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Authors

Tipton-Fisler, Leigh Ann
Rodriguez, Geovanna
Zeedyk, Sasha M
et al.

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Stability of bullying and internalizing problems among adolescents with ASD, ID, or typical development

Leigh Ann Tipton-Fisler, PhD¹, Geovanna Rodriguez, PhD², Sasha M. Zeedyk, PhD³, Jan Blacher, PhD⁴

¹Charter College of Education, California State University, Los Angeles, 5151 State University Dr., Los Angeles, CA 90032

²Waisman Center, University of Wisconsin-Madison, 1500 Highland Ave., Madison, WI 53705

³Department of Child and Adolescent Studies, California State University, Fullerton, 800 N. State College Blvd., Fullerton, CA 92831

⁴Graduate School of Education, University of California, Riverside, 900 University Dr., Riverside, CA 92521

Abstract

Background—It is known that children with disabilities, especially adolescents with autism spectrum disorder (ASD), are at increased risk for victimization. However, little is known about the impact of victimization over time.

Aims—Primary aims included identifying to what extent risk factors (i.e., internalizing behavior problems and conflict in friendship) related to bullying victimization over time.

Methods and Procedures—In-depth interviews conducted separately with 15-year-olds with autism spectrum disorder (ASD), intellectual disability (ID), or typical development (TD) and their mothers investigated the experiences of victimization in a two-year follow up to an earlier study at adolescent age 13.

Outcomes and Results—Findings at age 15 demonstrated that the highest rates of bullying continued to be endorsed by youth with ASD. However, youth with ID were found to experience and report the most severe bullying. Longitudinal examination revealed that internalizing behaviors at age 13 predicted victimization experiences at age 15.

Conclusions and Implications—During middle adolescence, youth with ASD continue to experience more frequent victimization. Thus, shifting the focus of interventions that not only target the salient social deficits of ASD, but also address comorbid conditions such as internalizing symptoms, may further contribute to reduction of social isolation and peer difficulties.

1.1 Introduction

Consistent reports of bullying have been reported across adolescents in the U.S., with 28–30% of all students reporting problems (National Center for Educational Statistics, 2011). It is known that children with disabilities, especially youth with autism spectrum disorder (ASD), are at increased risk for victimization (Cappadocia, Weiss, & Pepler, 2012; Rowley, Chandler, Baird, Simonoff, Pickles, Loucas, & Charman, 2012). For these youth, the rates of bullying are especially high during adolescence, where they may experience increased verbal and relational bullying (Zeedyk, Rodriguez, Tipton, Baker, & Blacher, 2014). However, little is known about the impact of victimization over time when comparing adolescents with and without developmental disabilities.

In a meta-analysis, Maiano and colleagues (2015) examined the prevalence rates of school-based bullying and victimization of individuals with ASD between the ages of 5 and 22 years. Results showed that bullying was most commonly encountered by students with ASD at school, with verbal bullying being the most prominent type endorsed by youth. Some have found that individuals with autism who had no intellectual disability, but significant social and communication impairments, actually experienced the highest rates of victimization (Rowley et al., 2012). However, studies have also shown that youth with either autism spectrum disorder (ASD) or intellectual disability (ID) are victimized more frequently than their typically developing (TD) peers (Blake, Lund, Zhou, Kwok, & Benz, 2012; Christensen, Fryant, Neece, & Baker, 2012; Zeedyk et al., 2014). Significantly higher rates of physical bullying and greater emotional impact were reported in interviews with 13-year-old youth with ASD when compared to youth with TD (Zeedyk et al., 2014). For example, in early adolescence (age 13), youth with ASD were victimized more frequently than were their ID or TD peers. Further, rates of internalizing problem behaviors were found to be more salient in adolescents with ASD, whether self-reported or reported by their parents. In addition, internalizing behavior problems and conflict with friends were found to be significantly related to rates of victimization. The present study is a follow-up of (Zeedyk et al., 2014), here with a focus on changes in rates of victimization across groups of adolescents with ASD, ID, or TD, as they transitioned into high school.

Internalizing behavior problems and friendship quality may contribute to bullying risk in adolescence. For example, studies have identified internalizing behavior problems as a significant risk factor for youth with ASD, with positive associations found between internalizing symptoms and bullying victimization (Adams, Fredstrom, Duncan, Holleb, & Bishop, 2014; Cappadocia et al., 2012). In one study of youth with ASD, researchers examined the relation between psychological functioning and bullying and found that youth who were frequently victimized were those who were more likely to exhibit higher overall internalizing symptoms (Zablotsky, Bradshaw, Anderson, & Law, 2012). The frequency of bullying behaviors was significantly related to level of impairment, with the presence of internalizing symptoms placing youth at greater risk for falling into a victim profile, rather than one of perpetrator or bully-victim (Zablotsky et al., 2012). Given that social deficits become more apparent as children age and enter adolescence, it is not surprising that behavior difficulties also become more challenging as children struggle to navigate their social groups.

