

# Bullying-related behaviour in a mainstream high school versus a high school for autism: Self-report and peer-report

Autism  
1–10  
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## Abstract

This study examined the frequency of bullying, victimisation and defending behaviours among children with autism spectrum disorder and normal intelligence, using both self-report and peer-report information. Peer-report and self-report data were collected on a single classroom of 26 early adolescent boys attending a special school for children with autism and compared with 23 typically developing boys attending a single mainstream secondary school. Results showed that self- and peer-reported bully and victimisation rates did not differ between boys with autism spectrum disorder and typically developing boys. However, self-reported defending behaviour was less likely to be reported by boys in the autism spectrum disorder school compared to boys in the mainstream school, although there was no such difference for peer-reported defending.

## Keywords

autism, bullying, defending behaviour, peer-report, self-report, victimisation

Bullying and victimisation are common problems for school-aged children and adolescents. Based on self-reported assessments among children across 40 countries, 11% reported bullying others, while 13% reported being victims of bullying (Craig et al., 2009). Research on autism spectrum disorder (ASD) and bullying has generally emphasised the victimisation of children with ASD in mainstream educational settings, which has been estimated to affect between 46% and 94% of children with ASD (Adams et al., 2013; Carter, 2009; Heinrichs, 2003; Little, 2001). While there is an increasing focus in the literature on the prevalence and repercussions of victimisation in children with ASD within mainstream schools (e.g. Shtayermman, 2007; for a review, see Schroeder et al., 2014), there is relatively less focus on bullying and defending behaviours in this population. Furthermore, given that between 30% and 50% of children with ASD are educated in separate dedicated educational settings (Begeer et al., 2013; Department for Education, 2012), it is somewhat surprising that bullying behaviours are rarely studied in these specialised settings (for an exception, see Van Roekel et al., 2010).

A comparison between a single school group comprised solely of children with ASD versus a group of typically

developing (TD) mainstream school students will provide an insight into both autism and bullying-related behaviour at a fundamental level. To this end, this study uses a multi-informant design, comprising self- and peer-reports, with the latter reflecting a reputation for behaviour, rather than a measure of the frequency of behaviour. We aim to examine different bullying behaviours (i.e. victim, bullying and defending behaviours) in children with ASD who are cognitively able in special educational settings and to compare these rates with those of TD children from a number of mainstream educational settings.

Bullying is defined as a subtype of aggressive behaviour in which an individual or group repeatedly and intentionally attacks, humiliates and/or excludes someone who has relatively less power (Olweus, 1993; Salmivalli, 2010).

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Bullying can either be physical (e.g. pushing), possession-directed (e.g. damaging belongings of other children), verbal (e.g. calling names), direct relational (e.g. turning one's back on someone who wants to play), indirect relational (e.g. gossiping or saying mean things about someone; Olthof et al., 2011) or involve harm via electronic devices, so-called *cyberbullying* (Kowalski et al., 2014). Both bullies and victims experience long-term consequences. Victims tend to suffer from academic, mental and physical health problems, while bullying behaviour is associated with anti-social behaviour. Both victims and bullies are vulnerable to internalising problems (Olweus, 1993; Vreeman and Carroll, 2007), with internalising problems are more strongly related to self-reports, while anti-social scores were more strongly related to peer-reports (Bouman et al., 2012).

Understanding different behaviours in the bullying process within a social group is of pivotal importance to understanding the onset, progression and possible intervention in the bullying process. Among the behaviours that have been distinguished in the bullying process (Olthof et al., 2011; Salmivalli et al., 1996), three key types can be identified: bullies (comprising ringleader bullies and assistant bullies), victims and defenders. Defending refers to any behaviour enacted to help victims of bullying and includes supporting and/or consoling the victim of bullying, in addition to active interventions to defend victims of bullying (Goossens et al., 2006; Salmivalli et al., 1996). The defending role may be differentiated from outsiders, as outsiders do not intervene and tend to withdraw from bullying incidents (these children are referred to as bystanders; Gini et al., 2008), but note that the 'defender' role is also referred to as 'bystander support' (Ross and Horner, 2014). Recent research has highlighted that some children engage experience both in victimisation and in bullying (bully-victims; e.g. Haynie et al., 2001; Olweus, 1986, 2010).

