



Brief Report: ASD-Related Behavior Problems and Negative Peer Experiences Among Adolescents with ASD in General Education Settings

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Abstract

The goal of the current study was to test associations between various ASD-related behavior problems and negative peer experiences in adolescents with ASD. Data were obtained from the Bullying and School Experiences of Children with ASD Survey completed by parents in the Interactive Autism Network (IAN). The current study focused on data from 279 parents of 7th–11th graders with ASD who spent at least half of the school day in a general education setting. Logistic regression analyses found that frequent meltdowns, poor hygiene, rigid rule-keeping, and self-injury were associated with negative peer experiences. Surprisingly, repetitive behaviors and verbal tics were associated with a lower likelihood of experiencing verbal victimization.

Keywords ASD · Peers · Bullying · Meltdowns · Hygiene · Rigidity

Adolescents with autism spectrum disorder (ASD) are at increased risk for negative peer experiences, such as peer victimization (Bear et al. 2015; Cappadocia et al. 2012), and such experiences are associated with negative psychological outcomes, including depression (Adams et al. 2014). Together these findings highlight the need for interventions to reduce negative peer experiences in adolescents with ASD.

Research among typically developing students suggests that for peer victimization interventions to be successful, they must be designed with understanding about *who* is at risk for being targeted (Evans et al. 2014). Thus, it is

important to go beyond demographic descriptors and identify the individual-level characteristics that put certain students at risk. Unfortunately, little is known about the specific behaviors that place adolescents with ASD at increased risk of negative peer experiences. For some groups, such as obese adolescents, it is a unique physical characteristic that increases risk of being targeted for peer victimization (Adams and Bukowski 2008). Adolescents with ASD rarely appear physically different than their peers, but they may exhibit overt behaviors that could increase the likelihood of being targets. However, given the tremendous phenotypic heterogeneity in adolescents with ASD, it is possible that any number of behaviors (e.g., repetitive behaviors, social awkwardness) increases the likelihood of negative peer experiences. Thus, it is critical to specifically test the associations between a large number of ASD related behaviors and negative peer experiences to know which individuals may be at risk. The goal of the current study was to test the associations between parent-reported behaviors and negative peer experiences in adolescents with ASD to better understand who is at greatest risk for being targeted. This study chose to focus on this developmental period since adolescence is an important period for studying negative experiences in general and it is especially important for those with ASD in the general classroom setting because it marks a time when, compared to childhood, there is expanded autonomy, less

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adult supervision, and more complexity in terms of social interactions. These changes increase the vulnerability of those with ASD to negative peer experiences in the general education classroom.

Method

Participants

Data for this secondary data analysis came from parents recruited from the interactive autism network (IAN), a national registry of families in the United States with at least one child who has received a diagnosis of ASD from a medical professional. A total of 1221 parents of students in grades 1 through 11 were recruited to complete a parent-report, web-based, 63-item Bullying and School Experiences of Children with ASD Survey (BSE; see Zablotsky et al. 2013) that covered many different topics related to school issues and experiences at school, as well as questions about specific ASD-related behavior problems. The current study utilized data from parents of students in grades 7–11 who spent at least half of the school day in a general education setting (as reported by the parent) given that students with ASD in general education settings are at particular risk for negative experiences in the classroom compared to their typically developing classmates (Bitsika and Sharpley 2014). This resulted in a sample of 279 parents of adolescents who were on average 12.8 years ($SD = 3.6$), a majority of whom were male (82.1%, $n = 229$), White (93.5%, $n = 261$) non-Hispanic (94.6%, $n = 264$), and attended public school (90.7%, $n = 253$).

Measures

Each of the items used in this analysis were developed specifically for the BSE (Zablotsky et al. 2013).