Adolescents with ASD have been found to exhibit co-occurring internalizing symptoms such as social anxiety, depressed mood, and social withdrawal, with a large number meeting the diagnostic criteria for anxiety or depression (Gadow, DeVincent & Schneider, 2008). Early adolescence also presents a period in development marked by lower quality friendships for youth with ID (Tipton, Christensen, & Blacher, 2013) or ASD (Mazurek & Kanne, 2010). Interestingly, social skills and behavior problems in early adolescents have been shown to predict higher rates of friendship quality (warmth and closeness) and lower rates of internalizing behavior above and beyond disability status (Tipton et al., 2013). Thus, among the biggest concerns for youth with developmental disabilities during this transition into later adolescence are social isolation, lack of acceptance, and loneliness (LaFontana & Cillessen, 2010). Though high school students with ASD often minimized their own reports of the severity of their bullying incidents, they also withdrew socially from peer relationships, contributing further to their social isolation (Fisher & Taylor, 2016). As social demands increase in adolescence, strong social skills and quality peer relationships may be important protective factors upon high school entry, as demonstrated in the literature on TD youth (Bowker, Rubin, Burgess, Booth-LaForce, & Rose-Krasnor, 2006; Schohl, Van Hecke, Meyer Carson, Dolan, Karst, & Stevens, 2013).

1.2 Present Study

While previous research used cross-sectional data to highlight a number of bullying-related challenges for youth with ASD or ID, the present study focused on how these youth experience victimization as they transitioned from early into later adolescence. Of particular interest was the relationship between bullying victimization and internalizing behavior problems across two time points – youth ages 13 and 15 years.

The primary research questions in this follow-up study include: (1) Descriptively, what do adolescents and their parents report about youth victimization and quality of friendships at youth age 15; (2) Are these reports consistent from middle school (age 13) into high school (age 15); and (3) To what extent are risk factors (i.e., internalizing behavior problems and conflict in friendships) related to bullying victimization over time?

2.1 Material and Methods

Participant youth with intellectual disabilities (ID) and those who were typically developing (TD) were part of a larger longitudinal study, ongoing since they were three years old. The study, in collaboration with three major universities across the west and east coast of the United States, focused on emerging psychopathology and family processes in youth with or without ID. At age 13, an additional sample of youth with autism spectrum disorder (ASD) were recruited. The sample at age 13 ($N = 175$) included youth with ASD (without ID; $n = 44$), with ID ($n = 39$), or TD ($n = 92$). The TD group size is larger because there were fewer drop-outs in that group. In addition, 19 children who were delayed at age 3 tested as typically developing at age 5 and were included in the TD sample. For these 19 youth, no significant adaptive skills deficits or cognitive concerns were noted after the initial developmental concerns from age 3.

All youth with ASD had been diagnosed professionally using multiple indicators of ASD and had a long history of receiving services for children with ASD. Furthermore, all participants' parents completed the VABS and students with ASD did not meet ID criteria based on the VABS+IQ scores. ~~Participants in the ASD sample did not have a concurrent diagnosis of ID.~~ Individuals in the ID group were classified according to the criteria set forth by the Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition Revised (American Psychiatric Association, 2000). That is, participants were included in the ID sample if they had an IQ score in the clinical or borderline range for ID, below 85 on the WISC-IV (Wechsler, 2003) and a standard score below 85 on the Vineland Scales of Adaptive Behavior-2nd Edition (VABS-2; Sparrow, Chicchetti, & Balla, 2005). In the ID group, participants included both the clinical and borderline ranges of IQ, based on prior research demonstrating similarities in the difficulties faced by those with borderline intellectual functioning and those with ID (DSM-IV-TR, APA, 2000; Fenning, Baker, Baker, & Crnic, 2007). Thus, the ID group combined those with IQ's below 70 ($N=23$) and those with IQ's ranging from 71–84 (i.e., borderline, $N=11$) (DSM-IV, APA, 2000). No individuals with ASD were included in the ID group. Lastly, participants were included in the TD group if they had an IQ of 85 or above on the WISC-IV, and no clinical or educational ~~previous diagnosis history~~ of a developmental delay or disability.

Participants in the present study, at age 15 ($N=156$), included adolescents with ASD ($n=40$), ID ($n=34$), or TD ($n=82$). Only participants who completed interviews and all assessment measures at both age 13 and 15 were included in follow-up longitudinal analyses with data available across both time points. Thus, 19 participants were not included in the present analyses, who were included at age 13, due to incomplete data. No significant differences were found between the 19 families with missing data and the larger group on demographic (e.g., socioeconomic status) or outcome (e.g., bullying) variables. Table A.1 shows participant demographics by status group for age 15.

2.2 Procedure

The Institutional Review Boards of the participating universities approved the study procedures; informed consent was obtained from all parent participants and their adolescents gave assent. The adolescent participants were re-assessed at age 15 at a center-based session. Semi-structured interviews of both adolescents and their parents (conducted separately) focused on bullying incidents or victimization, friendship quality, and school experiences. Questionnaires were also administered to the youth, their parents and their teachers.

2.3 Measures

2.3.1 Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001).—The CBCL (ages 6–18) was administered to parents (mostly mothers) to assess the adolescents' behavioral and emotional functioning, social problems, and competencies at ages 13 and 15. The CBCL yields a total problem score, broadband externalizing and internalizing scores, and seven narrow-band scales. The present study used total broadband T scores for internalizing behavior problems subscale; Cronbach's alpha = .91. For some analyses a borderline cut-off (T-score > 60) and clinical cut-off (T-score > 63) were used.

2.3.2 Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV, Wechsler, 2003).—Adolescents' cognitive ability was measured with the WISC-IV at age 13. A calculated Full-Scale IQ (FSIQ) score was computed from a short form of the WISC-IV, which included three subtests: matrix reasoning, vocabulary, and arithmetic. The selection of these three subtests was based on their high correlation ($r = .91$) with the Full-Scale IQ from the WISC-IV (Sattler & Dumont, 2004).