These bullying roles have been widely studied and distinguished in TD children (e.g. Gini et al., 2008; Goossens et al., 2006; Olthof et al., 2011; Salmivalli et al., 1996). In children with ASD, only bully and victim roles tend to be examined (e.g. Rieffe et al., 2012; Van Roekel et al., 2010). No study, however, has examined defending behaviour in children with ASD. While defending behaviour is likely to be particularly difficult for individuals with ASD, who have limitations in empathic skills, social attention and flexibility, it is important to explore whether these children, by early adolescence, are able to engage in this type of behaviour. A closer examination of children who do engage in defending behaviours may prove useful when developing interventions to curtail bullying at school (e.g. Kärna et al., 2010). As such, it is important to understand the frequency of defending behaviours among children with ASD, who are common victims of bullying.

In addition to a wider perspective on bully behaviours, it is pivotal to disentangle different ways of getting access

to information about bullying (Bouman et al., 2012). Self-report on bullying behaviours provides a unique individual view of bullying events (Juvonen et al., 2001; Pellegrini and Bartini, 2000) and, as such, potentially conveys experiences that others, such as peers, teachers or parents, may not observe or may not consider bullying (Crick and Bigbee, 1998; Juvonen et al., 2001; Teräsahjo and Salmivalli, 2003). However, self-reports are problematic due to their inherent subjectivity, for example, victims may over-attribute certain behaviours as bullying, while bullies may under-report their bullying (e.g. Card and Hodges, 2008; Cornell and Brockenbrough, 2004; Juvonen et al., 2001; Solberg and Olweus, 2003; Teräsahjo and Salmivalli, 2003). Furthermore, it was initially thought that children with ASD would be unable to accurately report on their own bullying and victimisation experiences due to deficits in social insight; however, recent research has shown that children with ASD are able to accurately self-report on their bullying experiences (Rieffe et al., 2012; Van Roekel et al., 2010). Nevertheless, relying on data solely obtained from self-report may be problematic (Kloosterman et al., 2013; Pellegrini, 2001; Van Roekel et al., 2010).

Conversely, peer-report is seen as a relatively more objective way to investigate bullying, since multiple informants are used (Cornell and Brockenbrough, 2004) and classmates typically have access to information that is hidden from adults (Pellegrini and Bartini, 2000). However, there may still be a tendency for peers to under-report bullying behaviours because they may not be aware of it or are not present when it takes place (Card and Hodges, 2008; Crick and Bigbee, 1998). As such, given the strengths and weaknesses of bullying behaviour information derived from both self- and peer-reports, this study employs both methods in order to provide a richer understanding of children's bullying, victimisation and defending behaviours and examine potential differences in these behaviours between children with ASD and TD.

Additionally, few studies have examined the pattern of association between self- and peer-reported bullying behaviours in children with ASD, and no study to date has examined this association specifically for defending behaviour in children with ASD. TD children are vulnerable to self-presentation biases, that is, they are sensitive to the expectations of the audience and attempt to shape their self-image in a manner that is favourable to this audience (Levine and Feldman, 1997). This self-presentation bias may account for a tendency for TD children to over-report their own defending behaviour (when compared to peer-reports; e.g. Salmivalli et al., 1996; Sandstrom et al., 2013). However, research has shown that children with ASD are much less likely to show such self-presentation biases (Scheeren et al., 2010), and as such are less susceptible to the expectation that they should be defenders, and therefore may be *more* reliable reporters of their own defending behaviours. That is, the

frequency of defending behaviour based on peer-report and self-report may be more similar in children with ASD compared to TD children. Studies examining the concordance between self- and peer-reported bullying behaviours tend to report low to moderate correlations (e.g. Cornell and Brockenbrough, 2004; Ladd and Kochenderfer-Ladd, 2002; Pellegrini, 2001; Pellegrini and Bartini, 2000; Salmivalli et al., 1996), although, as noted, no study has yet examined these associations for defending behaviour in children with ASD.

