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Title: Bullying in adolescence: how do emotional traits distinguish those involved?

Authors and affiliations:

Alexa Guy, Ph.D [a b]

Kirsty Lee, Ph.D [b]

Dieter Wolke, Ph.D.; Dr rer nat. h.c.[b c]

[a] School of Psychology, Wolverhampton University, Wolverhampton, WV1 1LY, United Kingdom

[b] Department of Psychology, University of Warwick, Coventry, CV4 7AL, United Kingdom

[c] Warwick Medical School, University of Warwick, Coventry, CV4 7AL, United Kingdom.

A.Guy3@wlv.ac.uk

Kirsty.S.Lee@warwick.ac.uk

D.Wolke@warwick.ac.uk

Corresponding author:

Dr Alexa.Guy

School of Psychology,

Wolverhampton University,

Wolverhampton,

WV1 1LY.

United Kingdom.

Phone: 01902 323030 **Email:** A.Guy3@wlv.ac.uk

ORCID: 0000-0002-5655-1990

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Abstract

This current study investigated the emotional attributes associated with bullying perpetration and victimization in adolescence. The aim of the study was to identify differences and similarities in emotional traits between bullies, victims, bully-victims, and those uninvolved. Adolescents (N=2754) from schools in England, UK, were screened for bullying involvement using self- and peer-reports, and were assigned to a 'bully role' (i.e., bully, victim, bully-victim, and uninvolved). A sub-sample of participants (N=709, mean age=13.94 years) then completed self-report measures of empathy (cognitive and affective), callous-unemotional (CU) traits, and affective instability. Bullies and bully-victims showed high levels of CU traits, whereas victims and bully-victims were high in affective instability. Bully-victims showed a unique emotional profile combining attributes shared both with bullies and victims; high levels of CU traits and affective instability, but also low levels of cognitive and affective empathy. The differences in emotional attributes found for these roles may help to identify adolescents at risk of being involved in, or currently involved in bullying, and may also provide some explanation for the different outcomes associated with these roles. These findings further emphasize the need for bully-victims to be assessed as an independent group.

Key words:

Bullying, Victimization, Bully-victims, Emotion, Affective-Instability, Callousness

Bullying in adolescence: how do emotional traits distinguish those involved?

Bullying is a long-standing phenomenon that has captured media headlines, government agendas, and is a highly prevalent issue for adolescents world-wide. It is defined as unwanted aggressive behavior, which is repeated, and where there is an observed or perceived imbalance of power (Gladden et al., 2014). The individual characteristics that may explain, in part, why some adolescents bully and others are victimized remain under debate. There remains a lack of clarity regarding the role of emotion in bullying and victimization (Arsenio & Lemerise, 2001); in particular the emotional traits or attributes that may distinguish adolescent bullies, victims, bully-victims, and those uninvolved.

In adolescence, peer victimization has a reported prevalence of 20-30% (Przybylski & Bowes, 2017) compared to 1-5% for bullying perpetration (Kaltiala-Heino et al., 2016). However, there has been increasing interest in a third group of those who bully but are also victimized, i.e. bully-victims. The reported prevalence of adolescent bully-victims is wide-ranging; from 4% to11% (Lereya et al., 2015; Pouwels et al., 2016; Runions et al., 2019). The roles involved in bullying (i.e., bullies, victims, and bully victims), are each associated with distinct psychological, behavioral, and emotional attributes. Bullies have been described as manipulative (Orue & Calvete, 2019), and overall have adaptive social and psychological outcomes (Lereya et al., 2015). Victims have been reported to have poorer social skills (Antoniadou et al., 2019) and, emotionally, are often highly sensitive and poorly regulated (Frizzo et al., 2013). Bully-victims often display impulsive and retaliatory behaviors, and are suggested to experience the worst social and psychological outcomes of all those involved in bullying (Wolke et al., 2013).