2.3.3 Mother and Adolescent Semi-Structured Interviews (Self-Report).—

Interviews of approximately 45–60 minutes were audio recorded and conducted separately with mothers and adolescents at ages 13 and 15. Due to inherent difficulties associated with self-report on domains of friendship and bullying for youth with ID and ASD, both parent and adolescent reports were used to examine similar topics through parallel interview protocols. This afforded a method for measuring consistency between reporters, and for quantifying the severity and chronicity of reported bullying incidents (Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010; van Roekel, Scholte, & Didden, 2010). The semi-structured clinical interviews (approximately 34 questions on friendship and 35 on bullying) addressed topics regarding significant life events such as school, friendship and dating, including relationships and experiences with victimization or bullying. Interview questions were outlined in a scripted protocol, which required interviewers to be trained for consistency to ensure all questions were asked verbatim, including the appropriate number of detailed prompts for follow up. Respondents were prompted in a more general fashion for each topic (e.g., “Tell me about a time someone picked on you at school”) and then prompted to discuss in more detail if the event occurred within the past two years, that is, since the time of the previous research team visit.

For any participant with ID or ASD who struggled with answering questions, the following accommodations were provided: 1) Participants were provided with a visual cue for any questions that asked about rating on a Likert scale (e.g., to what extent do you agree). 2) For questions asking about comparisons (i.e., between peers or best friends), adolescents were asked about each one at a time rather than to compare globally. 3) Additional questions that required personal insight or judgment about a situation (i.e., Why do you think [bully] did these things to you?) were followed-up with prompting for more details such as “Why?” or “How do you know?” 4) Interviewers would also prompt for examples if the youth struggled to describe the bullying. 5) In cases where youth responses were difficult to understand or unclear, interviewers provided use of summary statements to ensure that they were capturing the youth's response accurately. The youth then gave a ‘yes’ or ‘no’ response to indicate if their responses were clearly represented.

Detailed coding systems were developed for mother and adolescent interviews in order to quantify each set of questions; these were based on a random sample of 20% of the total interviews completed. Open-ended questions such as, “How did you respond [to the incident]” were coded and broken down into response categories. Thus, themes were identified based on responses such as “talk to the other youth myself or “go to the teachers/principal.” Coding teams met weekly and reliability checks were conducted on 20% of the interviews. Reliability criteria required all coders to meet over 70% exact agreement with the master coder and 95% agreement within one scale point. If coders did not meet the

70%/95% requirement with the master coder, both were required to re-code interviews until establishing reliability. Master coders were two doctorate level clinical psychology students trained in the administration of semi-structured clinical interviews. Master coders met weekly to ensure fidelity across interviewers and coders, including the provision of ongoing feedback and training to interviewers and their respective coding teams.

In the interview, adolescents and parents were asked to describe if the youth experienced any bullying and to describe the event(s) in greater detail. If the adolescent did not know, or did not remember what bullying was, a brief description of bullying was provided to clarify as “a situation where somebody tries to hurt you, tease you, or pick on you.” This was intentionally brief so as not to provide any leading descriptions. In the coding protocol, bullying was defined as follows: “Bullying is the process of intimidating or mistreating someone weaker or in a more vulnerable situation.” Adolescent and parent interview responses were further probed to assess the type of bullying experienced by the target adolescent: verbal, physical, relational, or other (e.g., cyberbullying). In these interviews, verbal bullying was defined as an incident where there was name-calling, teasing, or in the most severe cases, verbal threats directed at the adolescent that included statements about causing physical harm. With regard to physical bullying, incidents ranged from situations where the adolescent experienced no physical or bodily harm, to incidents of physical violence that resulted in physical bruising or need for medical attention. Relational bullying, was defined as, “An incident where gossiping or rumors were spread about the adolescent, or situations that resulted in public or direct exclusion from peer activities.” Each of these bullying categories was coded dichotomously to indicate whether bullying had been present (1) or absent (0).

In addition to discussing details related to victimization experiences, mothers and adolescents were also asked follow-up questions to assess the extent to which the experience had an emotional, behavioral, or social impact on the adolescent. For the present study, the dependent variables were defined and quantitatively coded similarly across both time-points. An emotional reaction was defined as, “Elicited feelings of anger or sadness,” whereas a behavioral reaction, “May have elicited a need to retaliate against the bully or tell an authority figure.” Finally, social impact was defined as, “A response to bullying that resulted in a change in the adolescent’s peer group or change in the family dynamic (i.e., change in his or her interpersonal relationships with peers/family).” Responses varied and were further probed for the level of intensity experienced by the adolescent (i.e., how upset he or she was about the incident and level of school or parental involvement), and the extent to which the experience was perceived as chronic. *Chronicity* of bullying (i.e., how often adolescents were bullied) was coded on a 4-point scale, with (0) indicating no bullying; (1) indicating one incident of bullying; (2) 2–5 separate incidents of bullying; (3) frequent bullying with incidents taking place over a period of less than one month, and finally; (4) chronic, frequent bullying, where the incidents continued, lasting more than one month. A similar scale was used to code for the *severity* (i.e., how intense of a reaction the youth had as well as the level of response required from adults) of bullying incidents, with (0) indicating no bullying; (1) minimal severity; (2) moderate severity; (3) marked severity; and (4) very severe incident(s) of bullying.

2.3.4 Composite bullying variable from interviews.—In addition to comparing groups on the individual bullying variables coded from the interviews, a composite variable was created. The purpose of the composite was to create a construct that represented severe and chronic bullying that had an impact upon the adolescent (emotionally, behaviorally, and/or socially). The composite bullying variable consisted of a 6-point scale, created by combining the following 0/1 scale codes: chronicity (low frequency/high frequency), social impact on youth (no/yes), emotional impact on adolescent (no/yes), behavioral impact on adolescent (no/yes), and 0–2 scale code of severity (low/med/high).