Finally, in this study, bullying roles are examined in normally intelligent children with ASD attending a special educational setting rather than integrated into mainstream schooling which has, to date, been a more common context for this type of investigation (e.g. Adams et al., 2013; Carter, 2009; Heinrichs, 2003; Little, 2001). However, between 30% and 50% of all children with ASD attend specialist educational settings (Begeer et al., 2013; Department for Education, 2012) and, as such, the study of bullying in this context is equally relevant for this group of children. By exploring bullying, victimisation and defending behaviours in a special educational setting, this study is able to examine bullying-related behaviour in children with ASD when the characteristics of their ASD diagnosis do not distinguish them from their peers. Understanding the bullying process in this context is important because it will highlight the process of bullying-related behaviour of students with ASD in a homogeneous ASD school compared to TD in a homogeneous mainstream school. This allows us to study the mechanism of bullying in situations where students do not stand out because they have autism, but in situations where having ASD is the norm.

## Summary

Given the gender imbalance in the ASD sample (Centers for Disease Control and Prevention (CDC), 2012), this study focuses solely on boys and examines the following: (a) bully, victim and defender behaviours in normally intelligent boys with ASD within a single classroom in a special educational setting compared to TD boys in a mainstream school and (b) differences in the rate of self-reported and peer-reported bullying, victimisation and defending among boys with ASD and TD boys. Based on the literature outlined above, we expect that children with ASD in a special educational setting to have similar rates of bullying and victimisation compared to TD in mainstream schools (e.g. Van Roekel et al., 2010); however, as this is the first study to examine defending behaviour in children with ASD, we had no a priori hypothesis on the rate of defending in children with ASD compared to TD children. We expect that children with ASD to be at least as accurate as TD children on reporting on their own victimisation and bullying behaviour, but given that children with ASD are less susceptible to self-presentation biases when

compared to TD children, we expect them to be more accurate reporters on their own defending behaviours.

## Method

### Participants

The ASD group included 28 children (26 boys) between the age of 11.4 and 14.1 years ( $M_{\text{age}} = 13.1$  years, standard deviation ( $SD$ ) = 9 months). However, as noted above, given the small number of girls in the sample, all analyses were conducted with the 26 boys only. All children in the ASD group were cognitively able and had good verbal skills (mean Peabody Picture Vocabulary score = 113.2,  $SD = 9.22$ , range: 99–138). All children with ASD attended a special school for secondary education preparing for university, situated in Amsterdam, the Netherlands, and 100% of students within the classroom were recruited to take part in the study.

This school catered exclusively for children with ASD who also had average or above average IQ. In order for a child to be admitted into the school, parents must submit a document outlining that the child's special educational need falls into a specific class ('REC 4 indicatie'), specifically for children with behavioural or psychiatric disorders, including autism. In addition, information about the children IQ status is also obtained at admission. As such, all adolescents attending the school had an ASD diagnosis according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association (APA), 2000) assessed by psychiatrists or psychologists who worked independently from both the school and authors and were cognitively able.

Parents also completed the Social Responsiveness Scale (SRS; Constantino and Gruber, 2007), which assesses social interactions, relationships and communication skills using 4-point Likert scales through five subscales (receptive, cognitive, expressive, motivational aspects and autistic mannerisms). This measure has established reliability and validity (see Constantino et al., 2003; Constantino and Gruber, 2007) and includes specific norms for a Dutch sample (Constantino and Gruber, 2007; Roeyers and Thys, 2010). A higher score indicates more autistic traits. The mean score on the SRS was 82.86 ( $SD = 25.39$ ), which is well above the Dutch SRS cut-off score of 59 for boys (Roeyers and Thys, 2010). Four boys fell below the SRS cut-off (with scores of 31, 52, 53 and 57) but these children were nevertheless included in this study as (a) they had received a prior clinical diagnosis of ASD from psychiatrist/psychologist and (b) attended a specialist school for children with ASD. The pattern of results remained unchanged when these four children were excluded from the analyses.

The comparison group comprised 23 TD boys between the age of 11.1 and 14.6 years ( $M_{\text{age}} = 13$  years,  $SD = 6$  months)

attending their first year of mainstream secondary schools in the Netherlands; all boys were from the same school. There were no significant differences in age between the ASD school and control school ( $t(47)=0.27, p=0.79$ ).