One aspect of emotion reported to be central both in aggressive behavior and bullying specifically is empathy (Jolliffe & Farrington, 2006), however findings are contradictory

regarding whether bullies show deficits in empathic understanding (Zych et al., 2019). Empathy can be measured as a single construct or divided into its cognitive and affective components; 'knowing' and 'feeling' the thoughts/emotions of others. Adolescent bullies have been associated with less affective concern (Zych & Llorent, 2019), whereas the ring leaders, i.e., manipulative bullies, have been reported to show no deficiencies in cognitive empathy and the understanding of others' mental states (Gasser & Keller, 2009; Salavera et al., 2021).

Low empathy may also be a potential predictor for victimization, whereby adolescent victims of bullying have been reported to show lower levels of cognitive empathy (Kokkinos & Kipritsi, 2012). However this association is often weak, and others have reported that victimization is unrelated to abilities to empathize or understand others (Kellij et al., 2022). The development of empathy is important for successful social interactions, positive relationships, and the understanding of others' intentions (Kokkinos & Kipritsi, 2012). Thus, low empathy could act as a risk factor for poor peer relationships, thereby increasing the risk for victimization. There has been a lack of research relating to empathy in bully-victims specifically, however a meta-analysis by Zych et al. (2019) reported on a small number of studies that suggest low levels of empathy, particularly affective empathy (Antoniadou et al., 2019), in this group.

Callous-unemotional (CU) traits have been associated with aggression and conduct disorder, and are considered to be inversely related with empathy (Zych et al., 2019). Those high in CU traits are described as cold, uncaring, and Machiavellian (manipulative); qualities often reported for those who bully (Davis et al., 2022). It is therefore not surprising that CU traits have been associated with bullying perpetration (Antoniadou et al., 2019; Catone et al., 2021; Ciucci & Baroncelli, 2014)), yet the number of studies on this topic remain small (Zych et al., 2019). Although CU traits, in general, are not associated with victims

specifically (Ciucci & Baroncelli, 2014), research has suggested that they could influence adolescents' susceptibility to victimization (Fontaine et al., 2018). Similarly, findings are limited with regards to bully-victims, however it has been reported that this group may also show elevated levels of CU traits (Antoniadou et al., 2019) in comparison to victims and those uninvolved. These traits may therefore distinguish pure victims from bully-victims and explain why some victimized youth may go on to bully others.

Affective instability is a trait (or symptom cluster) associated with internalizing problems (Thompson et al., 2011). Marwaha et al. (2014) proposed that affective instability encompasses three core elements of affect; lability (fluctuations in mood), high intensity, and low control. adolescent victims have been found to display aspects of emotional instability, i.e., high emotional reactivity and poor regulation (Frizzo et al., 2013), and are thought to be at increased risk of borderline personality disorder, eating disorders, anxiety, and depression (Lee & Vaillancourt, 2019; Winsper, et al., 2012; Wolke et al., 2012); for which affective instability is key feature.

Bullies have been reported to show low levels of emotion regulation (Cañas et al., 2020), however these findings often refer to difficulties shown by aggressive youth in the regulation of anger (Sullivan et al., 2010). The strategic and instrumental aggression often associated with bullying (Volk et al., 2014) may suggest that this group could possess a more stable and controlled style of affect than bully-victims. Like victims, bully-victims have a tendency for emotional outbursts and show poor emotion regulation (Garner & Hinton, 2010), which may reflect elevated levels of affective instability, and ultimately underlie this group's often retaliatory aggressive behavior.

The aim of the present study was to investigate how bullies, victims, bully-victims, and uninvolved adolescents may differ in empathy, CU traits, and affective instability. There has been little research which has drawn comparisons between these groups with regards to

emotional traits and attributes, particularly studies which have assessed bully-victims as a distinct group. Although bully-victims have gained increasing research interest in recent years (Arsenault, 2017), findings relating to empathy and callous-unemotional traits are still scarce (Zych et al., 2019). It is unclear whether bully-victims show more similarities to bullies or victims in these emotional characteristics, or if they exhibit a unique combination of these attributes. To our knowledge, this is the first study to explore associations between bullying/victimization and affective instability; a trait that represents key aspects of emotional instability and is thought to be a prominent symptom, or precursor, of a number of psychological disorders. Identifying differences between these groups may give further insight into how children and adolescents become involved in bullying, and may provide further explanation of the differences in outcomes associated with each role.

