments (e.g., Cappadocia et al., 2012; Sofronoff et al., 2010) or no significant relationship between peer victimization severity and social skill impairment (Storch et al., 2012b) suggesting that the association between peer victimization and social skill deficits is unclear at this time and warrants further investigation.

In a study examining the relationship between peer victimization and psychopathology of youth with ASD, Shtayermman (2007) recruited 10 adolescents and young adults who have been diagnosed with Asperger's Syndrome. This sample reported experiencing high levels of relational and overt victimization and anxiety/depressive symptoms. Twenty percent met criteria for a diagnosis of Major Depressive Disorder, 30% met criteria for Generalized Anxiety Disorder, and 50% had clinically significant level of suicidal ideation. Strong negative correlations were found between level of suicidal ideation and severity of AS symptomology, and severity of AS symptomatology and total degree of peer victimization. However, the degree of total peer victimization was not found to be significantly associated with level of suicidal ideation, and level of depressive and anxiety symptoms, which is contrary to other findings (e.g.,

Storch et al., 2012b). Although this study highlights the alarming prevalence rate of anxiety/depressive symptoms and suicidal ideation in youth with ASD, the results indicating no significant correlations between anxiety/depressive symptoms and victimization may not be representative of all ASD populations. Due to the small sample size of this study, it may be that power was too low to find significant correlations among the multiple variables examined.

Lastly, Storch and colleagues (2012b) investigated the associations between peer victimization, loneliness, autism-related social impairment, and psychopathology in a sample of 60 youth (ages 11-14 years) with ASD and comorbid anxiety. No significant relationships were found between indices of peer victimization and social deficits. However, total levels of peer victimization were significantly related to depressive symptoms and panic symptoms. Levels of loneliness were modestly and directly associated with total peer victimization, social cognition and social communication. Authors of this study suggest that incidences of peer victimization are internalized by the victimized youth, which leads to greater feelings of distress and anxiety. This study is one of few studies that has investigated peer victimization in youth with ASD and comorbid anxiety and may be of great importance to clinicians who work with this population, as many youth with ASD experience comorbid anxiety.

Although informative, there are several limitations that should be noted about the current literature on peer victimization in youth with ASD. First, some of these studies are qualitative studies (e.g., Humphrey & Symes, 2010) that primarily use semi-structured interviews and do not include statistical analyses that allow for a quantitative description of the data. Second, some of these studies include only parent report (e.g., Cappadocia et al., 2012; Little, 2002; Sofronoff et al., 2010), which overlooks the unique perspective of self-reports of peer victimization. Third, many of these studies have small sample sizes, which results in low power (e.g., Shtayermman,

2007). Lastly, many of these studies focus specifically on subgroup of youth with ASD (e.g., youth with Asperger's Syndrome; Little, 2002; Shtayermman, 2007; Sofronoff et al., 2010), youth with ASD and a comorbid condition (e.g., anxiety; Storch et al., 2012b), youth who are of a small, restricted age range (e.g., Rowley et al., 2012; Storch et al., 2012b) and/or youth with ASD attending mainstream schools (Humphrey & Symes, 2010; Sofronoff et al., 2010), which limits the generalizability of their results to youth with ASD who did not have these characteristics. Given these limitations, this suggests that further research is needed to comprehensively understand peer victimization of youth with ASD. Consequently, this study addressed these limitations by enrolling a large sample of youth with high-functioning ASD across a large age range who may or may not attend mainstream schools and used parent and child reports of victimization and its clinical correlates to capture each reporter's unique perspective. Furthermore, a review of the literature strongly suggests that peer victimization in youth with ASD is of notable concern to researchers because of the social deficits that characterize youth with ASD that may make them especially vulnerable to victimization, as will be discussed below.

Social skill deficits and peer victimization. A person is judged to possess social skills or be socially competent if he/she displays behaviors that contribute to the development and maintenance of friendships, and resolution of social conflicts (Cook et al., 2010; Merrell & Gimpel, 1998). The capacity to appropriately interact with others is an important skill to possess, especially in a school setting where a great number of social exchanges are occurring every day. Youth who have greater social skill deficits are more likely than their peers to be victimized for several reasons. First, youth with poor social problem-solving skills may be at a greater risk for repeated acts of victimization because unlike their counterparts (i.e., youth with good social

skills), they may be unable to skillfully negotiate negative interactions with their peers, manage conflicts, and lack the assertiveness to stand up against the bully, which may encourage further bullying incidents (Champion, Vernberg, & Shipman, 2003; Cook et al., 2010; Crick & Dodge, 1994; Fox & Boulton, 2005; Schwartz, Dodge, & Coie, 1993). Second, as discussed, youth who display socially inappropriate behaviors (e.g., excessive crying, shyness, restricted interests) and are unable to manage these behaviors appropriately may capture the attention of bullies and encourage ridicule and teasing (Cappadocia et al., 2011). Lastly, youth who lack interpersonal skills and have difficulties maintaining friendships are more vulnerable to victimization (Champion, Vernberg, & Shipman, 2003) because they lack quality friendships that can serve as a source of support in times of victimization (Delfabbro et al., 2006; Williams & Guerra, 2007) or help repel bullies. Bullies are less likely to victimize a youth if the youth is perceived to have a social support group that can retaliate against the bully (Hodges, Boivin, Vitaro, & Bukowski, 1999). Given that social skill deficits may increase the risk of victimization, it is essential that peer victimization is explored in youth with ASD who are diagnostically characterized as having significant social skill deficits.

Mediators and Moderators of Peer Victimization

Although peer victimization in youth with ASD has been found to be associated with a number of factors, as described above, mediation and moderation of these relationships are less understood.

Social support as a moderator of peer victimization and anxiety/depressive symptoms. Typically developing youth who report high self-worth and high peer victimization often report lower levels of anxiety/depressive symptoms than children who report low self-worth and high peer victimization (Grills & Ollendick, 2002). In typically developing youth,

greater feelings of self-worth are predicted by greater social support (Laible & Carlo, 2004; McMahon, Felix, & Nagarajan, 2011). Similarly, in typically developing youth (Bowes, Maughan, Caspi, Moffitt, & Arseneault, 2010; Rigby, 2000) and in youth with ASD (Bauminger & Karasari, 2000; Humphrey & Lewis, 2010; Humphrey & Symes, 2010; Lasgaard, Nielsen, Eriksen, Goossens, 2009), parent/family, friendship, and teacher and school staff support may protect these youth from the negative outcomes of victimization (e.g., loneliness, anxiety/depressive symptoms) by building resilience, confidence and self-worth. Consequently, these sources of support will be discussed below.

Parent/Family support. A healthy parent and child relationship is often characterized by parental warmth, supervision, support and involvement (Amato, 1994; Stadler, Feifel, Rohrmann, Vermeiren, & Poustka, 2010). Parent and family support can be delivered in multiple forms including assistance in problem solving, and expression of empathy, understanding, emotional acceptance, trust, respect, and affection (Langford, Bowsher, Maloney, & Lillis, 1997). For example, parents of youth with ASD may provide parental support by seeking out friendships and peers for their child through contacting and socializing with other parents of typically developing youth or youth with ASD (Bauminger & Kasari, 2000). Parental support can also serve as a protective factor for behavioral and emotional problems (Amato, 1994; Gorman-Smith, Henry, & Tolan, 2004). For example, youth with high parental support display lower levels of anxiety/depressive symptoms, higher levels of self-esteem and lower levels of antisocial and delinquent behaviors (Cornwell, 2003; Demaray, Malecki, & Davidson, 2005; Licitra-Kleckler & Waas, 1993; Seidman et al., 1999). Notably, parental support has been found to be a protective factor against maladjustment (e.g., anxiety/depressive symptoms, loneliness) resulting from peer victimization in typically developing youth (DeLay, Hafen, Cunha, Weber, &

Laursen, 2013; Stadler, 2010) and youth with ASD (Bauminger & Kasari, 2000). For example, it is commonly found that youth who are victimized and report high levels of parental support experience less depressive symptoms than youth who report low levels of parental support (DeLay et al., 2013). Mother and father support have also been investigated separately. For example, in typically developing youth, father support has been found to be negatively related to depressive symptoms, general anxiety, and loneliness, and distress related to childhood teasing, a form of victimization (Storch et al., 2003c). Moreover, father support can serve as a moderator of the relationship between bullying and psychosocial adjustment such that youth who have greater father support reported lower adjustment problems than youth who have lower father support (e.g., emotional and behavioral problems) (Flouri & Buchanan, 2002; Yeung & Leadbearer, 2010). However, these results have not consistently been supported (e.g., Rigby, 2000; Storch et al., 2003c) suggesting that the role that father support may play as a protective factor against victimization is unclear. Alternatively, higher levels of mother support have consistently been found to be associated with lower levels of emotional problems in youth who have been victimized (Rigby, 2000; Yeung & Leadbearer, 2010). In summary, the literature suggests that parental support more often than not protects youth from peer victimization and its clinical correlates.