## Measures

**Peer-reported bullying behaviour.** Participants were asked to report on their peers' bullying-related behaviour using an Internet-based version of the Bullying Role Nomination Procedure (BRNP) used by Olthof et al. (2011). This is an adapted version of the procedure developed by Goossens et al. (2006) derived from the instrument of Salmivalli et al. (1996). The BRNP is a peer nomination procedure intended to elicit nominations for six roles: *ringleader bully* (have a leading role in bullying and take the initiative to bully others), *assistant bully* (join in bullying others once a ringleader bully has initiated the incident), *reinforcer* (act as a supporting audience to bullies), *outsider* (actively avoid all involvement in bullying, also known as passive bystanders), *defender* (provide help to the victim and intervene in bullying incidents) and *victim* (target of bullying; Olthof et al., 2011; Salmivalli et al., 1996). In this study, only the results pertaining to bully (comprising either ringleader or assistant bully role), victim and defender results are used.

First, children were made familiar with a general description of bullying which included aspects of intentionality, repetition and power differential that is common to all scientific definitions of bullying. Children were then given descriptions of five different forms of bullying, and after each description, they were asked to nominate classmates who (a) were being bullied in this particular way and (b) carried out that particular form of bullying. In a similar format, children were then asked to nominate children in their class who engaged in the other bullying-related behaviours. Defending was described as helping victims of bullying by telling them not to worry too much about it, by comforting them, by being friendly to them or by talking to a teacher about the bullying.

Continuous scores were computed by class for each type of nomination (i.e. five types of bully nominations, five types of victim nominations and defender nominations) by dividing the number of received nominations by the number of classmates who served as nominators. There is a tendency for children to specialise in a particular form of bullying (e.g. exclusionary behaviours rather than hitting or kicking), as such computing an overall mean across bullying behaviour may underestimate the extent to which an individual child actually engaged in bullying. To overcome this issue, based on a procedure by Witvliet et al. (2010) and Olthof et al. (2011), children's scores on their two highest forms of bullying were averaged, and this score was used as their overall peer-reported bullying score. Children's peer-reported victimisation scores were

computed in an identical manner (see Olthof et al. (2011) for more detail on the peer-reported bullying behaviour measure). As final continuous scores showed severe kurtosis, suggesting that a large number of students were not frequently nominated as a bully or victim, these scores were transformed with a Rankit normalised transformation that had an approximate normal distribution without outliers. Peer-rated defending behaviour was similarly computed, that is, proportion scores were computed within classrooms and then transformed using a Rankit normalised transformation.

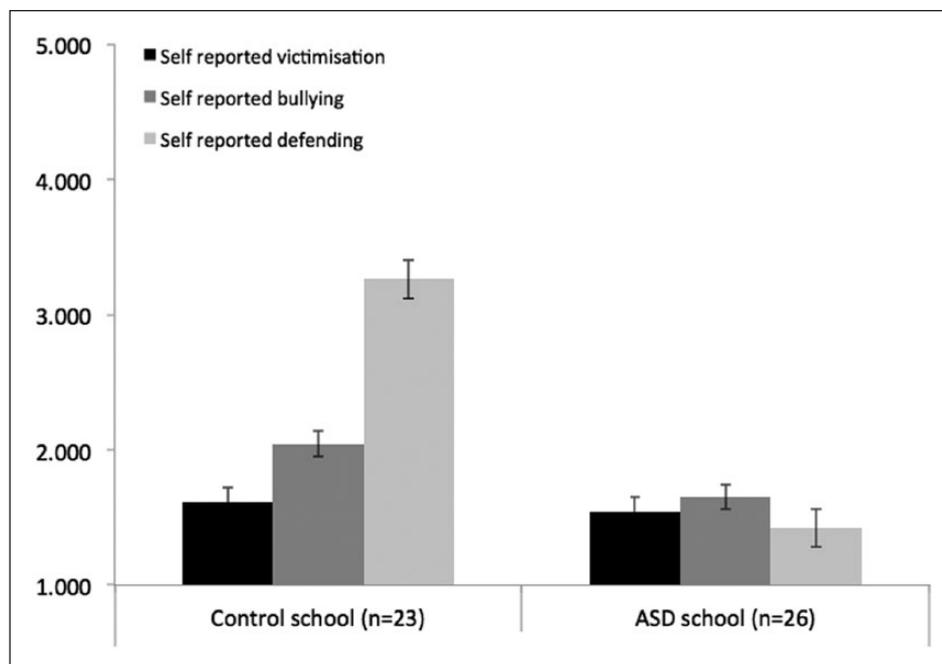
**Self-reported bullying behaviour.** All participants rated the degree to which they engaged in bullying behaviours using the BRNP (Olthof et al., 2011). The BRNP measures different forms of bullying ('how often do you bully a classmate or participate in bullying a classmate yourself?'), experienced victimisation ('how often are you bullied?') and defended others against bullying ('how often do you help a classmate who is being bullied?') on a 5-point Likert scale, 1=(almost) never, 2=rarely, 3=sometimes, 4=often and 5=very often. These questions did not refer to different forms of bullying. However, because these questions were answered after the peer nomination procedure, children were aware that bullying comprises different forms of bullying behaviour at that point. Previous studies (Bouman et al., 2012; Olthof et al., 2011; Reijntjes et al., 2013) have indicated strong associations of the BRNP with peer-nominated measures (e.g. on popularity, likeability and social acceptance). Internal consistency of the scales is adequate. To avoid interpretation differences, participants first receive an elaborate description of the concept of bullying (see for details, Reijntjes et al., 2013). The internal consistency of the aggregated scores was high.