Negative Peer Experiences

For the current study, *verbal victimization* was recorded as occurring if the parent responded affirmatively to an item about their child being “called bad names, being teased, picked on or made fun of”. Being *ignored* was measured with one item, being ignored or left out of things on purpose. *Physical victimization* was recorded as occurring if the parent responded affirmatively to an item about their child being “pushed or shoved or being hit, slapped, or kicked.” Another item asked about other children *provoking* their child to react (i.e. “has another child, who knows what bothers or upsets (add child’s name), used that knowledge to purposely trigger a meltdown or aggressive outburst in (add child’s name)?”). All responses were coded as yes (1) or no (0)

and were framed as asking about experiences that occurred in the past month.

ASD-Related Behavior Problems

Parents were also asked the following: “There are a number of unusual behaviors or issues that children with ASD can have. Does (add child’s name) have any of the following behaviors or issues?” Then parents were provided a list of 17 possible responses (plus an option that their child exhibited none of the 17 behaviors) and told to choose all that apply to their child (1 = yes this applies; 0 = no this does not apply). Supplemental Table 1 provides the frequencies of all 17 behavior problems.

Data Analysis

To examine the associations between the negative peer experiences and behavior problems, four logistic regressions were performed. Preliminary chi-squares found only 10 of the 17 behaviors to be associated with at least one of the four negative peer experiences in the preliminary chi-squares (see supplemental results). For each logistic regression (see Table 1), all 10 of these behavior problems were entered simultaneously as predictors, and one of the four types of negative experience was the outcome measure. Additionally, gender and age were added to each model as control variables.

Results

Parents reported high rates of negative experiences during the past month: 43.1% ($n = 120$) experienced verbal victimization, 26.5% ($n = 74$) were ignored, 14.7% ($n = 41$) experienced physical victimization, and 60.6% ($n = 169$) were provoked.

Logistic Regressions

Verbal Victimization

As seen in Table 1, gender but not age was related to verbal victimization. Female adolescents with ASD were more likely than males to experience verbal victimization. Five behavior problems were associated with verbal victimization. Adolescents with frequent meltdowns, poor hygiene, and/or rigid rule keeping were more likely to experience verbal victimization compared to adolescents who did not exhibit these behaviors. On the other hand, adolescents with repetitive behaviors and verbal tics were less likely to experience verbal victimization than those who did not exhibit these behaviors.

Table 1 Results from logistic regressions with ASD characteristics as predictors of four types of peer victimization

	Verbal victimization		Ignored		Physical victimization		Provoke	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Gender	1.66*	1.09, 3.81	2.43*	1.17, 5.05	0.64	0.23, 1.83	1.05	0.49, 2.24
Age	1.05	0.97, 1.14	1.12*	1.01, 1, 24	1.04	0.93, 1.16	1.21***	1.11, 1.32
Awkward motor movements	1.15	0.64, 2.04	0.82	0.43, 1.55	0.56	0, 25, 1.22	0.67	0.36, 1.26
Continues to talk about favorite topic	1.24	0.66, 2.32	1.00	0.50, 2.01	1.03	0.45, 2.35	1.37	0.73, 2.54
Frequent meltdowns	2.84**	1.52, 5.29	2.42**	1.25, 4.68	1.94*	1.09, 3.87	4.12***	1.89, 8.93
Inflexibility or rigidity	0.77	0.43, 1.39	0.69	0.36, 1.33	0.67	0.31, 1.45	1.20	0.64, 2.22
Motor tics	1.10	0.74, 3.46	0.95	0.41, 2.20	1.28	0.94, 3.61	1.05	0.53, 2.79
Poor hygiene	2.79**	1.56, 4.99	2.51**	1.33, 4.73	1.34	0.62, 2.86	1.15	0.61, 2.15
Repetitive behaviors	0.54*	0.31, 0.97	0.75	0.40, 1.41	1.18	0.56, 2.49	0.56	0.31, 1.03
Rigid rule-keeping	1.34*	1.02, 3.44	1.48*	1.07, 3.86	1.30	0.91, 2.94	2.46**	1.32, 4.57
Self-injury	1.06	0.53, 2.13	2.25*	1.12, 4.54	1.37	0.60, 3.16	1.74*	1.12, 4.23
Verbal tics	0.34*	0.15, 0.79	0.79	0.33, 1.87	1.17	0.46, 2.94	0.68	0.31, 1.54

For gender, male = 0 and female = 1

95% CI lower and upper bounds of 95% confidence interval of the odds ratio

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

Ignored

Gender and age were associated with being ignored (see Table 1). Females and older adolescents were more likely to be ignored than males and younger adolescents. Four behavior problems were found to be associated with being ignored. Adolescents who had frequent meltdowns, poor hygiene, rigid rule keeping, and self-injury were more likely to be ignored than adolescents without these behaviors.