In the absence of parent or peer support, sibling support can buffer self-esteem, loneliness, and depression through emotional support, companionship, and the sharing of similar peer experiences (Milevsky & Levitt, 2005). During childhood and adolescence, siblings often spend a great deal of time together and their warmth and support have been found to be associated with peer acceptance, positive peer status, social competence, academic success, positive self-regard and low levels of victimization (Melby, Conger, Fang, Wickrama, & Conger,

2008). In typically developing youth, sibling support can serve as a protective factor against problematic internalizing symptoms (e.g., depressive symptoms; Gass. Jenkins, & Dunn, 2007; Kim, McHale, Crouter, & Osgood, 2007). During incidences of peer victimization, siblings can serve as a source of social support for typically developing youth and youth with ASD such as defending the youth when he or she is being victimized, informing parents, teachers, and other school officials of these incidences, reducing the severity of deleterious outcomes of victimization (e.g., comforting the youth with supporting words and actions) and becoming role models for their siblings who may learn new behaviors and develop new attitudes and beliefs from them in the face of victimization (e.g., learning to stand up to a bully and/or building resilience) (Feinberg, Solmeyer, & McHale, 2012; Humphrey & Symes, 2010). The importance of sibling support has prompted researchers to suggest that siblings should play a larger role in preventive interventions for mental health problems (Feinberg et al., 2012).

Friend support. Although some parents and teachers report that youth with ASD have difficulty forming close friendships (Locke et al., 2010; Rowley et al., 2012), many youth with ASD do report having at least one friend (Bauminger & Kasari, 2000) and seek the help of a friend or classmate when bullied (Humphrey & Symes, 2010). For example, he/she may confide in a friend about the bully and seek advice about how to handle the situation. Youth with ASD often believe that the friend more so than the classmate will "stick up" for him/her or become an ally when confronted by a bully (Humphrey & Symes, 2010). In typically developing youth, having more friends and close friendships can serve as a protective factor (Delfabbro et al., 2006; Wang, Iannotti, Nansel, 2009; Williams & Guerra, 2007) providing the youth with a sense of belonging and self-worth in the presence of peer victimization and may be particularly beneficial to youth with ASD by helping to improve social skill development and emotional understanding

(Bagwell, Newcomb, & Bukowski, 1998; Gray, 2004). Moreover, children who bully other children often avoid victimizing children with friends because they may be fearful of retaliation or other negative consequences that would emerge (Hodges et al., 1997). Consequently, youth with ASD who can identify having a close friend may report less anxiety/depressive symptoms and feelings of loneliness than youth with ASD who do not report having a close friend.

Teacher/School staff support. Youth with ASD may seek the support of teachers and school staff (e.g., principal) who they believe can effectively discipline the reported bully through disciplinary actions such as detention, suspension, expulsion, discourage further encounters between classmates through classroom rules and school policies (e.g., no toleration of bullying) (Humphrey & Symes, 2010; Lasgaard et al., 2010) and/or provide them with effective strategies to deal with frequent bullying (e.g., walking away, telling a teacher). Youth with ASD may also rank teacher and school staff support in a hierarchical manner depending on the severity of the victimization. For example, for minor instances of victimization, they may turn to an immediate source of support such as a teacher whereas for distressing cases of victimization, they may turn to a staff member who has greater authority such as the principal. This suggests that youth with ASD can have good insight into which school staff is more effective at handling certain acts of victimization than other school staff (Humphrey & Symes, 2010). However, perceived teacher/staff support has not been found to be related with factors associated with peer victimization in youth with ASD (e.g., loneliness) (Lasgaard et al., 2010) suggesting that school staff support may not alleviate all deleterious outcomes of peer victimization or may do so to a lesser extent than other sources of support. In contrast, in typically developing youth, school support can act as an effective buffer against the effect of victimization (Davidson & Demaray, 2007; Loukas & Pasch, 2013; Stadler, Fiefel, Rohrmann, Vermeiren, & Poustka, 2010)

suggesting that barriers unique to youth with ASD may make school support harder to obtain and/or less effective at protecting them from the effects of victimization.

Fear of negative evaluation as a mediator of the relationship between peer victimization and social avoidance. Peer victimization can have detrimental effects on the cognitions and behaviors of the youth who is being victimized (Bellini, 2003; Crick & Bigbee, 1998). For example, typically developing youth and youth with high-functioning ASD who are victimized may internalize these attacks and come to believe that there is something inherently wrong with them and/or make judgments about the condition of the world (e.g., the world is a dangerous place), which result in a fearfulness of social situations where they may be evaluated (Storch et al., 2003a). This fear may cause them to avoid social interactions to discourage further distressing encounters and decrease feelings of anxiety through a process known as negative reinforcement (Grills & Ollendick, 2002; La Greca & Lopez, 1998; Olweus, 1992). Problematically, this may reduce the chances for them to make friends, develop social skills, engage in enjoyable and social activities and develop a better quality of life. In an attempt to comprehensively describe this process, Bellini (2004) suggested that youth with ASD have a high degree of physiological arousal that increases the likelihood that they will become overwhelmed by social interactions. This temperament in combination with social skill deficits (e.g., difficulty engaging in reciprocal play and understanding the concept of social exchange and social hierarchy; Carrington, Templeton, & Papinczak, 2003) increase the likelihood that he/she will experience negative peer interactions. Over time, negative peer interactions can lead to a fear of negative evaluations and this fear encourages social avoidant behaviors. Although a direct relationship between social skill deficits and anxiety (e.g., Bellini, 2004, Ginsburg et al., 1998, La Greca & Lopez, 1998; Tantam, 2000), peer victimization and a fear of negative evaluation

(e.g., Ginsburg et al., 1998, La Greca & Lopez, 1998; Storch & Masia-Warner, 2004; Storch et al., 2003a) and a fear of negative evaluation and social avoidance (e.g., Storch & Masia-Warner, 2004) have been found in typically developing youth and youth with ASD, to date, no study has investigated the relationship among these variables through mediation analyses. However, the relationship among these variables (i.e., victimization leads to a fear of negative evaluation, which leads to social avoidance) have been suggested in youth with ASD (Bellini, 2004) and typically developing youth (La Greca & Lopez, 1998).

The Relationship Between Peer Victimization, ASD Symptom Severity and Parental Stress

Many parents of youth with ASD report higher stress levels than parents of typically developing children and parents of children with other disabilities such as Down Syndrome, Fragile X Syndrome, Cystic Fibrosis, mental retardation and other disabilities (e.g., Dabrowska & Pisula, 2010; Estes et al., 2009; Rao & Beidel, 2009). Furthermore, parental stress is significantly and directly associated with ASD severity (Ingersoll & Hambrick, 2011; Konstantareas, & Homatidis, 1989; Lyons, Leon, Phelps, & Dunleavy, 2010). Notably, many parents of youth with ASD report feelings of sadness and concern when they learn that their child has significant social skill deficits (e.g., difficulty initiating conversations, displaying inappropriate behaviors) and are being excluded by their peers (e.g., never being invited to a birthday party, picked last for teams, sitting alone at lunch) (Carter, 2009; Knott et al., 2006; Myles & Simpson, 1998). Although the association between parental stress and ASD severity and the association between peer victimization and ASD severity have been studied independently, no study has investigated whether peer victimization predicts additional parental stress above and beyond ASD severity. Peer victimization can exacerbate parental stress by prompting parents to also worry about their child's emotional and physically well-being when

surrounded by his/her peers in an environment that they had previously believed to be a safe. Therefore, not only can the child's well-being be affected by peer victimization, but a parent's well-being may also be affected.