**Peer problems and prosocial behaviour.** Two subscales from the Strengths and Difficulties Questionnaire (SDQ), a widely used measure of teacher-reported difficulties (Goodman, 1997), were used to assess peer problems and prosocial behaviour. Each subscale comprised five items. Teachers respond to each item by endorsing one of three response options: not true, somewhat true or certainly true. Individual subscale scores were calculated using standard scoring as per SDQ guidelines, including the standard rules for missing items or scales.

## Procedure

Children attending the special ASD school and their parents were informed about this study through presentations and letters. Informed consent was obtained from all children with ASD and their parents. All procedures were in accordance with the Ethical Board of the Faculty.

For students in the comparison groups who were enrolled in mainstream schools, opt-out consent was



**Figure 1.** Self-reported bullying behaviour.

obtained, such that parents received information about the study and returned a letter to the school only if they did *not* want their child to participate. Over 95% of children in mainstream schools participated in this study. For both the ASD school and mainstream schools, all data were collected by inviting participating children belonging to a single class to complete a computerised version of the questionnaires either in their own classroom or in the library. The research assistant gave group-wise instructions, emphasising the confidentiality of the study. Each child completed the questionnaire in privacy so that they were not influenced by their peers.

## Results

Results are divided into three parts: (a) a comparison of self-reported bullying across the ASD and TD groups, (b) a comparison of peer-reported bullying-related behaviour across ASD and TD groups and (c) an examination of the concordance between self- and peer-reported bullying behaviours.

### Self-reported bullying-related behaviour

To compare the rates of bully, victim and defender behaviours across ASD and control schools, a *t*-test was conducted for each bully role (see Figure 1). There was no significant difference in the rate of self-reported victimisation ( $t(47)=-0.28$ ,  $p=0.780$ ) or bullying ( $t(47)=-1.54$ ,  $p=0.131$ ) across the ASD and TD groups. There was, however, a significant difference in the rate