2.3.5. Friendship quality.—We classified friendship quality at age 15 by coding self-reports of warmth/closeness, positive reciprocity, and conflict with friends. Warmth/closeness was defined as, “A desire to spend time with the friend, joint activities, and mutual liking of one another, as well as the ability to provide social support to each other.” This variable was coded on a scale from 0–4, with (0) indicating ‘No warmth/closeness’ to (4) indicating very warm or close. Similarly on a 0–4 scale, positive reciprocity was coded to indicate to what extent the youth reported a friendship with his/her best, or closest friend, and whether it was reciprocal in nature in terms of both social support as well as shared interest in activities. ~~On the other hand,~~ Lastly, conflict referred to, “Tension, arguments, fights, and overt disagreements between friends, which may be evidenced by friends trying to provoke one another, making each other upset, tense tone of voice, negative comments, and/or by friends gossiping about each other behind each other’s back.” This variable was coded on a 0–4 scale, with (0) indicating ‘no conflict’ in the friendship to (4) indicating ‘predominantly conflictual’ relationship with friend (i.e., high intensity, high frequency conflicts).

2.4 Analyses

The following analyses were conducted to address the first two research questions, examining the descriptive nature of adolescent and parent report related to youth victimization and quality of friendships at youth age 15 (Question 1) and the stability of reports from age 13 to 15 (Question 2). To measure differences between groups on dichotomous interview variables (e.g., bullied no/yes), t-tests and chi-square analyses with Cramer’s V follow-up analyses were conducted using SPSS version 22.0. For the continuous variables (e.g., open-ended questions, WISC-IV FSIQ), exact McNemar’s test and one-way ANOVAs with least significant differences (LSD) were used.

Lastly, cross-lagged panel analyses were conducted using MPlus version 7 (Muthen & Muthen, 2015) to determine the longitudinal associations between victimization and risk or protective factors across adolescent ages 13 and 15 (Question 3).

3.1 Results

3.1.1 Extent of victimization

The mean of the adolescent bullying composite for all youth was 1.99 ($SD = 1.29$) at age 13 and 2.16 ($SD = 1.33$) at age 15. The mean of the mother bullying composite for all youth was 2.97 ($SD = 1.43$) at age 13 and 2.64 ($SD = 1.31$) at age 15. Across these two-time points,

neither mean comparison was statistically significant. Additionally, no significant mean differences were found from ages 13 to 15 within the ASD, ID, or TD groups from parent or adolescent report.

3.1.2 Between-group comparisons.—Table B.1 shows adolescent and mother reports of victimization across all three participant groups from ages 13 to 15. Consistent with results at 13, and according to both adolescent and parent report, adolescents with ASD reported the highest percentage of being bullied at age 15, with parents reporting significantly higher rates among those with ASD when compared to TD adolescents ($X^2(39) = 17.7, p < .001$). Of those who reported incidents of bullying, greater incidents of severe or chronic bullying were noted by age 15 compared to age 13. By age 15, severity of bullying increased among adolescents with ID and ASD. Severity differed significantly between groups, such that adolescents with ID (80.0%) reported significantly more severe bullying than those with ASD (58.8%, $d = .39$), and both ID and ASD groups reported significantly more severe bullying than TD (27.6%,) adolescents ($X^2(81) = 9.7, p < .01, d = 1.4$ and $d = .87$ respectively). Similar rates of severity were reported by mothers of youth with ID (92.6%), followed by ASD (77.3%) and TD (50%), and both ID and ASD groups had significantly higher rates when compared to the TD group $p < .05, d = .94$ and $d = .72$ respectively.

3.1.3 Across-time comparisons.—Paired samples t-tests were conducted on both parent and adolescent reports of target variables of victimization (e.g., chronicity, severity, impact) to analyze differences among these variables from age 13 to 15. By age 15, adolescents with ASD reported a reduction in overall bullying victimization, from 75% to 46.2%, $p < .01, d = .54$. Parents reported a decrease from 80% down to 61.1%, $p < .01, d = .53$. There were no significant changes in overall reports of bullying from ages 13 to 15 by youth or parents in the ID and TD subgroups. Of those who were bullied, youth with ID reported the severity of bullying increased from 43.8% at age 13 to 80% by age 15. No significant differences in severity of bullying were reported across the other two subgroups or by parent report. Further, across all three groups there were also no significant changes reported in chronicity of bullying reported.

3.2 Reports of friendship

3.2.1 Between-group comparisons.—Table B.2 shows differences between groups in the quality of friendship as reported by adolescent and parent participants at ages 13 and 15. By age 15, significant differences were reported in levels of warmth/closeness, with both TD adolescents ($X^2(81) = 16.8(81), p < .001, d = .60$) and their parents ($X^2(81) = 11.6, p < .01, d = 1.96$) reporting the highest levels of warm/close friendships. TD adolescents ($X^2(81) = 21.1, p < .001$) and their parents ($X^2(81) = 8.0, p < .05$) also reported significantly higher levels of reciprocity in friendships when compared to both adolescents with ID ($d = .77$) and ASD ($d = .34$) at age 15. No significant differences were reported by adolescents or parents at age 15 between any adolescent group regarding reports of having a best friend or for the amount of conflict within friendships.

