Short Report

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Bidirectional relationships between bullying, victimization and emotion experience in boys with and without autism

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Abstract

Adolescents with autism are more often victims of bullying than peers without autism. Although prior work indicates that emotions play an important role, bidirectional relationships are yet unknown. This study examines the longitudinal associations of anger, fear, guilt and shame with being victimized and bullying others in adolescent boys with and without autism. On three occasions (9 months in between) 169 boys (43% with autism, 11.6 years at T1) completed self-reports. Findings show that more anger and less guilt predicted bullying behaviour, and vice versa, in both groups. In addition, more anger and fear predicted victimization. Fear was a stronger predictor in boys without autism. In turn, victimization predicted more anger, fear and shame. Especially, boys with autism reported more anger after being bullied, suggesting a tenacious vicious circle: these youngsters are likely to be angered when being bullied, which, in turn, makes them a target for bullies. Our findings provide new theoretical insights in the role emotions play in the emergence and maintenance of victimization/bullying others in boys with and without autism.

Keywords

anger, autism spectrum disorders, fear, guilt, shame, social development

Being involved in bullying processes during childhood, either as the victim or the bully, is a worldwide concern. When bullied, children are repeatedly and intentionally attacked, humiliated and/or excluded by an individual or group (Sticca and Perren, 2015). Although being bullied and bullying others are common problems during the school-aged years (e.g. Modecki et al., 2014), victimization in youngsters with autism is particularly common. While about 10% of the youngsters with autism bully others, almost 50% identify themselves as victims to verbal, physical or relational bullying, which is three to four times higher than peers without autism (e.g. Maïano et al., 2016). The seriousness of emotional, physical, social and academic problems in victims and bullies in youngsters with autism (e.g. Bitsika and Sharpley, 2014; Fink et al., 2017) signal the importance of understanding the factors underlying victimization and bully behaviour in this particular group.

Studies focusing on typical development reveal how emotion experience plays a significant role in the genesis of victimization and bullying others (e.g. Sticca and Perren, 2015), while, at the same time, youngsters with autism are characterized with emotional difficulties. Autistic youth are known for heightened levels of anger and fear and difficulties regulating these emotions (e.g. Hirschler-Guttenberg et al., 2014; Jahromi et al., 2012). These youngsters tend to react strongly (i.e. aggressively and crying) when they are bullied as well as after, at home (e.g. Bitsika and Sharpley, 2014). Moreover, studies on children with autism indicate that the understanding of moral emotions (shame and guilt) is less developed than in children without autism (e.g. Heerey et al., 2003), while these emotions contribute to bullying others and victimization. Specifically, feeling guilty contributes to the prevention of bullying as guilt arises after realization of one's norm-transgressing behaviour, while shame contributes to more victimization due to appearing vulnerable (e.g. Irwin et al., 2016; Menesini and Camodeca, 2008).

Although almost everyone experiences anger, fear and/or shame when provoked, ridiculed or harassed, we found in an earlier cross-sectional study that the dominant emo-

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tion is anger in adolescents with autism, and not fear like in adolescents without autism (Rieffe et al., 2012). Youngsters with autism might be angered more easily when bullied because of their poor strategies to handle unpleasant (social) situations and difficulties regulating strong emotions (Jahromi et al., 2012). In turn, angry adolescents may be easy targets for bullies. To our knowledge, the current longitudinal study is the first to examine whether the anger in youngsters with autism is the cause or the effect of victimization.

The present study

This study is built on our previous cross-sectional study examining the relationships between emotion experiences (i.e. anger, fear, guilt and shame) and self-reported victimization/bullying others in boys with and without autism (Rieffe et al., 2012). The focus of this study was to examine the bidirectionality of these relationships.

Regarding victimization, we expected anger, fear and shame to be the strongest predictors given that youngsters with higher emotional reactivity are more vulnerable to victimization (e.g. Spence et al., 2009). We expected that especially fear would evoke victimization in boys without autism. In turn, we expected victimization to contribute to increased anger, fear and shame (e.g. Spence et al., 2009), with anger being a more dominant reaction in adolescents with than without autism.

We also examined relationships with bullying others. Based on the outcomes of the former cross-sectional study, we expected that more anger and less guilt would contribute to more bullying behaviour over time in boys with and without autism (Rieffe et al., 2012; Sticca and Perren, 2015). In turn, bullying others may increase anger due to the activation of bully-related thoughts, emotions and responses (e.g. Anderson, 1983) and decrease guilt due to the discomfort of feeling remorse after bullying (Festinger, 1957).