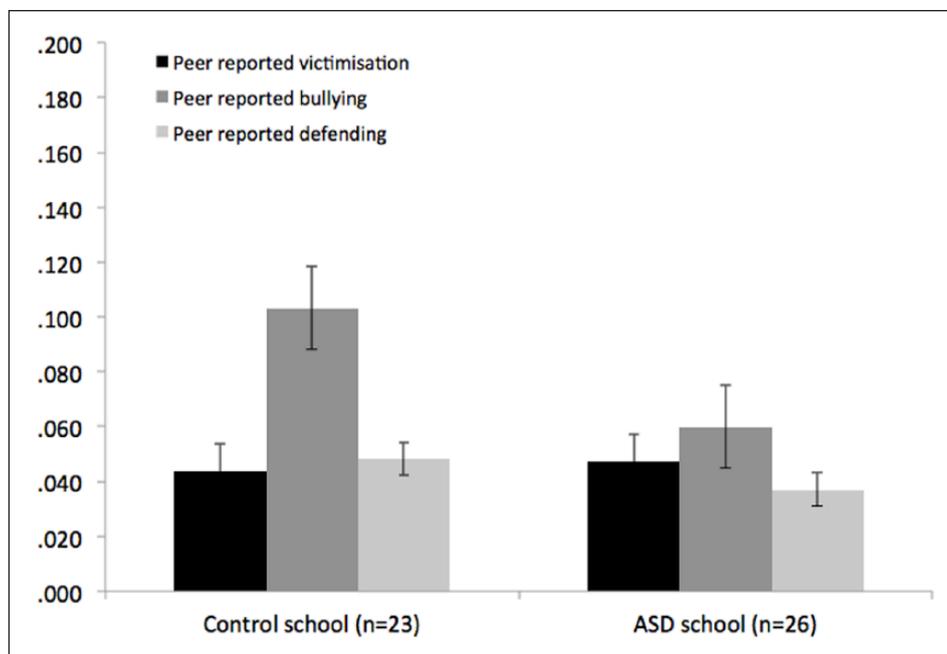
of self-reported defending behaviour across the two groups ( $t(47)=-6.06$ ,  $p<0.001$ ) such that children with ASD reported significantly less defending behaviour compared to TD children.

### Peer-reported bullying-related behaviour

To compare the rates of peer-reported bully, victim and defender behaviours across ASD and control schools, an identical approach was taken. There was no significant difference between the two groups with respect to peer-reported victimisation ( $t(47)=0.22$ ,  $p=0.826$ ), bullying behaviour ( $t(47)=-0.78$ ,  $p=0.438$ ) or defending ( $t(47)=-1.22$ ,  $p=0.229$ ; see Figure 2).

Given the relative lack of research on children with ASD reporting on peer's bully roles, additional analysis was conducted to ensure that the peer-reported victimisation, bully and defender roles were valid for the children with ASD. Specifically, the correlation between peer-reported victim, bully and defending and children's prosocial behaviour and peer problem behaviour was explored. Furthermore, social awareness and social cognition in particular are implicated in defending behaviours and, as such, we examined the association between these factors and children's peer-reported defending.

First, while there was no association between prosocial behaviour and peer-reported victim or bully roles, there was a marginally significant positive association between teacher-rated prosocial behaviour and peer-reported defending behaviour ( $r(26)=0.39$ ,  $p=0.051$ ) suggesting that children with ASD rated by their teachers as being



**Figure 2.** Peer-reported bullying behaviour.

more prosocial are also more likely to be rated by their peers as defenders. There was a significant positive association between peer-nominated victimisation and peer problems ( $r(26)=0.49, p=0.011$ ) and a somewhat surprising significant negative correlation between peer-reported bullying and peer problems ( $r(26)=-0.44, p=0.026$ ) suggesting that children with ASD rated by their teachers as having greater peer problems are more likely to be nominated by their peers with ASD as being victims and less likely to be nominated as bullies.

Second, while parent-rated social awareness was not significantly correlated with peer-reported victimisation, bullying or defending, there was a marginally significant positive association between parent-rated social cognition and peer-rated defending behaviour ( $r(26)=0.43, p=0.055$ ) suggesting that children with more advanced social cognition (greater scores on the social cognition subscale correspond to greater autistic traits) are more likely to be nominated by their peers as engaging in defending behaviour.

### *Concordance between self- and peer-reported bullying-related behaviours for ASD and TD groups*

The final analyses examined the correspondence between self- and peer-reported bullying behaviours across the ASD and control schools (see Table 1). The magnitude of the correlation between self- and peer-reported defending for ASD boys was comparable to those found for the control school. Using Fisher's  $r$  to  $z$  transformation to compare correlations between groups revealed no significant

difference in the magnitude of the correlation between self- and peer-reported victim, bully or defender behaviour between the ASD and control schools for boys ( $z_s < 0.68, p_s > 0.497$ ).