3.2.2 Across-time comparisons.—Paired samples t-tests were used to analyze differences in reports of friendship between ages 13 and 15. According to both adolescent and parent report, significant differences were found for all groups in levels of warmth/closeness, with all groups showing a decline from ages 13 to 15 ($p < .001$). The data from age 15 demonstrate a parallel picture to parent reports at age 13 (Zeedyk et al., 2014). Parents of adolescents with ID reported the lowest frequency of best friends (55.9% at 15), but among the adolescents, the lowest frequency of best friends was reported by those with ASD (60.0% at 15). Across TD, ID, and ASD adolescents, results demonstrated a significant increase in the amount of conflict with friends according to adolescent report from ages 13 to 15 (all $p < .01$). No significant differences were reported from parents for changes in conflict.

3.3 Internalizing Behavior Problems

3.3.1 Between-group comparisons.—Internalizing behavior problems were reported by parent report on the CBCL and examined across each group. Table C.1 shows the parent report of adolescent internalizing behavior problems across time from ages 13 to 15. At both 13 and 15, adolescents with ASD had the highest reported levels of internalizing behavior problems with rates in the *borderline or at-risk* range (i.e., $T > 60$), and the differences were statistically significant when compared to ID and TD groups (all $p < .001$). At age 15, there were also statistically significant differences between the ID and TD groups, with the TD group demonstrating significantly lower rates of internalizing behavior problems ($p < .001$).

3.3.2 Across-time comparisons.—Paired sample t-tests were used to analyze differences in reports of internalizing behavior problems between ages 13 and 15 by parent report on the CBCL. No significant differences were reported across time by parent report of internalizing behaviors across the three sample groups.

3.4 Changes in Relationships from Ages 13 to 15

At age 13, (Zeedyk et al., 2014) found that internalizing behaviors and conflict within friendships significantly related to victimization (as measured by the bullying composite). That is, adolescents with significant internalizing behavior problems and more conflict in their friendships had a greater likelihood of experiencing victimization. Thus, a cross-lag panel analysis was used in the present study to examine these relationships longitudinally from ages 13 to 15. All participants who completed the interview at both ages 13 and 15 were included in the cross-lagged analysis. Further, all adolescents or parents (combined groups) were included in the composite analyses over time.

3.4.1 Bullying Composite and Internalizing Behavior Problems.—To examine the relationship between the bullying composite and adolescent internalizing behavior problems across ages 13 and 15, we ran two cross-lag panels (one utilizing the adolescent-report bullying composite, and one utilizing the parent-report bullying composite). Stability between parent-reported internalizing symptoms from ages 13 and 15 was found ($\beta = .65$, $p < .001$), but stability was not found across time for either adolescent- or parent-reported bullying (both $p > .05$). When the cross-effects were examined, according to parent-report, a significant relationship was identified between internalizing behaviors at age 13 and the

bullying composite at age 15; higher levels of internalizing symptoms at age 13 related to a higher bullying composite score at age 15 ($\beta = .40, p < .001$; see Figure A.1). No cross-effects were present in the adolescent-reported model.

3.4.2 Bullying Composite and Conflict in Friendships.—Separate cross-lag panels were also run to examine the relationships between the adolescent- and parent-reported bullying composite and conflict in friendships across time. However, no stability effects or cross-effects were found to be present. The cross-lag results are summarized in Table D.1. No other significant cross-effects were present or related to rates of victimization when examining friendship quality such as warmth/closeness or positive reciprocity.

4.1 Discussion

Adolescent experiences of victimization were assessed via in-depth semi-structured interviews with mothers and their 15-year-old youth meeting criteria for autism spectrum disorder (ASD), intellectual disability (ID) or typical development (TD). The findings in this follow-up study are consistent with the bullying rates previously reported by mothers and adolescents at youth age 13 (Zeedyk et al., 2014). In the present sample, adolescents with ASD continued to be the most frequent victims of bullying compared to adolescents with ID or TD, consistent with cross-sectional studies on bullying in school-aged youth with and without ASD (Kloosterman, Kelley, Craig, Parker, & Javier, 2013; Sreckovic, Brunsting, & Able, 2014; Sterzing, Shattuck, Narendorf, Wagner, & Cooper, 2012). Longitudinal findings across two time-points reported in this study also reflect findings from studies reporting higher rates of bullying among adolescents with ASD, especially during the adolescent years (Blake et al., 2012; Rowley et al., 2012; Sreckovic et al., 2014). Many studies report rates of bullying that peak during late elementary and the middle school years, and possibly begin to decrease with age (Cappadocia et al., 2012; Storch, Larson, Ehrenreich-May, Arnold, Jones, et al., 2012). This is consistent with our findings, which showed that the frequency of bullying instances decreased across our two-time points from early adolescence (age 13) to middle (age 15) or late adolescence. While rates of bullying within and between groups showed a positive decline by age 15, it is concerning to note that of those who experienced bullying, the severity and chronicity of incidents were highest among youth with ASD or ID. While it is a positive trend to see the overall rates of bullying decline by age 15, it is worrying for those who continue to report bullying incidents and the significantly high rates of both chronic and severe incidents. More importantly, this differential impact of bullying was reflected in both parent and adolescent interviews, confirming the added value of including interview methods as a means of collecting multi-informant accounts of bullying, despite potential misinterpretations or inaccurate reporting by adolescents (Rotheram-Fuller et al., 2010; van Roekel et al., 2010).

In contrast to the positive suggestion of decreasing bullying over time, adolescent and parent reports of friendship conflict increased between ages 13 and 15. This occurred across all status groups, with significantly lower levels of friendship quality reported in both ASD and ID groups. Specifically, by age 15, adolescents with both ID and ASD reported lower levels of warm and close friendships, although it is possible that respondents lacked an understanding of what makes a close friendship, that they had truly lower quality

friendships. The lack of certain cognitive skills and social awareness can pose significant obstacles for adolescents in their handling of social teasing and bullying, suggesting the need for better conflict management skills (Larkin, Jahoda, MacMahon, & Pert, 2012).