We expected that compared to uninvolved adolescents, bullies would show low levels of affective empathy, but high levels of CU traits; whereas victims would be higher in affective instability. Because of their dual experience of being a victim and perpetrator of bullying, it is possible that bully-victims would show similarities to victims in displaying elevated levels of affective instability, but like bullies would exhibit more CU traits and low levels of empathy. The poor social abilities reported for victims and bully-victims may predict less cognitive empathy in these groups, however it is unclear whether bullies would have higher or lower levels of cognitive empathy, or indeed show no difference to those uninvolved.

Method

Participants.

Stage 1. A total of 3883 adolescents (aged 11-16 years) were invited to participate in a study about peer relationships (BASE Study; Wolke et al., 2017), of which 2782 pupils

were screened for bullying involvement using self-reports and peer-nominations. A final sample of 2754 pupils had complete data (9.1% bullies, 23.9% victims, 14.6% bully-victims, and 52.4% uninvolved). These pupils were obtained from five predominantly mixed-sex secondary schools in Central England, UK, and reflected diverse ethnic and economic backgrounds.

Stage 2. Based on the data for self-reported and peer-nominated bullying involvement, a sample of 1088 pupils were selected for stage 2 (see measures section for selection criteria), which consisted of measures for cognitive and affective empathy, callous-unemotional (CU) traits and affective instability. Of these, 276 pupils (25.4%) were absent or could not take part due to organizational difficulties within schools (i.e., computer access, exams). Twelve pupils were unable to participate due to concerns about vulnerability (n=5) or parent and/or child refusals (n=7), and a further seven were excluded (incorrect pupil attended, n=1; participant used for a pilot study, n=6). A final sample of 754 pupils was assessed (53.6% female; 85.2% White British; M_{age} 13.95 years, SD=1.34).

Measures.

Peer bullying. For self-reported bullying/victimization, pupils completed the Bullying and Friendship Interview schedule (Wolke et al., 2000). The first 13 items provided behavioral descriptions of victimization; e.g., “been hit or beaten up”, and pupils were asked how frequently each behavior had happened to them in the last six months. The same 13 items were adapted to assess bullying perpetration. Responses for all items were “never”, “sometimes”, “quite a lot” (several times a month) or “a lot” (at least once a week). Cronbach’s alpha was .84 for the victimization scale and .86 for the bullying perpetration scale.

Responses of “quite a lot” or “a lot” for at least one of the bullying perpetration or victimization items identified self-reported bullies and victims, respectively (Solberg &

Olweus, 2003; Woods & Wolke, 2004). Those identified as both bullies and victims were subsequently categorized as self-reported bully-victims.

For peer-nominated bullying involvement, pupils were given descriptions of bullying behaviors (e.g., for relational bullying; “Some people repeatedly leave people out of get-togethers, parties, trips or groups, get others to ignore people, or spread nasty lies, rumors or stories about people on purpose. Which people in your form/tutor do this?”). Participants were asked to nominate, from a numbered list, up to three students in their tutor/form group who were victims or perpetrators of the bullying behaviors described (de Bruyn et al., 2010). Pupils were identified as involved in bullying if their z-score (using the number of nominations received at the tutor group level) was more than one standard deviation above their tutor group’s mean (>1SD) for bullying, victimization, or both (i.e., bully-victims).

Based upon the stage 1 data for self-reported and peer-nominated bullying involvement, pupils were assigned to a final ‘bullying’ role (i.e., bully, victim, bully-victim, or uninvolved; see supplementary material for assignment rules). All bullies and bully-victims were selected to participate in stage 2, however due to the large number of victims and uninvolved pupils identified, a sub-sample of these groups was randomly selected using Microsoft Excel’s random number generator.