Study Aims and Hypotheses

Although an extensive body of literature investigating peer victimization in typically developing youth exists, few studies have examined peer victimization in youth with ASD. There are several limitations in the current literature that are addressed by this study. First, among the few studies investigating peer victimization in youth with ASD, most have not specifically addressed peer victimization and its clinical correlates, namely, anxiety/depressive symptoms, loneliness, social avoidance, social skill deficits, social support, and parental stress. In the absence of a comprehensive understanding of the relationship among these clinical correlates and peer victimization, therapy grounded on this limited amount of data may be less effective than it could potentially be in youth with high-functioning ASD. For example, treating anxiety/depressive symptoms without consideration to the role that peer relations may play in creating, maintaining, and exacerbating these symptoms may lead to continued symptoms and slow treatment progress because social skills have not been taught to effectively address victimization. Consequently, this study may provide information that can be used to create more comprehensive treatment protocols tailored to the individual needs of youth with high-functioning ASD. Second, mediation and moderation analyses of these variables have not been thoroughly conducted in the current literature. Consequently, this study investigated moderators and mediators of peer victimization that may reveal significant variables that can be targeted in therapy to address the short-term and long-term consequences of peer victimization. For example, if social support acts as a protective factor against the negative effects of peer

victimization in youth with ASD, namely, anxiety and depressive symptoms and loneliness, clinicians, parents, and teachers may want to work closely with families to develop strong social networks for the youth. Lastly, although parental stress has been extensively studied in this population, it has not been examined in relation to peer victimization. Peer victimization may not only be distressing to youth with ASD but also to their parents who may already express concerns about their child's ability to form friendships and function without their assistance and protection. Consequently, the exploration of parental stress in relation to peer victimization may encourage clinicians to incorporate families in their therapy sessions. This study addressed these limitations by using the responses of a moderate sample of well-characterized youth with high-functioning ASD through psychometrically sound measures.

Given these limitations, this study had the following aims and hypotheses:

1. The frequency of overall, relational and overt peer victimization and cyber-bullying in youth with high-functioning ASD, as reported by parent and child and if this varies as a function of child's gender was examined. The average of these frequency scores was compared to average scores on the measure, which corresponds with the description that peer victimization occurs a few times. Based upon increased peer victimization incidences in youth with ASD, it was hypothesized that the frequency of relational, overt and overall peer victimization would be greater than the average scores on the scale. It was also hypothesized that peer victimization would not vary as a function of gender.

2. The extent to which parents and children agree about the frequency of overall, relational and overt peer victimization was examined. Based on previous findings (e.g., Chen & Schwartz, 2012; Rowley et al., 2012; van Roekal et al., 2010), it was hypothesized that parents'

and child's reports of relational, overt and overall peer victimization would have fair to moderate inter-rater agreement.

3. The relationship between child's and parent's report of frequency of peer victimization and child and parent reported anxiety/depressive symptoms, parent's report of child's social skill deficits and child's report of loneliness was examined. Based upon previous findings (e.g., Bellini, 2004; Chamberlain, Kasari, & Rotheram-Fuller, 2007; Cappadocia et al., 2012; Kim et al., 2000, Storch et al., 2012b), it was hypothesized that parent's and child's report of peer victimization would be significantly and directly associated with the severity of anxiety/depressive symptoms, social skill deficits, and loneliness.

4. Overall social support received from friends, parents, teachers, and school staff was investigated as a possible moderator of child's and parent's report of peer victimization and corresponding parent and child report of anxiety/depressive symptoms and child's report of loneliness severity. Based upon previous reports that social support acts as a protective factor against victimization and its detrimental outcomes (e.g., loneliness, anxiety/depressive symptoms; Bauminger & Kasari, 2000; DeLay et al., 2012; Humphrey & Symes, 2010), it was hypothesized that the relationship between the child's and parent's report of peer victimization and severity of anxiety/depressive symptoms and loneliness severity would significantly vary as a function of the amount of overall social support received, such that relational and overt peer victimization and cyber bullying would have a weaker association with anxiety/depressive symptoms and loneliness in youth with greater overall amounts of social support.

5. The ability of parents' and child's report of peer victimization to predict parental stress above and beyond ASD severity was examined. Based upon the limited data that describes the concerns of parents that have a youth with ASD who is victimized (e.g., Carter, 2009; Knott et

al., 2006; Myles & Simpson, 1998), it was hypothesized that parents' and child's report of peer victimization would significantly predict parental stress above and beyond ASD severity.

6. As an exploratory aim, child's report of a fear of negative evaluation was explored as a mediator of the relationship between the child's and parent's report of peer victimization and parent report of social avoidance. Based upon previous research (e.g., Bellini, 2004), it was hypothesized that the child's fear of negative evaluation would significantly mediate the relationship between the child's and parent's report of peer victimization and social avoidance.

Method

Participants

Participants included 81 youth ages 9 to 17 years (*M*= 11.91 years, *SD*= 2.32 years) and their caregivers (n= 81). Recruitment was performed through a protocol approved by the University of South Florida Institutional Review Board which included posting, emailing and mailing the study's Institutional Review Board (IRB) approved flyer on the University of South Florida Tampa and Saint Petersburg campus, the Rothman Center for Pediatric Neuropsychiatry and contact with local autism networks. Two study sites, the Rothman Center for Pediatric Neuropsychiatry in Saint Petersburg, Florida and the University of South Florida in Tampa, Florida were offered to interested participants due to travel and time convenience.

Participants who met the following inclusion criteria were included in the study: a) have an ASD diagnosis, as diagnosed by a qualified medical professional (e.g., MD, Ph.D.) and determined by "gold standard" diagnostic measures, the Autism Observation Diagnostic Schedule (ADOS) and Autism Diagnostic Interview- Revised (ADI-R) and confirmed by the Childhood Autism Rating Scale- Second Edition (CARS2-HF) and met a score of 30 or above, which identified the child as having significant ASD symptomology (Schopler, Van Bourgondien, & Wellman, 2009), b) between the ages of 9 and 17 years, and c) have an IQ of 70 or greater, as determined through prior IQ testing done within two years using a standardized, accepted test (e.g., The Stanford-Binet Intelligence Scale, Wechsler Intelligence Scale for Children, Wechsler Adult Intelligence Scale, Wechsler Abbreviated Scale of Intelligence) or if IQ was unknown, the Wechsler Abbreviated Scale of Intelligence- 2nd Edition (WASI-II) was

administered by the principal investigator (PI) or trained clinicians after informed consent/assent had been obtained.

Of the 90 participants who consented/assented to study participation, 3 participants had CARS2-HF scores below 30, and 6 participants could not be contacted (e.g., never returned to clinic and/or never returned PI's attempted phone calls) to complete the questionnaires. These participants did not significantly differ in age, IQ, or gender from the study sample. Eighty-one parents and 78 children completed all questionnaires.

Measures

Clinician rated measures.

Autism diagnosis.

The Childhood Autism Rating Scale- Second Edition High Functioning (CARS2-HF; Schopler et al., 2009). The CARS2-HF is a 15-item clinician administered diagnostic evaluation and direct observation measure of autism and autism severity. The CARS2-HF is a comparable alternative to lengthy autism diagnostic measures (e.g., Autism Diagnostic Observation Scale and Autism Diagnostic Interview-Revised) and has been used to confirm ASD diagnosis (e.g., Demurie, De Corel, & Roeyers, 2011). The CARS2-HF can be administered in 15 minutes. A clinician rates each item (i.e., relating to people, imitation, emotional response, body use, object use, adaptation to change, visual response, listening response, taste, smell and touch response and use, fear or nervousness, verbal communication, nonverbal communication, activity level, level and consistency of intellectual response, and general impressions) on a 4-point Likert scale ranging from 1= no evidence of difficulty, appropriate and normal, and 4 = severely abnormal. Scores lower than 30 categorize the child as non-autistic, scores between 30 and 36 categorize the child as mildly-moderately autistic, and scores greater than 36 categorize the child as

severely autistic. Youth who scored 30 or greater were included in this study. Psychometric support for the CARS2 in youth with autism includes good internal consistency, acceptable inter-rater reliability, test-retest stability, discriminant validity and convergent validity (Perry, Condillac, Freeman, Dunn-Geier, & Belair, 2005; Schopler et al., 1988; Tachimori, Osada, & Kurita, 2003). Inter-rater reliability of the CARS2-HF in this study indicated excellent agreement (ICC= 0.97). In this study, the internal consistency (Cronbach's α) of the CARS2-HF was .79.

Intellectual quotient.

Wechsler Abbreviated Scale of Intelligence-Second Edition (WASI-II; Wechsler, 1999). The Wechsler Abbreviated Scale of Intelligence-Second Edition is a nationally standardized measure that provides a brief and reliable measure of cognitive ability in individuals aged 6 years to 90 years and can be administered in about 30 minutes. This test contains four subtests including WASI-II Vocabulary, Similarities, Block Design and Matrix Reasoning. The full scale IQ (FSIQ-4 score) provides an estimate of general cognitive ability and was used to provide a general estimate of functioning. Participants whose FSIQ scores were 70 or greater were included in the study. Also, participants who were determined by other acceptable tests (e.g., The Stanford-Binet Intelligence Scale, Wechsler Intelligence Scale for Children) to not have severe cognitive deficits were also included. A number of studies have used this IQ criterion to select for high-functioning youth with ASD (e.g., Gillott & Standen, 2007; White et al., 2010).

Child reported measures.

Anxiety and depressive symptom severity.

Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). The RCADS is a 47-item self-report and parent report questionnaire that assesses anxiety and depressive symptoms. Youth and their parents are asked to rate how

frequently they or their child experience each item on a three-point Likert Scale from 0 (never) to 3 (always). Individual subscales include social phobia, separation anxiety, generalized anxiety, obsessive-compulsive disorder, panic and major depression. Psychometric support for the RCADS includes good internal consistency, and convergent and discriminant validity (Chorpita et al., 2000; Chorpita, Moffitt, & Gray, 2005) and has been used in youth with ASD (e.g., Storch et al., 2012b). In this study, the internal consistency (Cronbach's α) of the parent and child reported RCADS were .84 and .97, respectively.

Loneliness.

Asher Loneliness Scale (ALS; Asher, Hymel, & Renshaw, 1984). The Asher Loneliness Scale is a 16-item self-report measure used to determine the severity of loneliness and social adequacy. Youth are asked to rate each item on a five-point Likert Scale from 1 (not true) to 4 (almost always true). Higher scores reflect higher levels of loneliness. This measure has been used in a number of studies to assess for loneliness in high-functioning youth with ASD (e.g., Locke et al., 2010; White & Roberson-Nay, 2009). Psychometric support for the ALS in youth with ASD (Bauminger & Kasari, 2000) and typically developing youth (Asher & Wheeler, 1985; Bagner, Storch, & Roberti, 2004; Storch & Masia-Warner, 2004) include a stable factor structure, good internal consistency, and convergent validity. In this study, the internal consistency (Cronbach's α) of the ALS was .91.

Peer victimization.

Revised Peer Experiences Questionnaire (PEQ-R; Prinstein et al., 2001). The Revised Peer Experiences Questionnaire is a 9-item self-report and parent reported measure of acts of overt (4 items), and relational (5 items) peer victimization committed by the child and to the child. Frequency of peer victimization over the past year are rated on a five-point Likert Scale

from 1 (never) to 5 (a few times per week). In addition, cyber peer victimization was assessed using 16-item measure adapted from Kowalski and Limber (2007) and Olweus Bully/Victim Questionnaire which asked the frequency of cyberbullying in the past couple of months through text messages, phone, email, chat rooms, instant messaging, and on websites. Consistent with La Greca and Harrison (2005) and Storch et al. (2012b), the total peer victimization score was the combined frequency scores of overt and relational peer victimization. Psychometric support for the PEQ-R includes a stable factor structure, good internal consistency, and acceptable test-retest reliability (La Greca & Harrison, 2005; Prinstein et al., 2001). In this study, the internal consistency (Cronbach's α) of the parent and child reported PEQ were .93 and .91.

Social support.

Social Support Scale for Children and Adolescents (SSSC/A; Harter, 1985). The Social Support Scale for Children/Adolescents is a 24-item self-report questionnaire that assesses perceived social support and positive regard from parents, close friends, classmates, teachers and school staff. Youth are asked to read descriptions of the social support and decide which description best fits them. Then, they are asked to check the box that is most truthful for them (i.e., really true for me, or sort of true for me). Psychometric support for the SSSC/A in typically developing youth (Barry et al., 2003; Harter, 1985; Pastor, Quiles, & Pamies, 2012) and youth with ASD (Lasgaard et al., 2009) includes good internal consistency, and external, construct and concurrent validity. In this study, the internal consistency (Cronbach's α) of the SSSC/A was .89.

Fear of negative evaluation.

Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993). The Social Anxiety Scale for Children-Revised is a 18-item self-report measure used to assess children's and adolescent's experience of social anxiety. Youth are asked to rate how much the

item "is true for you" on a five-point Likert Scale, from 1 (not at all) to 5 (all the time). Psychometric support for the SASC-R includes good internal consistency, inter-rater reliability, and concurrent validity (La Greca & Lopez, 1998; La Greca & Stone, 1993; Storch et al., 2003d). In this study, the internal consistency (Cronbach's α) of the SASC-R was .92.

Parent reported measures.

Social skill impairment and social avoidance.

Autism Social Skills Profile (ASSP; Bellini, 2006). The Autism Social Skills Profile scale is a comprehensive a 49-item parent reported measure designed to measure social functioning in youth with autism. Parents are asked to rate each item on a four-point Likert Scale from 1 (never, almost never) to 4 (very often, always). Higher scores indicate a greater degree of social skills. The ASSP contains three subscales: Social Reciprocity, Social Participation/Avoidance, and Detrimental Social Behaviors. Psychometric support for the SRS in youth with autism includes excellent internal consistency, test-retest reliability and concurrent validity (Bellini & Hopf, 2007). In this study, the internal consistency (Cronbach's α) of the ASSP was .93.

Autism parental stress.

Autism Parenting Stress Index (APSI; Silva, & Schalock, 2012a). The Autism Parenting Stress Index is a 13-item parent-report questionnaire that assesses parenting stress specific to ASD symptoms and comorbid conditions (e.g., sleep problems, bowel problems). Parents are asked to rate how each item causes stress for them and/or their family on a 5-point Likert scale (0 = Not stressful, 1 = Sometimes creates stress, 2 = Often creates stress, 3 = Very stressful on a daily basis, and 4 = So stressful we feel we can't cope). Individual subscales include core social disability, difficult-to-manage behavior, and physical issues. Higher overall APSI scale score indicates higher levels of parenting stress. Psychometric support for the APSI in parents of youth

with ASD includes acceptable internal consistency, and test-retest stability (Silva & Schalock, 2012b). In this study, the internal consistency (Cronbach's α) of the APSI was .81.

Procedure

Study procedures. All study procedures were approved by the Institutional Review Board (IRB) at the University of South Florida. A phone call was made to interested families to screen for inclusion criteria, namely, age, ASD diagnosis, and IQ, if it had been previously tested in the past 2 years. In a private room, a trained clinician explained the consent/assent form to the youth and his/her parent(s). Any concerns or questions were addressed at this time. The trained clinician also explained the limits of confidentiality. Written parental consent and child assent were obtained from all participants. Parents and children who did not agree to video recordings during the initial contact and consent process were allowed to participate because video recordings were used solely to assess clinician reliability. Children who had not received a prior IQ testing within the past 2 years were administered the WASI-2 by a trained clinician. Parent and child questionnaires were distributed and the order of these questionnaires was randomized to prevent priming effects or carry-over effects. Upon completion of the questionnaires, the PI administered and audio recorded the CARS2-HF. Research assistants who had been trained by a clinician to be familiar with the items on the questionnaires also provided aid to the participants, if needed (e.g., sitting with the child and/or parent and clarifying questions).

At the conclusion of the family's participation, each family was given one raffle ticket number by a trained clinician who recorded this information. Ten raffle tickets were drawn. Families with these numbers were given a gift card valuing $20. Families were also provided with phone numbers and websites of local ASD resources (e.g., support groups, treatment

clinics) that could further address their concerns about their child's anxiety/depressive symptoms, ASD symptoms, and peer victimization.

Clinician training. Trained clinicians were clinical psychology graduate students at the University of South Florida who had observed and administered the WASI-II and CARS2-HF under the supervision of a licensed clinical psychologist and achieved good to excellent inter-rater agreement on these measures. Training also included weekly meetings with the PI to discuss each participant's results. All study staff was trained by the PI to administer and assist in the measures.

Data Storage and Entry

Video recordings and measures were kept at the Rothman Center for Pediatric Neuropsychiatry in locked filing cabinets. Each participant was assigned a participant ID and all identifiable information was stored in a locked cabinet and/or on password protected documents. All measures were de-identified. Data obtained from the measures were double-entered into the Statistical Package for Social Sciences (SPSS) by research assistants and the PI and stored on a secure drive at the Rothman Center for Pediatric Neuropsychiatry.

Missing Data

Missing data were addressed through Hotdeck multiple imputation (Myers, 2011). Only measures that had 90% or more data provided were incorporated into the statistical analyses to ensure that the results of using multiple imputation were valid.

Statistical Analyses and Power Analyses

Statistical Package for Social Sciences (SPSS Version 22) and PROCESS (Hayes, 2012) were used for all data analyses. To examine possible multicollinearity among victimization scores, correlation analyses were performed using parent and child reports of overall

victimization, relational and overt victimization. Parent report of overall peer victimization was significantly and strongly correlated with its relational peer victimization subscale and overt peer victimization subscale (r= .98, p< .001, and r= .74, p< .001, respectively). Child report of overall peer victimization was significantly and strongly correlated with its relational peer victimization subscale and overt peer victimization subscale (r= .98, p< .001, and r= .77, p< .001, respectively). Given these findings, frequency of overall peer victimization and not relational and overt victimization was used for all subsequent data analyses.