Results also revealed possible differences in awareness of friendships and conflict among adolescents with and without ID, whereby adolescents with ID self-reported higher rates of having a best friend across time, but their parents reported lower rates across time. These findings contrast with those of the TD adolescents, who reported consistent friendship quality from age 13 to 15, as well as reduced levels of bullying. It is likely that TD adolescents had developed more social maturity as they transitioned from early to mid-adolescence, and possibly more easily acquired conflict resolution skills at school as shown in previous research with TD youth exhibiting the lowest rates of bullying (Christensen et al., 2012). Further, by middle adolescence, many TD youth have begun to form succinct networks of friends, closer and more stable in quality as they transition from familial supports to peer support networks (Way & Greene, 2006). It is also likely that the ability to resolve conflicts with friends may be inherently more difficult for adolescents with ID or ASD, as compared to their TD peers. Thus, finding a close ‘quality’ friendship and relatedly, coping strategies to navigate victimization experiences, are essential skills during adolescence, ones that this research suggests may be a challenge for youth with ID and ASD (Matheson, Olsen, & Weisner, 2007).

Results of the cross-lag analysis indicated that, according to parent report, higher levels of internalizing behavior problems at age 13 related to higher scores of bullying victimization at age 15. Indeed, parents and adolescents both endorsed instances of victimization, occurring more frequently in the ASD group (Rowley et al. 2012). High levels of agreement between parent and adolescent informants with ASD have been found in other studies, suggesting that parents are quite attentive to whether or not their child has been bullied and the impact it has on their psychological functioning (Christensen et al., 2012; Kloosterman et al., 2013). This signifies the importance of utilizing multiple reporters and adaptations to a structured interview process in the investigation of peer relationships, particularly in the identification of internalizing disorders, which may prove to be a risk factor for youth with ASD in mid-adolescence (Finlay & Lyons, 2001). Although adolescents may minimize or misinterpret their victimization experiences (vanRoekel et al., 2010), the moderate relationship reported by parents over time indicates that internalizing problems in early adolescence may be a true risk factor for victimization later. Thus, for youth with higher rates of internalizing problems and combined exposure to victimization, it is important to develop intervention targets, such as general social skills and strategies for making friends (Laugeson, Frankel, Gantman, Dillon, & Mogil, 2012).

4.2. Limitations

As in most studies involving self-reports, there is no way to be absolutely sure that all possible bullying incidents within the past two years were reported. However, the incidents reported were cross-checked between reporters, and details of the incidents as described by both parents and youth were considered equally important. Further, recommendations and methodological issues identified by Finley and Lyons (2001) were considered, as some of

the adolescents interviewed had limited cognitive or social awareness. It is important to note that the interviews were designed to obtain qualitative answers to questions that would later be coded and analyzed quantitatively. Thus, while this qualitative approach did not lend itself to full saturation (Saunders, Sim, Kingstone, Baker, Waterfield et al., 2017), the mixed methods approach offered the advantage of longitudinal analysis.

Although two-time points are not enough to imply causation, the modeling approach employed in this study allowed for the control of prior levels of bullying and victimization and a closer examination of time-order effects and associations (Cole & Maxwell, 2003). Future research will require larger sample sizes and multi-group analyses in order to examine how bullying trajectories might differ by disability type and level of functioning in adolescents, which will help determine which group of adolescents is most at risk.

5.1 Conclusions

Our findings are a first step in understanding the nature of the relationship between internalizing problems and victimization over time and are an extension of previous work using cross-sectional designs. Testing this relationship over additional time points is warranted. If findings continue to show that internalizing problems significantly relate to later bullying victimization (but not vice versa), intervention targets will be made clearer for practitioners. Thus, shifting the focus of intervention from not only targeting salient social deficits in ASD but also addressing comorbid conditions, such as internalizing symptoms, may help ameliorate social isolation and peer difficulties. Further, research studies that include more than two time points are necessary to truly understand the longitudinal impact of bullying for youth with ASD, as well as the factors that drive the direction of effects over time (Singer & Willet, 2011). More frequent assessments would also help identify how the development of friendship skills evolve longitudinally into later relationships, and what factors disrupt the building of close, meaningful relationships. Considering the placement of many youth with ID or ASD in general education settings, it is especially important to understand the complexity of social dynamics in high school in relation to the development – or prevention – of internalizing problems and bullying prevention programs.

Perhaps the most noteworthy finding is that youth with developmental disabilities such as ASD or ID, continue to experience more frequent victimization, as well as lower levels of friendship quality (warmth/closeness and positive reciprocity), when compared to their TD peers (Matheson et al., 2007). As students' transition from early- to mid-adolescence, continued social support and conflict resolution skills will be important to develop and sustain lasting peer relationships. Researchers and school professionals may need to modify already existing evidence-based interventions to better fit the individual needs of students and internalizing symptoms that come into play for these adolescents (Laugeson et al., 2012; Sreckovic et al., 2014). Prevention strategies aimed at building social-emotional competencies, and social networks may also reduce the impact of bullying for youth with ASD.

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Highlights

- During middle adolescence, youth with ASD continue experience higher rates of victimization than youth with ASD or TD
- Adolescent and parent reports of friendship and conflict between friends increased between ages 13 to 15 for adolescents both with and without ID and ASD.
- Results of the cross-lag analysis indicated that, according to parent report, higher levels of internalizing behavior problems at age 13 related to higher scores of bullying victimization at age 15.