Method

Participants and procedure

The autistic sample included boys diagnosed with autism, with an IQ score above 80 (see Supplementary Material for details), and without additional diagnoses. Diagnoses were admitted by child psychiatrists, based on the Autism Diagnostic Interview-Revised (Lord et al., 1994). All boys were recruited from either private facilities or their school that specialized in treating and diagnosing children with autism. The group without autism included 96 typically developing (TD) boys, also with an IQ score above 80, and with no diagnosed developmental disorders. They were recruited from mainstream schools. This study was restricted to boys because autism is more common in males, and the sample only consisted of a few females. See Supplementary Table S1 for detailed descriptives.

After obtaining parental consent and approval by the Ethics Committee of Leiden University, the boys were visited at school (group with and without autism) or at home or the facilities from where they were recruited (group with autism). At three time points, with approximately 9 months in between, participants were asked to complete questionnaires on a laptop. Participants were ensured that their participation was voluntary and anonymous. The study was part of a larger study comparing social-emotional development of TD children, children with autism and children with hearing loss.

Materials

The 9-item *Bully Questionnaire* (Rieffe et al., 2012) included an introduction on bullying before asking how often one, over the last 2 months, executed bullying behaviour ('Did you, with the aim of bullying someone …', for example, hit, push or kick someone; call someone names) on a 3-point scale: 1 = *(Almost) never*, 2 = *Sometimes* and 3 = *Often*.

The *Victim Questionnaire* (Rieffe et al., 2012) included a brief introduction on bullying before asking if one, over the last 2 months, had been bullied. In this questionnaire, the content of the nine items of the Bully Questionnaire was used, but the items were reformulated to measure victimization (e.g. 'Did someone hit, push, or kick you?' and 'Did someone call you names?'). One extra item asked how often participants are invited to birthday parties. Items were rated on the same 3-point scale.

The *Mood List* (Rieffe et al., 2004) asked how participants have been feeling over the last 4 weeks (e.g. 'angry' and 'scared') on a 3-point scale: 1 = *(Almost) never*, 2 = *Sometimes* and 3 = *Often*. This study included the anger and fear scales (four items each).

The *Brief Shame and Guilt Questionnaire for Children* (Novin and Rieffe, 2015) consisted of six shame-eliciting (e.g. 'falling from your bike in front of others') and six guilt-eliciting (e.g. 'ruining your classmate's painting') hypothetical scenarios. Participants rated how much shame or guilt (6 items each) they would feel if they would experience these scenarios on a 3-point : 1 = *Not at all*, 2 = *A little* and 3 = *A lot*. Internal consistencies of all scales were good (Supplementary Table S2).

Statistical analyses

To examine the contribution of emotions on Bullying and Victimization and vice versa, generalized linear model (GLM) analyses with clustered bootstrapping were performed. Mean scores examine whether differences between participants in a predictor variable predicted a change in outcome variables. Change scores examine whether a change in the predictor variable predicted a change in outcome variables. To examine the contribution of emotions on Bullying and Victimization and vice versa, we first fitted basic models for each outcome measure. Group (0 = *no autism*, 1 = *autism*) was added, as well as Age, IQ, and

Table 1. Unstandardized regression coefficients and non-parametric confidence intervals on the prediction of Bullying Others and Victimization.

	Bullying coefficients	CI (2.5%–97.5%)		Victimization coefficients	CI (2.5%–97.5%)
Intercept	1.275*	[0.870, 1.693]	Intercept	0.397*	[0.057, 0.768]
Age	0.001	[−0.001, 0.003]	Age	−0.004*	[−0.006, −0.002]
Group	−0.079	[−0.165, 0.006]	Group	0.553*	[0.271, 0.806]
Language	−0.005	[−0.023, 0.013]	Language	−0.004	[−0.018, 0.010]
IQ	−0.005	[−0.021, 0.011]	IQ	−0.003	[−0.015, 0.010]
M Victimization	0.300*	[0.120, 0.470]	M Bullying Others	0.220*	[0.087, 0.347]
C Victimization	0.236*	[0.070, 0.405]	C Bullying Others	0.116*	[0.004, 0.217]
M Anger	0.202*	[0.089, 0.321]	M Anger	0.190*	[0.090, 0.291]
C Anger	0.128*	[0.022, 0.232]	C Anger	0.097*	[0.022, 0.173]
M Guilt	−0.184*	[−0.335, −0.032]	M Fear	0.356*	[0.182, 0.501]
C Guilt	−0.172*	[−0.270, −0.064]	C Fear	0.160*	[0.037, 0.278]
M Shame	0.016	[−0.127, 0.146]	M Shame	0.063	[−0.025, 0.147]
C Shame	0.008	[−0.105, 0.110]	C Shame	0.085	[−0.006, 0.173]
			M Fear × Group	−0.326*	[−0.510, −0.119]
			C Fear × Group	0.003	[−0.177, 0.191]

M: mean score; C: change score.
Group: 0 = no autism, 1 = autism.
*$p < 0.05$.