To address study aim 1, descriptive analyses were used to examine the frequency of overall victimization, relational and overt peer victimization and cyberbullying. T-tests used to examine if there were gender differences in the frequency of overall victimization, relational and overt peer victimization, as reported by parent and child. Power analyses revealed that using a sample size of 77, this study was powered to detect a small effect size of at least d= 0.32.

To address study aim 2, three separate analyses using intraclass correlation coefficients (ICC), a measure of inter-rater agreement, was used to examine the extent to which parent and children agree about the frequency of peer victimization.

To address study aim 3, correlation analyses was used to examine the relationship between parent and child reported peer victimization and parent and child report of severity of anxiety/depressive symptoms, social skills and child's report of loneliness. Because these variables are continuous, Pearson correlation analyses were performed. A Pearson correlation value of r= ± .50 is considered strong, r= ± .30 is considered moderate, and r= ± .10 is considered weak (Cohen, 1988). A correlation matrix was used to examine the Pearson's product moment correlation coefficient (r) among these variables. Power analyses revealed that using a sample

size of 78, this study was powered to detect a medium effect size of at least *r*= .32. Due to the preliminary nature of this research, test corrections were not conducted.

To address study aim 4, hierarchical regression analysis was used to examine if the relationship between parent reported peer victimization scores and parent reported anxiety/depressive symptoms and child reported loneliness scores varied as a function of total amount of social support received, as reported by the child. Also, a second hierarchical regression analysis was used to examine if the relationship between child reported peer victimization scores and child reported anxiety/depressive symptoms and child reported loneliness scores varied as a function of total amount of social support received, as reported by the child. Power analyses using a linear multiple regression (fixed model, R^2 increase) revealed that with a sample size of 78 participants, this study was powered to detect a medium effect size of f^2= 0.10 (*d*= 0.45).

To address study aim 5, hierarchical linear regressions were used to examine if child or parent reported peer victimization predicted parental stress as reported by the parent above and beyond ASD severity. Power analyses using a linear multiple regression (fixed model, R^2 increase) revealed that with a sample size of 78 participants, this study was powered to detect a medium effect size of f^2= 0.10 (*d*= 0.45).

To address exploratory study aim 6, bootstrapping techniques were used to examine whether parent and child report of the child's fear of negative evaluation mediated the relationship between parent and child report of peer victimization and child's report of social avoidance. Boot-strapping is a non-parametric method based on resampling with replacement. From each of these samples, the indirect effect is computed and a sampling distribution is generated. In this study, the sample was resampled *k=10000* times generating a 95% confidence

interval. Power analyses revealed that with a sample size of 78 participants using the bootstrapping technique, this study was powered to detect medium effect size of 0.39.

Results

Sample Characteristics

Youth with high-functioning ASD were between the ages of 9 and 17 years (*M*= 11.91, *SD*= 2.32), primarily males (n= 62; 76.5%), Caucasian (n= 63; 77.8%), and in general education classrooms (n= 43; 53.1%). Of the parent reporters, 64 (79.0%) were the child's biological mother, 8 (9.9%) were the child's adoptive mother and 9 (11.1%) were the child's biological father. Youth's intelligence quotient (IQ) ranged from 74 to 143 (*M*= 104.10, *SD*= 14.24). Thirty-one (38.3%) youth were in elementary school, 36 (44.4%) were in middle school, 14 (17.3%) were in high school. Sample demographic and clinical characteristics are summarized in Table 1 and Table 2.

Frequency of Peer Victimization and Parent and Child Agreement

Seventy-one (89.9%) youth and 78 (96.3%) parents reported peer victimization occurring at least once or twice in the past school year. More specifically, 48 (60.8%) youth and 56 (69.1%) parents reported overt victimization and 69 (87.3%) and 78 (96.3%) parents reported relational victimization occurring at least once or twice in the past year. Youth (n= 79) reported that they were peer victimized on average a few times (*M*= 1.88, *SD*= 0.79), experienced relational victimization on average a few times (*M*= 1.91, *SD*= 0.84), and overt victimization on average a few times (*M*= 1.77, *SD*= 0.92) in the past year. Parents of these youth reported that their child was peer victimized on average a few times (*M*= 2.32, *SD*= 0.86), experienced relational victimization on average a few times (*M*= 2.44, *SD*= 0.94), and overt victimization on average a few times (*M*= 1.93, *SD*= 0.87) in the past year. Paired sample t-tests indicated that compared to children reports of victimization, parents reported significantly higher frequency of

victimization ($t(78)= 4.40$, $p< .001$) and relational victimization ($t(78)= 4.99$, $p< .001$) but did not report significantly higher frequency of overt victimization ($t(78)= 1.24$, $p= .22$). Twenty-six (89.8%) youth in elementary school, 32 (89.0%) in middle school, and 13 (92.9%) in high school reported peer victimization occurring at least once or twice in the past school year. Thirty-one parents (100%) of youth in elementary school, 34 (94.4%) in middle school, and 13 (92.9%) in high school reported peer victimization occurring at least once or twice in the past school year. Cyberbullying, which occurred most commonly through texting and chatrooms was reported by 9 youth and occurred on average a few times a month ($M= 2.11$, $SD= 1.27$).

Child reports of the frequency of peer victimization ($t(77)= -1.37$, $p= .18$), relational victimization ($t(77)= -1.69$, $p= 0.10$), and overt victimization ($t(77)= .29$, $p= .78$) did not significantly differ between males and females. Parent reports of the frequency of overall peer victimization ($t(79)= -1.20$, $p= .24$), relational victimization ($t(79)= -1.39$, $p= .18$), and overt victimization ($t(79)= -0.19$, $p= .86$) did not significantly differ between males and females. Peer victimization did not significantly vary across age, school level and school placement.

Moderate agreement between parent and child report on peer victimization (ICC= 0.55, $p< .001$) and relational victimization (ICC=0.58, $p< .001$) but poor agreement on overt victimization (ICC= 0.24, $p= .12$) was found.

Correlates of Peer Victimization

A correlation matrix is presented in Table 3. A significant strong positive relationship between child report of peer victimization and child reported loneliness ($r(78)= .61$, $p< .001$) and child reported anxiety/depressive symptoms ($r(78)= .61$, $p< .001$), and a significant moderate negative relationship with parent reported child's social skills ($r(78)= -.30$, $p< .01$) was found. A significant strong positive relationship between parent report of peer victimization

and child reported loneliness ($r(78) = .46$, $p < .001$), a significant weak positive relationship with parent reported anxiety/depressive symptoms ($r(78) = .22$, $p < 0.05$) and a significant moderate negative relationship with parent reported child's social skills ($r(78) = -.38$, $p = .001$) was found.

Social Support as a Moderator of Peer Victimization and Anxiety/Depressive Symptoms and Loneliness

Regression tables are presented in Tables 4 and 5. The relationship between child and parent reported peer victimization and corresponding reported anxiety and depressive symptoms did not vary significantly as a function of level of social support received ($b = -.01$, $SE = .01$, $p = .55$; $b = .01$, $SE = .01$, $p = .34$, respectively). Also, the relationship between child and parent reported peer victimization and loneliness symptoms did not vary significantly as a function of level of social support received ($b = .001$, $SE = .01$, $p = .88$; $b = .01$, $SE = .01$, $p = .48$, respectively). However, child report of social support independently predicted child's anxiety and depressive symptoms ($b = -.54$, $p < .05$) and loneliness symptoms ($b = -.50$, $p < .001$). Child and parent report of peer victimization also predicted child's loneliness symptoms ($b = .68$, $p < .001$; $b = .41$, $p < .001$; respectively). Child report of peer victimization also predicted child's report of anxiety and depressive symptoms ($b = 1.25$, $p < .001$) but parent report of peer victimization did not predict parent report of child's anxiety and depressive symptoms ($b = .26$, $p = .15$). Child report of support did not predict parent report of child's anxiety and depressive symptoms ($b = -.30$, $p = .07$).

Peer Victimization as a Predictor of Parental Stress

Hierarchical regression analyses indicated that neither child nor parent report of peer victimization significantly predicted parental stress above and beyond ASD severity ($p = .37$, R^2

change= .01 and p= .09, R^2 change= .03, respectively). However, ASD severity significantly predicted parental stress (b= .39, p< .001).

Fear of Negative Evaluation as a Mediator of Peer Victimization and Social Avoidance

In child reports of peer victimization, peer victimization was significantly associated with social avoidance (b = .13, *SE* = .06, p< .05; C Path). Peer victimization was significantly related to the mediating variable, fear of negative evaluation (b = .36, *SE* = .13 p< .05; A Path). Fear of negative evaluation was not significantly related to social avoidance (b = .04, *SE* = .05 p = .40; B Path). When testing the indirect pathway of isolation through fear of negative evaluation to social avoidance, bootstrapping analyses (k=10000) did not support a significant indirect effect (b = .02, *SE* = .02, 95% CI [-0.03, 0.06]). The analyses failed to detect the hypothesized mediation effect. Mediation model results for child reported victimization are presented in Figure 1.