What this paper adds

This paper adds to the current body of research in the field of developmental disabilities as it explores the relationship between risk factors related to transition during adolescence for youth with and without intellectual disability (ID) and autism (ASD). While, it is known that youth with ASD and ID are at an increased risk for being bullied, little is known about the impact of victimization over time when comparing adolescents with and without developmental disabilities. This manuscript includes critical information gained from adolescent self-report in conjunction with parent report, as self-report is so often excluded in research with youth with developmental disabilities. Further, this manuscript examines the longitudinal changes in both risk and protective factors that are salient during adolescence (e.g., friendship and internalizing behavior problems), as they relate to bullying or victimization using a cross-lag panel analysis. Perhaps the most noteworthy finding is that youth with developmental disabilities, such as ASD or ID, continue to experience more frequent victimization, as well as lower levels of friendship quality (warmth/closeness and positive reciprocity), when compared to their typically developing (TD) peers during the transition from early to middle adolescence.

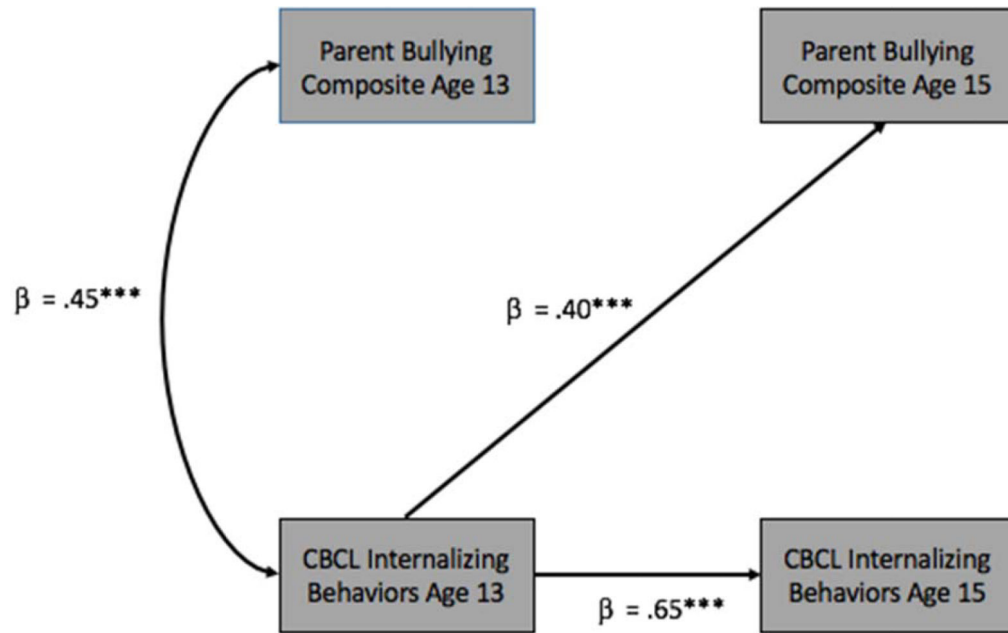


Figure A.1.
Cross-Lag Model for Parent-Reported Bullying with Internalizing Behavior Problems
Note. *** $p < .001$

Table A.1

Demographics by Disability Status

Variable	ASD M(SD)	ID M(SD)	TD M(SD)	χ^2 or F
Adolescents	n=40	n=34	n=82	
WISC-IV IQ FSIQ	100.2 (18.6) _a	62.4 (12.2) _b	109.3 (11.9) _a	F= 135.6 ***
Vineland Composite	76.2 (9.8) _a	73.4 (11.3) _a	97.6 (8.7) _b	F= 108.6 ***
Gender (% Male)	87.5 _a	58.8 _b	47.6 _b	$\chi^2 = 16.7$ ***
Race (% Caucasian)	55.0	41.2	58.5	$\chi^2 = 2.9$
General Educ Class (%)	37.5 _a	35.3 _a	97.6 _b	$\chi^2 = 67.4$ ***
Internalizing Bx (Parent)	61.3 (10.7) _a	53.5 (9.5) _b	46.7 (9.6) _c	F= 29.9 ***
Mothers	n=40	n=34	n=80	
Income (% >\$50,000)	70.0	58.8	70.7	$\chi^2 = 1.7$
Mother's Education (Years of School)	15.6 (2.3)	14.8 (3.0)	16.0 (2.4)	F= 2.7

Note. ASD= Autism Spectrum Disorder; ID= Intellectual Disability; TD= Typically Developing.

** p<.01

*** p<.001.

Means with differing subscripts within rows are significantly different at the p <.05 based on Fisher's LSD post hoc paired comparisons. Frequencies with differing subscripts within rows are significantly different at the p<.05 level based on Cramer's V.