Empathy. Pupils completed the Interpersonal Reactivity Index (Davis & Association, 1980); a self-report questionnaire previously used within adolescent samples (Hawk et al., 2013). Only the perspective taking (e.g. “I try to look at everybody's side of a disagreement before I make a decision”) and empathic concern (e.g. “I often have tender, concerned feelings for people less fortunate than me”) subscales were used as they closely correspond to the conceptual definition of cognitive and affective empathy, respectively (Davis & Association, 1980; Gini et al., 2007). Each subscale contained seven items for which pupils were asked to rate how much they agreed with each statement. Responses ranged from 0) not

at all, to 4) extremely, and scores for each item were summed giving a cognitive and affective empathy score. Cronbach's alpha was .70 for perspective taking/cognitive empathy and .67 for empathic concern/affective empathy and showed a moderate association ($r(709)=.520$, $p<.001$).

Callous-Unemotional (CU) Traits. The Inventory of Callous–Unemotional Traits (ICU; Frick, 2004) has been extensively used to measure callous-unemotional (CU) traits within adolescent populations (Ciucci & Baroncelli, 2014). The ICU consists of three subscales, each containing eight items; for callous (e.g., "I do not care who I hurt to get what I want"), uncaring (e.g. "I feel bad or guilty when I do something wrong"; reverse scored), and unemotional traits (e.g. "I do not show my emotions to others"). Pupils were asked how much they agreed with each statement, with responses ranging from 0) not at all true, to 3) definitely true. Scores for each subscale were obtained by summing their corresponding eight items, from which a total score for CU-traits was calculated. Cronbach's alpha for the total scale in our sample was .79.

Affective Instability. No single scale exists for affective instability and therefore items were selected from three existing scales that corresponded to the definition proposed by Marwaha et al. (2014); "rapid oscillations of intense affect, with a difficulty in regulating these oscillations or their behavioral consequences" (pp.10). Six items were selected from the Affective Lability Scale (Harvey et al., 1989) to measure oscillation (variability) of affect; e.g. "One minute I can be feeling ok and then the next minute I'm tense, jittery and nervous". For intensity, six items from the Affective Intensity Measure (Larsen, 1984) were used; e.g. "When I'm happy, I feel like I'm bursting with joy". Finally, regulation of affect was measured by six items from the Affective Control Scale (Williams et al., 1997); e.g., "When I am nervous I am afraid I will act stupid". Items were selected based on their suitability for use with adolescents, and previously reported factor loadings. Pupils were asked how much

they agreed with each statement; from 0) strongly disagree, to 4) strongly agree. A total score was calculated by summing responses across all 18 items. Good reliability has been reported for these scales individually; Cronbach's alpha .72 to .94 (Harvey et al., 1989; Larsen et al., 1986; Williams et al., 1997). The reliability of the combined affective instability scale in our sample was α=.84.

Demographic Data. During stage 1, pupils reported their biological sex, ethnicity, date of birth, and their parent's highest level of education (i.e., 1-11 years; no education to basic schooling, and >11 years; further education, college or university). Ethnicity was dichotomized into 'White British' and 'Other' due to the low prevalence of individual ethnic groups for meaningful comparisons (e.g., 'Asian' was the next largest group at 6.1%). Schools provided data for attendance rate (%) and pupil premium status (yes/no). In the UK, pupil premium is funding that schools receive for disadvantaged pupils, and this data was therefore obtained as an indicator of socioeconomic deprivation and/or financial assistance.

Procedure.

Schools were initially contacted and invited to participate in the BASE study. Participating schools then received information sheets to be given out to pupils and their parents. Written informed assent was obtained from all participants, for both stages of the study, and passive consent from parents was obtained via an 'opt-out' procedure. Thus pupils could only be assessed if they had provided written assent, and a refusal form had not been returned by their parents. The assessments for stages 1 and 2 were completed online in groups of 20-30 pupils in sessions (approximately 50-60 minutes) during the school day. The online questionnaire was accessed via individual passwords, and the order of the measures in the survey was counterbalanced across participants. Pupils received standardized written and verbal instructions, and the surveys were only completed when a researcher and a member of the school's staff was present. Data collection took place between October 2014 and July

2015, with approximately two months between stage 1 and stage 2. The study and all materials received full ethical approval from the university's ethics committee and, for each school, those who participated in both stages were entered into a prize draw to win a £50 voucher.