In parent reports of peer victimization, peer victimization was significantly associated with social avoidance (b = .14, *SE* = .05, p< .05; C Path). Peer victimization was not significantly related to the mediating variable, fear of negative evaluation (b = .03, *SE* = .13 p= .79; A Path). Fear of negative evaluation was not significantly related to social avoidance (b = .07, *SE* = .05, p = .14; B Path). When testing the indirect pathway of isolation through fear of negative evaluation to social avoidance, bootstrapping analyses did not support a significant indirect effect (b = .002, *SE* = .01, 95% CI [-0.02, 0.03]). The analyses failed to detect the hypothesized mediation effect. Mediation model results for parent reported victimization are presented in Figure 2.

Discussion

This study examined the frequency and prevalence of peer victimization, its relation to youths' clinical characteristics and psychosocial adjustment, and proposed a moderation and mediation framework for understanding the effects of peer victimization in youth with high-functioning ASD. Study hypotheses were partly supported overall. On average, parent and child reported the frequency of peer victimization to occur between never and a few times in the past year which was lower than was hypothesized. Lower frequency of victimization in the past year may be attributed to changes in sociocultural attitude towards youth with ASD, reporter characteristics, and/or measurement error. Peer victimization is a global problem and is frequently discussed in the media (e.g., documentaries). This may have led to changes of peer attitudes towards youth with ASD (i.e., becoming more accepting of youth with disabilities) and/or brought awareness to school staff that these acts of victimization frequently occur, and therefore, they may have become more vigilant of these occurrences and are able to stop these acts of victimization before they happen. Implementation of school policies on bullying (e.g., development of anti-bullying policies) may have also curtailed acts of victimization of youth with ASD. For example, in a systematic review and meta-analysis conducted by Ttofi and Farrington (2011), anti-bullying school programs effectively reduced victimization by 17-20%. Effective program components included parent training/meetings, playground supervision, teacher training, school conferences, cooperative group work, and a whole school anti-bullying policy. Increased national awareness, resulting in changes made within and outside of schools may have contributed to less frequent reports of victimization than hypothesized.

Also, limited parent and child insight or reporters' reluctance to endorse victimization may explain these findings. As explained by many parents in this study, parents' report of incidences of victimization relied primarily on school staff reports and/or child report which may have often been underreported to parents due to factors such as reporters' varying definitions of bullying, school policies, and reporting practices. Research in the ASD literature suggests that parents, teachers, and students often do not agree about the frequency of peer victimization (Rowley et al., 2012; van Roekel et al., 2010), with teachers often reporting lower frequency of victimization compared to parent and child reports of victimization. For example, Chen and Schwartz (2012) reported that students (28%) and their parents (36%) reported significantly higher frequency of victimization than reported by teachers (12%) which was also found by Rowley and colleagues (2012) (student report: 41.5% versus teacher report: 11.6%). Given these findings and reports by parents, it may be that parents reported lower frequency of victimization because reports of victimization may have not been reported to them by school staff. Reports of victimization by youth with ASD to their parents may also serve as a source for parents' reports. However, youth with ASD may also struggle to report acts of victimization accurately because of their social skill and communication deficits, limited theory of mind and/or lack of social awareness, which is commonly displayed by these youth (Klin, Volkmar, & Sparrow, 2000; Sofronoff et al., 2011). For example, youth with ASD often have difficulties interpreting social cues, understanding and communicating their feelings, and have an underdeveloped theory of mind (e.g., the ability to take the perspective of others) which may cause them to be unaware that they are being bullied and/or communicate to others how they are being bullied. They may struggle to decipher between what is bullying and what is not (Rowley et al., 2012; van Roekel et

al., 2010) and report them inaccurately to their parents and school staff. As such, they may underreport incidences of bullying, leading to lower than expected reports of victimization.

Furthermore, characteristics inherent of the peer victimization measure may have resulted in lower scores than had been hypothesized. For example, despite careful review of the measure and assistance to the youth, abstract language used in the measure to convey positive and negative interactions among peers may have made it difficult for the youth to understand what is being asked, which is a notable difficulty for youth with ASD (Solomon, Buaminger, & Rogers, 2011). As such, participants may have under reported acts of victimization. Also, given the length of time to recall these acts of victimization (i.e., the past school year), parents and their children may have had difficulty recalling these events. They may be more likely to remember and report serious incidences that have led to significant consequences for the child and parent (e.g., missed school days, school phone call), which may have led to their reports of victimization as occurring on average, once or twice in the school year. It is uncertain as to which of these factors or if all of these factors contributed to reports of lower frequency of peer victimization than expected; however, it is clear that peer victimization continues to serious problem for youth and their parents. Furthermore, it is not only important to assess the frequency of peer victimization but also the intensity in which peer victimization occurs. This vital information may provide insight to how much impact peer victimization may have on the daily functioning of youth with high-functioning ASD.

In this study, 89.9% of youth and 96.3% of parents reported that their child was victimized at least once or twice in the past school year, which is significantly higher than in the typically developing youth population reported during the school year (28% to 32%; Robers, Kemp, & Truman, 2013, Robers, Zhang, & Truman, 2012) and is comparable to past research

indicating that peer victimization occurs between 46% to 94% in youth with ASD during the school year (Cappadocia et al., 2012; Carter, 2009; Hebron & Humphrey, 2013; Little, 2002; Sterzing, Shattuck, Narendorf, Wagner, & Copper, 2012; Wainscot et al., 2008). These results appear to support previous findings indicating that students with disabilities are victimized more frequently than typically developing youth (Rose, Espelage, & Monda-Amya, 2009; Swearer, Wang, Maag, Siebecker, & Frerichs, 2012). Results also indicated that 11.5% of children reported that they experienced cyber bullying in the past month which is comparable to Cappadocia, Weiss, and Pepler (2012) (10%) and Kloosterman, Kelley, Craig, Parker, and Javier, 2013 (12.5%) but lower than reports made by Kowalski and Fedina (2011) (21.4%) who reported that the most common form was through instant messaging, which was also found in this study. As hypothesized, overall frequency of peer victimization, relational and overt victimization did not differ across gender which has been found by prior research in youth with ASD (Cappadocia, Weiss, & Pepler, 2012) and typically developing youth (DeVoe & Bauer, 2011). These findings suggest that peer victimization is a pervasive problem for youth with high-functioning ASD and may be so, regardless of age, school grade and school placement. As such, programs within and outside of school settings have progressively been developed to decrease victimization, with positive and effective outcomes in youth with ASD and disabilities (e.g., increase social motivation, assertion, cooperation, and frequency of peer interactions, improvements in social-emotional functioning, and decreased incidences of peer victimization over time; Beaumont, Rotolone, & Sofronoff, 2015; Espelage, Rose, & Polanin, 2015; Laugeson, Frankel, Gantman, Dillion, & Mogil, 2012).

General agreement of the frequency of peer victimization of parents and their children

found in this study have been reported by past studies (Chen & Schwartz, 2012; Kloosterman et al., 2013; Rowley et al., 2012; van Roekal et al., 2010). Unexpectedly, findings of poor agreement on overt victimization appear counterintuitive due to the explicit nature of these acts of victimization (e.g., kicking, hitting, pushing). Further examination of overt victimization scores reported by youth and their parents indicate that youth with ASD may underreport the frequency of these acts when compared to their parents. It may be that youth are reluctant to report these acts of victimization and/or misinterpret these events as common social interactions and do not consider them as bullying. Moderate agreement on relational victimization may reflect that youth with high-functioning ASD seek their parents' aid in the interpretation of these often confusing social situations (e.g., rumors being told, exclusion from group activities, "silent treatment"). Youth with ASD may approach their parents to help understand and clarify social situations that include social ostracism, teasing and spreading rumors, and consequently, parents may become aware of these types of victimization. In youth with high-functioning ASD, parental aid in understanding acts of victimization may serve as a protective factor for future occurrences such that being able to accurately identify these occurrences may help youth with ASD avoid individuals (i.e., bullies) who may target them (Hong, Neely, & Lund, 2015). Recent research indicates that parent training and support groups for parents of youth with ASD may be beneficial for parents who wish to talk to their child about identifying bullies, dealing with bullies and coping with the negative outcomes of victimization (e.g., anxiety and depressive symptoms) (Fox, Farrington, & Ttofi, 2012; Hong, Neely, & Lund, 2015). Parents may also play a significant role in decreasing victimization, such that research has indicated that parents who are more involved in their child's school curriculum and school policies have helped to reduce

peer victimization rates (Fox, Farrington, & Ttofi, 2012; Hebron & Humphrey, 2013; Hong, Neely, & Lund, 2015).