Physical Victimization

Neither gender nor age, and only one of the behavior problems (frequent meltdowns) was associated with physical victimization. Adolescents who had frequent meltdowns were more likely to experience physical victimization relative to adolescents who did not have frequent meltdowns.

Provoked

As shown in Table 1, age but not gender was associated with being provoked. Older adolescents were more likely to be provoked than younger adolescents. Adolescents reported to have frequent meltdowns, rigid rule keeping, and self-injurious behaviors were more likely to be provoked than adolescents who did not reportedly exhibit these behaviors.

Discussion

Results of this study indicate that adolescents with ASD who exhibit certain behaviors (frequent meltdowns, rigid rule keeping, poor hygiene, and self-injury) may be particularly likely to encounter negative peer experiences. Importantly, each of these four behaviors was found to be independently associated with multiple types of negative peer experiences.

In terms of informing interventions, the current findings may be useful in identifying which adolescents with ASD are at higher risk for being targeted by their peers, an important piece of information considering the extreme heterogeneity within ASD. Teachers, parents and other adults who provide support to students with ASD could be made aware that these students are at heightened risk and may need additional support to prevent being targeted. These findings could also be useful for informing current interventions designed to improve social functioning. Most social skills interventions for adolescents with ASD focus on ameliorating core social-communication deficits (e.g., difficulty with conversation) in order to improve social functioning. However, results of this study indicate that it may be as important to focus on behavior problems like meltdowns or poor hygiene given

their strong associations with negative peer experiences. Importantly, these types of behavior problems are neither universal nor specific to ASD, and in some ways, may be easier to address than many ASD core symptoms that are currently the focus of interventions.

Surprisingly, some of the behaviors reportedly exhibited by adolescents with ASD (verbal tics and repetitive behaviors) were associated with *lower* rates of verbal victimization. That is, other students were reportedly *less* likely to tease or make fun of adolescents with ASD who had verbal tics or repetitive behaviors. However, verbal tics and repetitive behaviors were only significantly associated with less verbal victimization and did not affect the likelihood that adolescents with ASD would be physically victimized, ignored, or provoked. It is also important to note that the relatively lower rates of verbal victimization were in comparison to other students with ASD, a group that experiences very high rates overall (nearly 50%). It remains to be seen whether adolescents with ASD with verbal tics and repetitive behaviors in general education settings are less likely to be targeted for verbal victimization in comparison to the overall population of adolescents. One possible explanation for this counter-intuitive finding is that the relationship between verbal tics and repetitive behaviors might have been moderated by IQ. Individuals with ASD with lower IQ tend to have higher levels of repetitive behaviors, especially repetitive sensory motor behaviors like motor mannerisms (Bishop et al. 2013). Therefore, it is possible that individuals who were perceived as being more cognitively impaired were protected from certain types of negative peer experiences.

Finally, both age and gender were found to be associated with negative peer experiences. In general, older students and females were reported to experience higher rates of peer victimization. Significant gender differences are often seen in studies of peer victimization in typically developing adolescents (Hong and Espelage 2012), but the current study is one of the few studies to test gender effects in negative peer experiences in an ASD sample. Because social experiences often vary as a function of gender, successful interventions targeting social experience must take gender into account. For example, anti-peer victimization curricula for adolescent girls account for the fact that, while boys and girls are equally likely to experience direct verbal bullying, the content of verbal attacks directed at girls are more likely to be of a sexual nature or to concern appearance (Gruber and Fineran 2008). Thus, interventions need to consider these differences when developing strategies to address verbal bullying among adolescents with ASD to ensure that the strategies are tailored to the sex of the individual and thus more likely to be effective.