Analysis

Participants with whole scales missing for any of the outcome variables were excluded from the analyses (n=27), along with participants with more than one missing item per subscale (n=16). Missing data for a single item on any subscale was replaced with the mean value for that subscale (stratified by gender). Bivariate analyses (chi-square, t-tests) found no significant differences between pupils with complete or missing data with regards to bullying role, or any demographic variable. The data of a further two participants was excluded due to extreme scores (outliers). Chi-square analyses and one-way ANOVAs were conducted on the demographic data to identify significant differences between the bullying roles. Those variables that showed significant differences across roles were included as covariates, and thus controlled for in all analyses. Analyses of covariance was conducted to investigate the effects of bullying role and sex on the emotion measures and identify significant differences between roles. Finally, multinomial regression analyses were conducted to explore the influence of the emotion variables in predicting bullying roles. A significance level of $p<.05$ was set for all analyses and all analyses were computed using SPSS version 22.

Results

Descriptive Statistics.

A final sample of 709 pupils (bullies=140, victims=161, bully-victims=247, and uninvolved=161) had complete data for all measures (table 1). Of the demographic data collected, only age ($F(3,705)=3.216$, $p=.022$) and pupil premium status ($\chi^2(3,709)=17.161$, $p=.001$) showed significant differences between the bullying roles, and were therefore included as covariates in all models.

Bully-victims had the lowest scores for cognitive and affective empathy, and the highest scores for CU traits, closely followed by bullies. Victims showed the highest levels of affective instability, followed by bully-victims (Table 2).

The effect of bullying role and sex on the emotion measures.

There was a main effect of bullying role on cognitive empathy ($F(3,677)=6.245$, $p<.001$, $\eta\rho^2=.027$) and affective empathy ($F(3,677)=3.550$, $p=.014$, $\eta\rho^2=.015$). Bully-victims had significantly lower levels of cognitive empathy than victims and those uninvolved, and lower affective empathy than the uninvolved group. Sex had a main effect on cognitive ($F(1,677)=7.520$, $p=.006$, $\eta\rho^2=.011$) and affective empathy ($F(1,677)=36.671$, $p<.001$, $\eta\rho^2=.051$), whereby girls showed significantly higher levels than boys.

For callous-unemotional (CU) traits, there was a significant main effect of bullying role ($F(3,677)=11.227$, $p<.001$, $\eta\rho^2=.047$), for which all groups involved in bullying (bullies, bully-victims and victims) had significantly higher scores for CU traits than those uninvolved, and bully-victims were significantly higher than victims. Sex also showed a significant main effect ($F(1,677)=18.910$, $p<.001$, $\eta\rho^2=.027$), whereby boys scored higher for CU traits than girls.

For affective instability there were significant main effects found for bullying role ($F(3,677)=23.495$, $p<.001$, $\eta\rho^2=.094$), and sex $F(1,677)=54.524$, $p<.001$, $\eta\rho^2=.075$). The victimized groups (i.e., victims and bully-victims) had significantly higher scores for

affective instability than bullies and those uninvolved, and girls scored significantly higher than boys.

There were no significant interactions between bullying group and sex, nor a significant main effect of age for any of the measures. Pupil premium had a small main effect on CU traits, $F(1,677)=11.781$, $p=.001$, $\eta\rho^2=.017$) and affective instability ($F(1,677)=5.968$, $p=.015$, $\eta\rho^2=.009$), in which participants with pupil premium status were found to have higher levels of CU traits and affective instability than those without.

Factors Predicting Bullying Roles.

The regression model shown in table 3 was significant in predicting bullying role ($\chi 2(21)=156.58$, $p<.001$). Having higher levels of CU traits (OR=1.052, 95% CI=1.012, 1.092, $p=.009$) and pupil premium status (OR=1.991, 95% CI=1.056, 3.754, $p=.033$) significantly increased the probability of being identified as a bully. Having lower levels of affective empathy (OR=.924, 95% CI=.858, .995, $p=.037$) and higher levels of affective instability (OR=1.095, 95% CI=1.069, 1.121, $p<.001$) significantly increased the odds of being a victim; whereas the probability of being a bully-victim was significantly increased by having higher levels of CU traits (OR=1.067, 95% CI=1.030, 1.105, $p<.001$) and affective instability (OR=1.063, 95% CI=1.041, 1.086, $p<.001$). Pupil premium status also significantly increased the odds of being a bully-victim (OR=2.372, 95% CI=1.325, 4.245, $p=.004$).