This study's hypotheses that parent and child report of peer victimization would be significantly related to child's loneliness, anxiety/depressive symptoms, and child's social skills were supported, clarifying mixed findings in the literature (e.g., study findings that child's social skills are or are not significantly related to peer victimization). These findings are consistent with reports within the typically developing youth population (Hawker & Boulton, 2000) and in the ASD population (e.g., Adams et al., 2014; Cappadocia et al., 2012; Kowalski & Fedina, 2011; Storch et al., 2012), suggesting that acts of victimization may be internalized by youth with high-functioning ASD, resulting in psychosocial maladjustment. Storch and colleagues (2012) using the same measures of peer victimization, anxiety and depressive symptomology and loneliness as this study found that victimization was modestly associated with loneliness and specific anxiety diagnoses including panic, generalized and social anxiety in youth with high-functioning ASD. Although this was not found by Storch et al. (2012), some researchers have found that youth with ASD who have poorer social skills may be more likely to be victimized because they have limited social insight, can be too trusting of others in social situations, and are socially vulnerable (i.e., they have limited ability to make good social judgments; Sofronoff et al., 2011). As such, it is essential that programs aimed at decreasing peer victimization in youth with ASD, also focus on increasing social skills in this vulnerable population. Moreover, although these correlations do not imply causation and the direction of the effects is unknown (e.g., relationship could be bidirectional such that anxiety/depressive symptoms causes victimization or victimization causes anxiety/depressive symptoms), clinicians may find that targeting peer victimization or its associated psychopathology can significantly decrease the likelihood of

negative social encounters and improve youths' mental health. For example, Williford and colleagues (2012) found that an anti-bullying program significantly reduced rates of peer victimization and that decreases in anxiety and depression scores were predicted by reductions in victimization.

Contrary to this study's hypothesis, the relationship between peer victimization and anxiety and depressive symptoms and loneliness did not vary significantly as a function of the level of social support received. These findings are contrary to previous research reports indicating that social support may act as a protective factor against peer victimization and its effect on the youth's emotional well-being (Humphrey & Symes, 2010). It may be that social support may not alleviate all deleterious outcomes of peer victimization in youth with high-functioning ASD. Moreover, examination of the social support scores suggest that youth with ASD may over report or misperceive the level of support they receive, especially from peers, and therefore, when victimized, they are less likely to have a support system to damper the internalizing problems that may arise from victimization. Notably, this study also found that child's report of peer victimization and social support independently predicted anxiety and depressive symptoms and loneliness, as previous studies have found (Lasgaard et al., 2009), suggesting that social support continues to be a protective factor for anxiety and depressive symptoms in youth with ASD. Youth with ASD who receive greater social support may be less likely to experience anxiety and depressive symptoms and loneliness and subsequently, less likely to experience peer victimization, as these symptoms may sustain or further perpetuate victimization (Erath, Tu, & El-Sheikh, 2012; Gray, 2004). Consequently, clinicians working with youth with ASD presenting with anxiety and depressive symptoms may find it beneficial to examine the social relations of these youth and strengthen networks of social support.

This study also found that peer victimization did not predict parental stress above and beyond ASD severity, as hypothesized. However, ASD severity independently predicted parental stress. It is often found in the ASD literature that the severity of ASD symptomology is significantly associated with worsening parental emotional and mental health (e.g., Ingersoll & Hambrick, 2011). It appears that given the strong relationship between these variables, peer victimization does not add additional predictive value to parental stress. It may be that peer victimization does not contribute to parental stress as much as other significant presenting parental concerns including caregiving demands, limited social support, youth's chronic health and comorbid conditions, and unknown future (Corcoran, Berry, & Hill, 2015; Ludlow, Skelly, & Rohleder, 2011) Notably, in a recent study, Weiss, Cappadocia, Tint, and Pepler (2015) found that the relationship between victimization and anxiety varied as a function of parenting stress such that the severity of youth's anxiety was most strongly associated with victimization when mothers reported higher stress levels. These results suggest that parents of youth with ASD may play a vital role in how their child experiences victimization and the related negative outcomes. As highlighted by the present results, parents' mental health can be significantly impacted by their child's psychopathology, and as such, their well-being should be concurrently addressed when exploring social experiences and psychosocial maladjustment of the youth with ASD.

Lastly, contrary to this study's hypothesis, fear of negative evaluation did not mediate the relationship between peer victimization and social avoidance. Examination of the distribution of child's reports of fear of negative evaluation indicated that these scores were positively skewed. Approximately half of the child participants reported low scores, which reduced score variability and may have resulted in findings that were not significant. Lower scores may reflect limited insight due to social skill deficits and/or difficulty to answer questions truthfully despite

reassurance that these answers would be kept confidential. However, parents and youth reported victimization were significantly associated with social avoidance and child's report of peer victimization was significantly associated with a fear of negative evaluation, which has been reported in typically developing youth (Grills & Ollendick, 2002; Hutzell & Payne, 2012; Pabian & Vandebosch, 2015; Storch & Masia, 2002) and youth with high-functioning ASD (Storch et al., 2012). Youth with high-functioning ASD who are peer victimized frequently may internalize these occurrences and come to believe and expect that others are often judging them negatively. These feelings may be further reinforced by consistent acts of victimization and subsequently, the youth develops a greater fear of negative evaluation, which may generalize to other social situations. Alternatively, youth with high-functioning ASD who have greater fears of negative evaluation may invite more frequent acts of victimization. Fekkes and colleagues (2005) suggest that youth who are more apt to display anxiety symptoms may be victimized more frequently, as they are seen as weak and unlikely to retaliate. Furthermore, youth may struggle to learn the social skills needed to deter acts of victimizations due to feelings of anxiety. Given these findings, it is essential that therapists working with youth with high-functioning ASD who present with a history of peer victimization and/or a fear of negative evaluation are aware of this bidirectional relationship and individualize treatment accordingly. For example, if a youth with high-functioning ASD presents with a fear of negative evaluation, it may be beneficial for the therapist to explore the youth's social experiences and shape treatment protocol to include targeting anxiety symptoms and developing social skills and/or coping skills to deal with bullies using empirically supported methods.

This study's finding that peer victimization is associated with social avoidance is of significance. Youth with ASD are often ostracized because of characteristics inherent to ASD

symptomology that make them appear odd to their peers (e.g., social and communication skill deficits, restricted interests, repetitive behaviors). Peer victimization may further isolate these youth and they may generalize these feelings to new settings where they might avoid all social interactions, either positive or negative, due to the belief that he or she will be victimized again. These findings suggest that past and current social experiences may influence the avoidance of social situations by youth with ASD and should be taken into account when designing individualized treatment plans. For example, therapists may challenge the youth's beliefs that all social situations will result in negative interactions by exposing him or her to positive, inviting and friendly interactions and providing positive reinforcement for engaging in social situations and consequently, reduce socially avoidant behaviors over time.

Limitations

Several study limitations should be noted. First, characteristics inherent to the peer victimization measure and reporter may have contributed to lower reports of victimization. For example, the accuracy of self-reports of victimization may be questionable, as this is often based on what the informant wishes to report and given the sensitivity of reporting acts of victimization, reporters may not be willing to share this information (Sreckovic, Brunsting, & Able, 2014). Indeed, some researchers have found that youth with high-functioning ASD tend to underreport their symptoms (Storch et al., 2012). Accuracy of these reports may be improved by obtaining these assays with direct observations and gathering teacher and peer accounts. Second, this study is limited by the demographics of the sample such that the participants were primary male and Caucasian, resulting in limited generalizability. Third, given the correlational design of some of the study aims, causal inference for the observed relationships cannot be made. For example, it cannot be inferred from these study results that being victimized causes

anxiety/depressive symptoms or that having anxiety/depressive symptoms causes one to be victimized. Prospective studies designed to test causation are needed in the ASD literature. Lastly, additional measures of parent reports of child's loneliness and social support could not be given due to the burden that further measures may have caused. This information, however, may have provided additional valuable information regarding parents' perceptions of child's clinical characteristics and its relation to peer victimization. Moreover, it may be that other constructs (e.g., resilience, self-esteem) not explored through the measures used in this study are relevant in understanding the relationships explored. As such, it is recommended that measures that tests these additional constructs be used in future studies.