Limitations

A significant limitation of the current dataset was the lack of phenotypic information about the adolescents (e.g., IQ, language level) that would have been useful for further contextualizing the findings. Additionally, the frequency and severity of the ASD-related behavior problems was not measured; some behaviors might be associated with negative peer experiences only at severe levels and/or these relationships may be moderated by other individual-level variables like IQ.

Another important limitation is that our reliance on cross-sectional data prevented us from drawing conclusions about direction of effect. Additionally, most measures were single-item measures that have not been previously validated and were primarily based on parent-report. The survey also did not elicit information about where the negative peer experiences took place, or the adolescent's role as a perpetrator of negative peer experiences. Further, the sample was comprised mostly of White males from higher income households spending a majority of their school day in an inclusive educational setting. Thus, these findings may not generalize to the broader population of individuals with ASD in other educational settings.

Conclusion

Among adolescents in this sample, those reported to exhibit frequent meltdowns, rigid rule keeping, poor hygiene, and self-injury were at increased risk of experiencing negative interactions with peers. Results further showed that girls, as well as older adolescents with ASD, might be at particular risk for negative peer experiences. Results from this study can be used to identify those adolescents at highest risk for negative peer experiences and to inform the development of more effective interventions to prevent and combat these experiences.

Author Contributions All authors contributed to the study conception and design. Analysis was performed by REA. The first draft of the manuscript was written by REA and all authors contributed to all subsequent versions of the manuscript. All authors read and approved the final manuscript.

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References

- Adams, R. E., & Bukowski, W. M. (2008). Peer victimization as a predictor of depression and body mass index in obese and non-obese adolescents. *Journal of Child Psychology and Psychiatry*, *49*(8), 858–866. <https://doi.org/10.1111/j.1469-7610.2008.01886.x>.
- Adams, R. E., Fredstrom, B. K., Duncan, A. W., Holleb, L. J., & Bishop, S. L. (2014). Using self- and parent-reports to test the association between peer victimization and internalizing symptoms in verbally fluent adolescents with ASD. *Journal of Autism and Developmental Disorders*, *44*(4), 861–872. <https://doi.org/10.1007/s10803-013-1938-0>.
- Bear, G., Mantz, L. S., Glutting, J. J., Yang, C., & Boyer, D. E. (2015). Differences in bullying victimization between students with and without disabilities. *School Psychology Review*, *44*, 98–116.
- Bishop, S. L., Hus, V., Duncan, A. W., Huerta, M., Gotham, K., Pickles, A., ... Lored, C. (2013). Subcategories of restricted and repetitive behaviors in children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *43*(6), 1287–1297. <https://doi.org/10.1007/s10803-10012-11671-10800>.
- Bitsika, V., & Sharpley, C. F. (2014). Understanding, experiences, and reactions to bullying experiences in boys with an autism spectrum disorder. *Journal of Developmental and Physical Disabilities*, *26*(6), 747–761. <https://doi.org/10.1007/s10882-014-9393-1>.
- Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *42*(2), 266–277. <https://doi.org/10.1007/s10803-011-1241-x>.
- Evans, C. B. R., Fraser, M. W., & Cotter, K. L. (2014). The effectiveness of school-based bullying prevention programs: A systematic review. *Aggression and Violent Behavior*, *19*(5), 532–544. <https://doi.org/10.1016/j.avb.2014.07.004>.
- Gruber, J. E., & Fineran, S. (2008). Comparing the impact of bullying and sexual harassment victimization on the mental and physical health of adolescents. *Sex Roles*, *59*(1–2), 1–13. <https://doi.org/10.1007/s11199-008-9431-5>.
- Hong, J. S., & Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior*, *17*(4), 311–322. <https://doi.org/10.1016/j.avb.2012.03.003>.
- Zablotsky, B., Bradshaw, C. P., Anderson, C. M., & Law, P. (2013). The association between bullying and the psychological functioning of children with autism spectrum disorders. *Journal of Developmental & Behavioral Pediatrics*, *34*(1), 1–8.

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