Table B.1

Extent of Victimization- Youth and Parent Report (Age 13 and 15)

	Youth Report Bullying (13)	ASD (<i>n</i> = 44)	ID (<i>n</i> = 33)	TD (<i>n</i> = 89)	χ^2	Mother Report Bullying (13)	ASD (<i>n</i> = 35)	ID (<i>n</i> = 37)	TD (<i>n</i> = 84)	χ^2
% Bullied	75.0 _a	48.5 _b	41.6 _b	15.3 ^{***}	% Bullied	80.0 _a	56.8 _b	35.7 _c	20.1 ^{***}	
% Mod/High Severity	56.3	43.8	33.3	3.6	% Mod/High Severity	71.4	66.7	70.0	0.1	
% Chronic	65.6	40.0	45.9	3.8	% Chronic	78.6 _a	65.0 _{a,b}	50.0 _b	7.4 [*]	
	Youth Report Bullying (15)	ASD (<i>n</i> = 39)	ID (<i>n</i> = 32)	TD (<i>n</i> = 82)	χ^2	Mother Report Bullying (15)	ASD (<i>n</i> = 36)	ID (<i>n</i> = 33)	TD (<i>n</i> = 79)	χ^2
% Bullied	46.2	34.4	36.5	1.3	% Bullied	61.1 _a	42.4 _a	21.5 _b	17.7 ^{***}	
% Mod/High Severity	58.8 _a	80.0 _b	27.6 _c	9.7 ^{**}	% Mod/High Severity	77.3 _a	92.6 _a	50.0 _b	7.7 [*]	
% Chronic	76.5	60.3	70.6	1.6	% Chronic	81.8	78.6	50.0	5.1	

Note. ASD= Autism Spectrum Disorder; ID= Intellectual Disability; TD= Typically Developing.

* $p < .05$

** $p < .01$

*** $p < .001$.

Frequencies with differing subscripts within rows are significantly different at the $p < .05$ level based on Cramer's V.

Table B. 2

Friendship- Youth and Parent Report (Age 13 and 15)

	Youth Report Friendship (13)		ASD (n = 44)		ID (n = 33)		TD (n = 89)		χ^2	Mother Report Friendship (13)		ASD (n = 35)		ID (n = 37)		TD (n = 84)		χ^2
% Warm	77.3 _a	83.3 _a	78.1 _a	92.3 _b	7.3 [*]	% Warm	81.3 _a	98.8 _b	15.9 ^{****}									
% Reciprocal	83.3 _a	75.0	76.7 _a	95.5 _b	9.6 ^{***}	% Reciprocal	83.9 _a	98.9 _b	9.6 ^{***}									
% Best Friend	75.0	65.5	87.1	80.4	1.7	% Best Friend	74.3 _{ab}	87.4 _b	5.9 [*]									
% Conflict	65.5		40.0	45.9	3.79	% Conflict	78.6 _a	50.0 _b	7.42 [*]									

	Youth Report Friendship (15)		ASD (n = 39)		ID (n = 32)		TD (n = 82)		χ^2	Mother Report Friendship (15)		ASD (n = 36)		ID (n = 33)		TD (n = 79)		χ^2
% Warm	50.0 _a	60.6 _a	52.6 _a	94.4 _b	16.8 ^{****}	% Warm	41.4 _a	77.3 _b	11.6 ^{***}									
% Reciprocal	60.6 _a	60.0	46.4 _a	88.0 _b	21.1 ^{****}	% Reciprocal	51.6 _a	77.5 _b	8.0 [*]									
% Best Friend	60.0	21.1	70.6	80.5	5.9	% Best Friend	65.0	72.0	2.9									
% Conflict	21.1		10.0	13.8	1.79	% Conflict	29.4	16.2	2.87									

Note: ASD= Autism Spectrum Disorder; ID= Intellectual Disability; TD= Typically Developing.

* p<.05

** p<.01

*** p<.001.

Frequencies with differing subscripts within rows are significantly different at the p<.05 level based on Cramer's V.

Table C. 1

Parent CBCL Ratings— Internalizing Behavior Problems

	ASD (<i>n</i> = 35)	ID (<i>n</i> = 37)	TD (<i>n</i> = 84)	χ^2	Internalizing Behavior Problems (15)	ASD (<i>n</i> = 36)	ID (<i>n</i> = 33)	TD (<i>n</i> = 79)	χ^2
% Borderline (T > 60)	62.6 _s	24.0 _b	13.3 _b	37.6 ^{***}	% Borderline (T > 60)	52.5 _a	24.9 _b	7.3 _c	28.8 ^{***}
% Clinically Significant (T > 63)	56.8 _a	18.0 _b	9.6 _c	39.8 ^{***}	% Clinically Significant (T > 63)	40.0 _a	15.6 _b	2.4 _c	26.0 ^{***}

Note. ASD= Autism Spectrum Disorder; ID= Intellectual Disability; TD= Typically Developing.

* *p*<.05

** *p*<.01

*** *p*<.001.

Frequencies with differing subscripts within rows are significantly different at the *p*<.05 level based on McNemar's test.

Table D. 1

Summary of Cross-Lag Results (Youth Age 13 to 15)

Internalizing Behavior Cross-Lag Models			
Path	β (SE)	β (SE)	β (SE)
<i>Stability effects</i>			
Internalizing Bx 13 → Internalizing Bx 15	.65(.06)***		.61(.06)***
Bullying Composite 13 → Bullying Composite 15	-.02(.20)		.16(.21)
<i>Cross-Effects</i>			
Internalizing Bx 13 → Bullying Composite 15	.40(.15)**		.16(.16)
Bullying Composite 13 → Internalizing Bx 15	.03(.10)		.14(.09) [†]
Conflict in Friendships Cross-Lag Models			
Path	β (SE)	β (SE)	β (SE)
<i>Stability effects</i>			
Conflict 13 → Conflict 15	-.15(.12)		.07(.09)
Bullying Composite 13 → Bullying Composite 15	.13(.21)		-.03(.27)
<i>Cross-Effects</i>			
Conflict 13 → Bullying Composite 15	.12(.15)		.31(.18) [†]
Bullying Composite 13 → Conflict 15	.09(.14)		.04(.11)

Note.

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$