Study Implications

This study has several implications. First, given the elevated prevalence rate of victimization in youth with ASD and its associated negative outcome, there is a clear need for prevention and intervention efforts within and outside of the school setting (e.g., training school staff, clarifying bullying policies, facilitating the process of reporting acts of victimizations). It is essential that youth, their parents, peers and school staff are included in these efforts to effectively reduce victimization and are using empirically based invention programs to monitor and combat these occurrences. Second, parental mental health is essential to the child's well-being and as such, should be addressed accordingly (e.g., receiving social support). For example, in addition to teaching youth with high-functioning ASD to cope with acts of victimization and associated internalizing symptoms, clinicians may also find it beneficial for the parents to learn coping strategies on raising a child with developmental difficulties (e.g., seeking social support, using active problem-focused strategies, gaining a sense of empowerment and acceptance) (Dardas & Ahmad, 2015; Weiss, Cappadocia, MacMullin, Viecili, & Lunsky, 2012) and suggest

support groups that specifically aim to create an understanding and accepting atmosphere for parents of youth with ASD. Lastly, this study highlights the need for clinicians to consider the quality of social interactions of youth with high-functioning ASD, in particular, acts of peer victimization and its relationship to presenting internalizing (e.g., anxiety) and externalizing (social avoidance) symptomology. This can be accomplished by direct questioning of parents, their children, and teachers, which may result in a more complete and accurate case conceptualization of youth with high-functioning ASD and individualized treatment plans that effectively identify and target the antecedents and consequences of the behaviors.

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Tables

Table 1: Demographic Characteristics

Variable	n (%)	*M* (SD)	Range
Age of child (years)	81 (100)	11.91 (2.32)	9 to 17
Child's Gender			
Male	62 (76.5)		
Female	19 (23.5)		
Child's Ethnicity			
Caucasian	63 (77.8)		
Black	3 (3.7)		
Asian	4 (4.9)		
Hispanic/Latino	3 (3.7)		
Other	8 (9.9)		
Child's Schooling			
Public	43 (53.1)		
Private	17 (21.0)		
Charter	6 (7.4)		
Homeschooled	6 (7.4)		
Virtual	3 (3.7)		
Other (e.g., homeschooled and virtual school)	6 (7.4)		
Child's IQ	81 (100)	104.10 (14.24)	74 to 143
Parent Reporter			
Biological mother	64 (79.0)		
Adoptive mother	8 (9.9)		
Biological father	9 (11.1)		

Note: IQ= Intelligence Quotient

Table 2: Sample Clinical Characteristics

Measure	n	M(SD)	Range
CARS2-HF	81	39.92 (5.62)	30 to 52
RCADS-C	79	36.33 (24.67)	0 to 100
RCADS-P	81	40.48 (17.86)	6 to 99
ALS	80	38.83 (13.84)	16 to 72
ASSP	81	108.58 (18.20)	59 to 161
SSSC/A	79	75.25 (12.65)	37 to 96
APSI	81	17.82 (7.94)	3 to 41
SASC-R	78	14.41 (12.18)	0 to 41

Note: CARS2-HF= Child Autism Rating Scale, 2nd Edition High Functioning Form; RCADS-C= Revised Child Anxiety and Depression Scale-Child Report; RCADS-P= Revised Child Anxiety and Depression Scale-Parent Report; ALS= Asher Loneliness Scale; ASSP= Autism Social Skill Profile; SSSC/A= Social Support Scale for Children and Adolescents; APSI= Autism Parenting Stress Index; SASC= Social Anxiety Scale for Children-Revised

Table 3: Correlations Between Parent and Child Reported Peer Victimization and Anxiety/Depressive Symptoms, Loneliness, and Social Skills (n= 78)

Measures	PEQ-R	PPEQ-R	RCADS-C	RCADS-P	ALS	ASSP
PEQ-R	-	.37**	.61***	.20	.61***	-.30**
PPEQ-R		-	.15	.22*	.46***	-.38**
RCADS-C			-	.31**	.55***	-.07
RCADS-P				-	.21	-.48***
ALS					-	-.36**
ASSP						-

Note: PEQ-R= Child reported Peer Experiences Questionnaire-Revised; PPEQ-R= Parent reported Peer Experiences Questionnaire-Revised; RCADS-C= Revised Child Anxiety and Depression Scale-Child Report; RCADS-P= Revised Child Anxiety and Depression Scale-Parent Report; ALS= Asher Loneliness Scale; ASSP= Autism Social Skill Profile

*$p < .05$, ** $p < .01$, *** $p < .001$

Table 4: Social Support as a Moderator of Parent Reported Peer Victimization and Anxiety/Depressive and Loneliness Symptoms (n= 79)

	Anxiety/Depressive Symptoms			Loneliness Symptoms		
Variable	*B*	*SE(b)*	*P*	*b*	*SE(b)*	*p*
Support	-.30	.16	.07	-.55	.10	.000
PPV	.26	.18	.15	.41	.11	.000
Support x PPV	.01	.01	.34	.01	.01	.48

Note: PPV= Parent Reported Peer Victimization

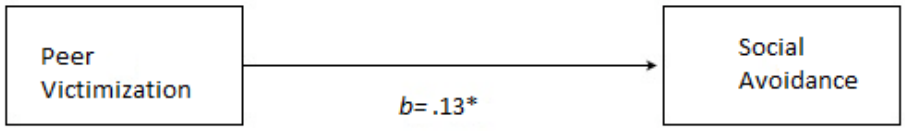
Table 5: Social Support as a Moderator of Child Reported Peer Victimization and Anxiety/Depressive and Loneliness Symptoms (n= 78)

	Anxiety/Depressive Symptoms			Loneliness Symptoms		
Variable	*b*	*SE(b)*	*p*	*b*	*SE(b)*	*p*
Support	-.54	.17	.003	-.50	.09	.000
CPV	1.25	.22	.000	.68	.11	.000
Support x CPV	-.01	.01	.55	.001	.01	.88

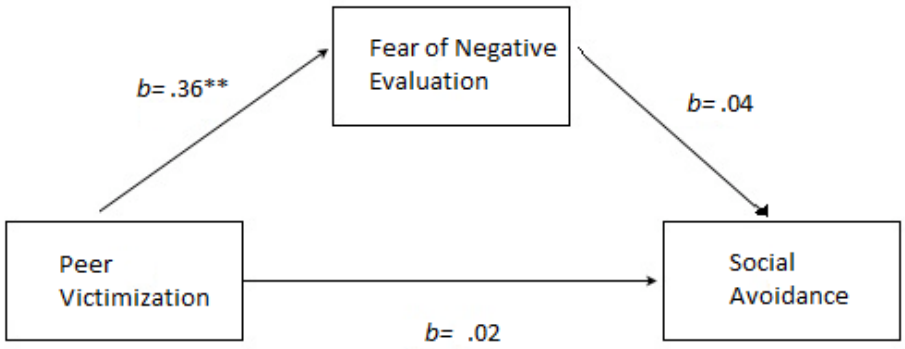
Note: CPV= Child Reported Peer Victimization

Figures

Figure 1: Fear of Negative Evaluation as a Mediator of Child Reported Peer Victimization and Social Avoidance



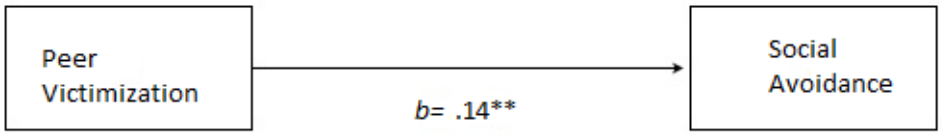
a) direct path



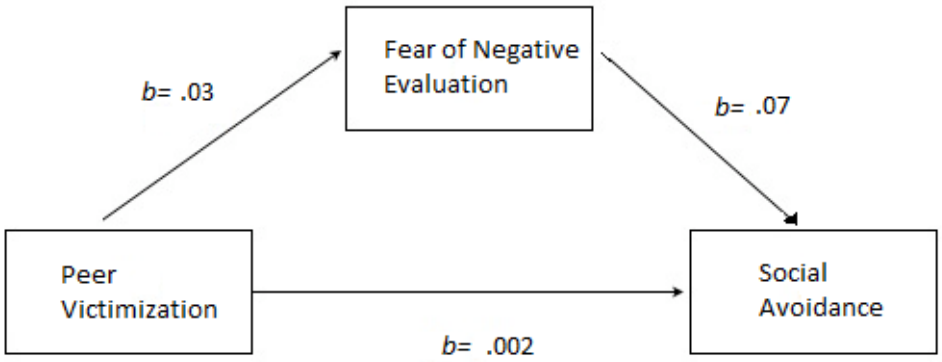
b) mediated path

Note: *$p < .05$, **$p < .01$

Figure 2: Fear of Negative Evaluation as a Mediator of Parent Reported Peer Victimization and Social Avoidance



a) direct path



b) mediated path

Note: **p=.01