Language as control variables. In addition, interactions with Group were added to each basic model (e.g. Mean Anger × Group and Change Anger × Group). Only significant interactions were retained in the final model. Detailed descriptions of analyses and handling of missing data is described in the Supplementary Materials and illustrated in Supplementary Tables S3 and S4.

Results

Supplementary Table S2 shows mean scores on Bullying Others, Victimization, Anger, Fear, Shame and Fear at all time points.

The influence of emotions on bullying and victimization

GLM analyses examined the contribution of emotions to Bullying Others and Victimization. With Bullying Others as dependent variable, the basic model was selected as best fitting model because interactions between Emotions × Group were non-significant. Analyses with Victimization as dependent variable included one significant interaction between Mean Fear × Group.

For Bullying Others, higher levels (mean effect) and increase (change effect) in Victimization contributed to increased Bullying Others. In addition, both Mean and Change Anger and Guilt predicted a change in Bullying Others over time. Anger had an increasing, but Guilt a decreasing effect (Table 1).

Victimization decreased with Age (Table 1). Mean and Change Bullying, Anger and Fear contributed to increased Victimization. A Group × Mean Fear interaction indicated a stronger relation for Fear × Victimization in boys without autism (Figure 1(a)).

The influence of bullying and victimization on emotions

Four separate GLM analyses examined the contribution of Bullying Others and Victimization to emotions. For the prediction of Fear, Guilt and Shame, inclusion of interaction terms with Group was non-significant; therefore, the basic models were selected. For the prediction of Anger, the interaction of Mean Victimization × Group was significant and included in the final model.

For Anger, Mean and Change Victimization and Bullying Others contributed to increased Anger. A main effect of Group was qualified by an interaction of Mean Victimization × Group, indicating that Mean Victimization was related to increased Anger, but stronger in boys with autism (Figure 1(b)). For Fear, Mean and Change Victimization predicted increased Fear (Table 2).

For Guilt and Shame, a main Group effect indicated that moral emotions were lower in boys with than without autism. Still, Mean and Change Bullying Others contributed to decreased Guilt in both groups. Shame increased with Age. Mean and Change Victimization contributed to increased Shame (Table 2).

Discussion

We longitudinally examined the bidirectional relationships between emotion experience and bullying others/

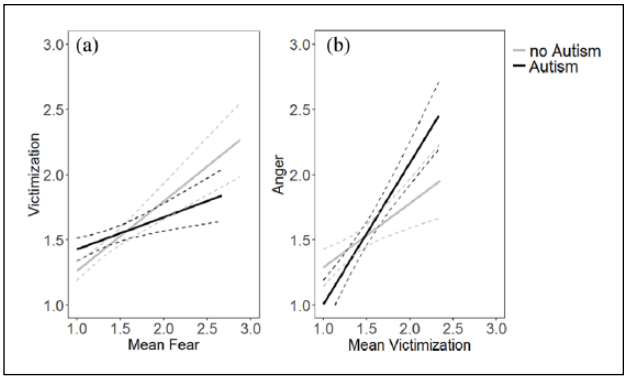

Figure 1. (a) Longitudinal graphic representation of the interrelation of fear with victimization. Boys with a higher mean score of fear reported more victimization over time compared to boys with a lower mean score of fear. This relation is stronger in boys without autism. (b) Longitudinal graphic representation of the interrelation of victimization with anger. Boys with a higher mean score of victimization reported more anger over time compared to boys with a lower mean score of victimization. This relation is stronger in boys with autism. Lines for boys without autism are displayed in grey and lines for boys with autism are presented in black. Dotted lines represent 95% confidence intervals.

victimization in boys with and without autism. As expected, more anger and less guilt contributed to more bully behaviour 18 months later. Vice versa, more bullying contributed to more anger and less guilt. Also unsurprisingly, adolescents, who were victimized, developed more anger, fear and shame over time. Higher levels of anger and fear, in turn, contributed to victimization, indicating that these stronger levels of negative emotions can be a trigger for bullies who then learn that their bullying is effective. Fear was the most dominant emotion that predicted victimization in boys without autism. Crucially, adolescent boys with autism seem to predominantly experience anger when being bullied, supporting the viewpoint that socially unpleasant situations cause uncontrollable arousal.