Discussion

The aim of this study was to explore the underlying emotional attributes of adolescent bullies, victims, bully-victims, and those uninvolved, and to identify differences between

these roles. Compared to uninvolved adolescents, perpetrators of bullying (bullies and bully-victims) were associated with higher levels of callous-unemotional (CU) traits, whereas victimized adolescents (victims and bully-victims) were higher in affective instability. Lower affective empathy was a predicting factor for being a victim, and pupil premium (an indicator of low socioeconomic status) was found to make the strongest contribution in predicting classification as a bully or bully-victim.

The high levels of affective instability that were found for victims and bully-victims provides support for associations previously reported between victimization and emotional dysregulation (Cañas et al., 2020; Rosen et al., 2012). Having high levels of emotional intensity may have an impact on the ability to regulate these emotions (Bonilla-Santos et al., 2022), and these unstable affective traits may in turn make adolescents more vulnerable to being initially targeted by peers, or increase the risk of continued/increased victimization (Frizzo et al., 2013). Indeed, there is evidence to suggest that emotional problems yield a vulnerability for becoming a victim, and that victimization in turn is a causal factor in developing mental health problems (Singham et al., 2017). Similarly high levels of affective instability were also shown by bully-victims. Affective instability may be reflected in bully-victims' more impulsive and retaliatory behavior (Salmivalli & Nieminen, 2002) in comparison to bullies, who showed comparable levels of affective instability to uninvolved adolescents, and can often use aggression in more controlled and strategic ways (Pouwels et al., 2016).

Our finding that the perpetration roles were predicted by higher levels of CU traits supports associations previously reported (Antoniadou et al., 2019; Ciucci & Baroncelli, 2014), and may therefore be a key characteristic of adolescents who perpetrate bullying in both roles. Resource control theories propose that a combination of coercive and prosocial strategies is most effective for acquiring social dominance and other resources (Hawley,

2003). Bullies are thought to adopt this bi-strategic approach (Garandeau & Cillessen, 2006), whereas bully-victims are thought to rely mostly on coercive strategies (Rodkin et al., 2015). The combination of high CU-traits and unstable affective traits may account for bully-victims' ineffective use of aggression for gaining the same social rewards as bullies (Hawley, 2003). Thus, this group may experience feelings of hopelessness and social defeat that could account, in part, for their tendency to lash out against others, often in retaliation to their own victimization (Arseneault et al., 2010).

Lower affective empathy was only found to have a significant contribution in predicting classification as a victim; although this contribution was small. Victims may show some difficulties in recognizing and understanding their own and others' emotions, and subsequently regulating these emotions. This may have a detrimental effect on these adolescents' social interactions and relationships, and consequently increase their vulnerability to initial or continued victimization. Victims' levels of CU traits were also found to be significantly higher than those uninvolved. It may be that victims cannot easily escape the feelings of distress caused by their victimization, and these intense and unstable emotions (indicated in this study by their high levels of affective instability) may foster a sense of emotional detachment, or even feelings of resentment, to others. However, victims did not show comparably high levels of CU traits as bullies and bully-victims, and these traits were not significant in predicting the victim role.

Having lower affective or cognitive empathy did not increase the probability of being a bully or bully-victim specifically, however the group comparisons did reveal significantly lower levels in bully-victims in comparison to victims and those uninvolved; thus highlighting the importance of considering bullies and bully-victims as distinct groups (Gasser & Keller, 2009). However, we cannot conclude that bullying perpetration is associated with deficiencies in these aspects of emotional processing, nor support previous

claims that bullies are potentially superior in these empathic traits in comparison to victims and those uninvolved (Antoniadou et al., 2019). The ability many bullies have to strategically manipulate others may not reflect superior social cognition in relation to empathy, but instead the use of skills for more antisocial or Machiavellian purposes (Arefi, 2010). Thus, attempts to tackle bullying through enhancing empathy may have limited success for this group of 'ringleader' bullies (Garandeau et al., 2017).