## **Discussion**

This study extends the literature examining bullying behaviour in normally intelligent children with ASD by directly comparing self- and peer-reported bullying-related behaviours in children with ASD attending a special autism school to TD children attending mainstream school. This study is the first to explore defending behaviour in addition to bullying and victimisation, in children with ASD. Results showed no difference in the rate of bullying or victimisation between boys with ASD and TD boys using either self- or peer-report. However, there were group differences with respect to the rate of defending behaviours. Boys with ASD self-reported lower rates of defending compared to TD boys, although rates of peer-reported defending did not differ between the two groups. The correspondence between self- and peer-reported bullying-related behaviours was comparable across children with ASD and TD children, suggesting that children with ASD are as capable at reporting on their own and their peer's bullying-related behaviour as TD children. Furthermore, peer-rated victimisation, bullying and defending were meaningfully related to teacher-reported measures of prosocial behaviour and parent-reported social cognition, further providing evidence that children with ASD accurately reported of their peers' bully role behaviours.

**Table 1.** Inter-correlation between self- and peer-reported victim, bully and defender behaviours across the ASD and control schools.

	Victim	Bully	Defender
ASD school (n=26)	0.35	0.49	0.27
Control school (n=23)	0.38	0.43	0.13

ASD: autism spectrum disorder.

A key strength of this study was a direct comparison of the frequency of bullying-related behaviours between children with ASD and TD children in different educational settings using identical methods. Many studies draw conclusions on the frequency of bullying and victimisation by comparing findings in ASD samples to other (separate) studies using TD groups (see Schroeder et al., 2014 for a review). However, given the proliferation of bullying measures (including parent- and teacher-reported bullying behaviour indices), a direct comparison across studies is often difficult. Using an identical methodology across both children with ASD and TD children, this study found no significant difference in the rates of self-reported or peer-reported bullying or victimisation across children with ASD attending a special school or TD children attending a mainstream school. This finding is in contrast to research focusing on children with ASD integrated in mainstream schools (e.g. Carter, 2009; Little, 2001), but confirms evidence that rates of bullying and victimisation in a special educational setting are comparable to those in mainstream school settings (Van Roekel et al., 2010). This may be due to the fact that special educational settings create a relatively homogeneous group of children, unlike a mainstream school setting where children with a broad range of social skills and cognitive abilities may all co-exist within the same classroom. In any homogeneous group, children who stand out run the risk of being bullied (DeRosier and Mercer, 2009). The child with ASD within a specialist educational setting, however, is relatively indistinguishable from their classroom peers, and thus not specifically targeted for victimisation based on characteristics unique to their ASD diagnosis. It is somewhat surprising, therefore, that despite the homogeneous composition of the classroom at the specialist ASD school, there was still nonetheless comparable rates of bullying and victimisation when compared to mainstream schools. A fruitful area of further research, with implications for bullying prevention, is an examination of the specific features of children with ASD associated with an increased risk of bullying and victimisation.

Unlike rates of bullying and victimisation, there were significant differences in self-reported defending behaviours between boys with ASD and TD children, although this difference was not found when examining peer-reported defending behaviours, reflecting a reputation for bullying-related behaviour. Children with ASD self-reported rates of

defending were significantly lower than self-reported defending in TD children. There are a number of possible reasons for this finding. First, the lower levels of self-reported defending in children with ASD compared to the TD children may be attributable to low self-awareness characteristic of ASD (e.g. Frith, 2003). As such, children with ASD may not perceive victimisation as a predicament that calls for defending behaviours, that is, if a child with ASD fails to orient himself/herself to others' experiences, then they may not recognise an opportunity to intervene and support the victim. However, given the fact that peer-reported defending was positively associated with prosocial behaviour as rated by teachers suggests that children with ASD are reliable reporting of their peers' behaviour. Second, an additional feature that may have contributed to the lower level of defending reported by children with ASD is the lack of girls in this group. Girls generally are more likely to enact and report defending behaviours (Goossens et al., 2006; Pöyhönen et al., 2010). Further research examining the rates of defending behaviour among girls with ASD would go some way to help clarify this finding.