Theoretically, our study is the first to test bidirectional relationships between emotion experiences and bullying others/victimization in adolescents with autism. Regarding bullying others, our findings indicate that the developmental pathways are similar for adolescents with and without autism. Quite noteworthy, guilt has a protective role against bullying others in both groups, even though boys with autism overall reported lower levels of guilt than their peers without autism. This is in line with earlier findings showing that also in youngsters with autism social decisions are conform a sense of what is morally right (Van Hoorn et al., 2017). In other words, moral emotions motivate to do good and avoid being bad, also in boys with autism.

Pathways to victimization differ somewhat between the groups. Adolescent boys with autism seem to be in a vicious circle; they are likely to react with anger when being bullied, yet (uncontrollable) anger makes them an

Table 2. Unstandardized regression coefficients and non-parametric confidence intervals on the prediction of Anger, Fear, Guilt and Shame.

	Anger		Fear		Guilt		Shame	
	Coefficients	CI (2.5%–97.5%)	Coefficients	CI (2.5%–97.5%)	Coefficients	CI (2.5%–97.5%)	Coefficients	CI (2.5%–97.5%)
Intercept	0.347	[−0.280, 0.903]	0.673*	[0.257, 1.104]	2.585*	[2.196, 2.981]	1.911*	[1.387, 2.424]
Age	0.002	[−0.001, 0.005]	0.001	[−0.001, 0.004]	0.002	[−0.001, 0.004]	0.003*	[0.001, 0.006]
Group	−0.821*	[−1.332, 0.240]	0.069	[−0.027, 0.166]	−0.148*	[−0.257, −0.046]	−0.322*	[−0.439, −0.208]
Language	−0.002	[−0.024, 0.020]	−0.013	[−0.032, 0.005]	−0.005	[−0.027, 0.016]	−0.006	[−0.030, 0.018]
IQ	0.003	[−0.017, 0.022]	−0.004	[−0.022, 0.014]	0.002	[−0.018, 0.021]	−0.004	[−0.023, 0.017]
M Victimization	0.380*	[0.132, 0.638]	0.533*	[0.320, 0.751]	X	X	0.331*	[0.063, 0.586]
C Victimization	0.391*	[0.099, 0.690]	0.417*	[0.239, 0.588]	X	X	0.301*	[0.056, 0.530]
M Bullying Others	0.347*	[0.128, 0.572]	X		−0.230*	[−0.414, −0.056]	−0.089	[−0.298, 0.117]
C Bullying Others	0.319*	[0.126, 0.517]	X		−0.270*	[−0.433, −0.093]	0.064	[−0.279, 0.148]
M Victimization × Group	0.551*	[0.146, 0.899]						
C Victimization × Group	−0.084	[−0.487, 0.339]						

M: mean score; C: change score.
Group: 0 = no autism, 1 = autism. X means that these relationships were not included in the model.
*$p < 0.05$.

easier target for bullies. Indeed, in our and prior studies, adolescents with autism report to be more often victims of bullying than their TD peers (e.g. Maïano et al., 2016).

Despite these strengths, limitations should also be noted. First, for practical reasons we focused on boys, not girls. Although it is more difficult to recruit girls with autism, we acknowledge the importance of studying the female autism phenotype, which does not necessarily coincide with that of their male counterparts. We are currently including girls with autism in our studies in order to contribute to this call for more knowledge by researchers as well as professionals. Second, we recruited adolescents but future research might consider including a younger sample to prevent bullying others and victimization at an earlier stage.

In conclusion, we found that negative basic and moral emotions play an important role in the emergence and maintenance of bullying others/victimization in adolescent boys. Intervention programmes aimed at preventing youngsters from bullying others should include empathy training to reduce the moral disengagement that characterizes bullies. Intervention programmes aimed at preventing and handling victimization should include a variety of adaptive emotion regulation strategies. Our findings indicate that especially boys with autism would benefit from adaptive anger management training. Compared to their peers without autism, these boys are more vulnerable to fall victim to being bullied, causing higher levels of anger, marking them as future bully targets. Ending this vicious circle is a challenging, but necessary step in future research and intervention.

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