Finally, it could be argued that instead of understanding this finding as the result of children with ASD reporting lower levels of defending, it may be reframed as TD children who over-estimate the degree to which they enact defending behaviours. When contrasting self-reported defending rates to those derived from peer-report, TD children appear to over-estimate their own defending behaviours, shown by a marked drop in the rate of defending seen in peer-report compared to self-report. Thus, it may be the case that children with ASD are *more* accurate reporters of their own behaviour because they are not as susceptible to self-presentation biases that may be influencing the degree to which TD children report defending (Sandstrom et al., 2013; Scheeren et al., 2010). Indeed, Scheeren et al. (2010) have shown that children with ASD are less likely to positively shape their self-image in line with audience preferences compared to TD children, which may account for why children with ASD were less likely to report themselves as defenders. Additional research into the frequency of defending behaviour in ASD samples would further clarify the degree to which children with ASD enact defending behaviours in comparison to TD children.

Finally, supporting the work of Van Roekel et al. (2010) and Rieffe et al. (2012), we found that children with ASD appear to be competent reporters of their own and their peers' bullying behaviour and victimisation. Extending the work of Van Roekel, we also examined the pattern of association between self- and peer-reported defending behaviours and contrasted it with those of TD children. There was no significant difference in the association between self- and peer-reported bullying-related behaviours for ASD children and TD children. Given the debate over whether children with ASD are able to accurately report on their own bullying behaviours, this study adds to the

evidence that cognitively able children with ASD appear at least as accurate as children with TD when reporting on these behaviours. This is particularly striking for defending behaviours which has previously not been examined in an ASD sample and suggests that children with ASD are an important source of information about their involvement in bullying behaviours and, furthermore, given the patterns of association between peer-reported defending and children's prosocial behaviour as rated by teachers and social cognition as rated by parents, it appears that these children are able to recognise defending behaviours in their peers. However, clearly, additional research is needed to further understand the manner in which children with ASD conceptualise and report on both their own and their peers' bullying role behaviours. More information on the empathic skills and Theory of Mind abilities of the ASD participants may be fruitful to add to future studies, as limitations in empathy have been associated with all primary bullying roles (Van Noorden et al., 2015).

There were some limitations to the measure of bully roles we employed in this study. First, in order to appropriately compare children with ASDs and TD children, they were matched on verbal ability, thus excluding less cognitively able children with ASDs. Further research is needed, using specialised measures of bullying roles, on bullying-related behaviour in children with ASDs who are non-verbal or less cognitively able. Second, the measure of bully roles was not designed to categorise those children who experience both victimisation and bullying (bully-victims). Research has shown that these children are most at risk of having psycho-social problems (e.g. Haynie et al., 2001). Furthermore, research exploring the children with ASD suggests that children with ASD and comorbid attention deficit hyperactivity disorder (ADHD) are four times more likely to be categorised as bully than children with ASD without comorbid ADHD (Montes and Halterman, 2007). As such, future research is needed to better understand the factors that increase the likelihood that children with ASD will engage in both bullying and victimisation and determine the frequency of children involved in both bully and victim roles in special educational settings.

Two additional limitations of this work must be noted. There were too few girls in the ASD group to allow a comprehensive examination of gender differences. A more equitable gender balance is particularly important when examining defending behaviour in children with ASD given the known gender differences in reporting this behaviour (Gini et al., 2008; Goossens et al., 2006). A final important limitation is that we were not able to independently verify children's ASD diagnosis. However, as all participants in this group attended a specialist school for children with ASD that required a diagnosis before admission, we were relatively confident of these children's ASD status. Similarly, we were not able to rule out the possibility that children attending the mainstream schools did not

have ASD or a comparable condition. A lack of direct information on participant's diagnosis may have influenced the validity of this group.

However, despite these limitations, this study nonetheless makes an important contribution to the literature on the bullying-related behaviour in children with ASD. By understanding the fundamental processes influencing the frequency of bullying-related behaviour, in particular defending behaviour, we will be better able to equip children with strategies to combat bullying in schools. From a clinical perspective, this study sheds light on bullying processes in children with ASD – even in relatively supportive environments such as a specialist school dedicated to educating children with ASD, bullying is still a problem. Fortunately, however, this study shows that children with ASD do appear to enact defending behaviours, supporting their peers against bullies and are competent reporters on this behaviour, making this group particularly receptive to school-wide bullying interventions specifically targeting defending to combat bullying.

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