Our findings are consistent with previously reported sex differences; namely higher levels of CU traits in boys (Ciucci & Baroncelli, 2014), and higher levels of empathy in girls (Hawk et al., 2013). However, sex was not significant in predicting bullying role. Adolescents with pupil premium status were significantly higher in CU traits and affective instability, and across all regression models, pupil premium made the strongest contribution to predicting classification as a bully or bully-victim. Although this study did not aim to investigate the influence of socioeconomic status (SES) on bullying behavior, the findings suggest that adolescents who are lower in SES (as indicated by having pupil premium status), are at higher risk of being perpetrators of bullying. Lower SES has been reported to be predominantly associated with victimization, although a weak relationship has also been found with bullying perpetration (Tippett & Wolke, 2014). The present findings suggest that low SES may therefore represent a risk factor for bullying perpetration that warrants closer investigation.

The combined use of self- and peer- report measures of bullying involvement in stage 1 resulted in the identification of a large number of adolescents involved in bullying to be assessed in stage 2; and thus provided sufficient statistical power for comparisons to be made between groups. A second strength is that, to our knowledge, this is the first study to investigate affective instability in relation to bullying and victimization. Although victimization has been investigated with regards to some aspects of emotionality, i.e.,

temperament and emotion regulation (Frizzo et al., 2013; Rosen et al., 2012), the variability of intense affect represented by affective instability may also show important associations with victimization. Moreover, victims are at increased risk for later internalizing disorders, i.e., depression (Singham et al., 2017), for which affective instability is a prominent symptom.

There are also limitations. First, this study is cross-sectional and despite showing socioeconomic and cultural diversity, participants who identified as 'White British' constituted a large majority of our sample. Therefore, the schools or pupils involved may not be representative of the UK as a whole. However, a representative UK study of bullying involving over 100,000 adolescents identified near identical rates of victimization (Przybylski & Bowes, 2017). Moreover, the associations found between groups and the emotional attributes measured were correlational in nature, and thus causation cannot be inferred. Some longitudinal research has emerged (Stavrinides et al, 2010), suggesting a reciprocal relationship between bullying and empathy. However, further longitudinal studies are needed. Second, this study relied on self-report measures of empathy, affective instability, and CU traits and therefore biases may arise from pupils' self-perceptions, or avoiding 'undesirable' responses. However the use of self-report scales, namely for empathy and CU traits, has been widely validated in existing research (Hawk et al., 2013; Kimonis et al., 2008).

In conclusion, adolescent bullies, victims, and bully-victims display a distinct profile of emotional traits and attributes. Those who bully are more callous, uncaring, and lack empathy for others. This 'cool' style of cognition may be rewarding for the school bully, which may ultimately augment and sustain their bullying behavior. On the other hand, those who are victimized express less emotional stability and control. The increased levels of affective instability reported for adolescent victims and bully-victims may be a risk factor for becoming targets of bullying, or further strengthen and maintain these roles. For bully-

victims, the combination of affective-unstable and callous-unemotional traits may explain their ineffective use of aggression in obtaining the same rewards as bullies, but also their continued vulnerability for victimization. Moreover, this study highlights the importance of assessing bully-victims as a separate and distinct group. The identified differences in the underlying emotional attributes and traits of bullies, victims, and bully-victims furthers our understanding of how and why these roles may be adopted or maintained, and highlights the importance of considering the individual attributes of victimized adolescents, in addition to those who bully.

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Data Availability: The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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Table 1. Individual characteristics of stage 2 participants (split by bullying role)

		Total	Uninvolved	Bullies	Victims	Bully-victims	
	N (%)	709	161 (22.7)	140 (19.7)	161 (22.7)	247 (34.8)	Differences between groups
Sex *	*Girls*	381 (53.74)	84 (52.17)	76 (54.29)	98 (60.87)	123 (49.80)	$\chi^2(3,709)=14.682$
	Boys	328 (46.26)	77 (47.83)	64 (45.71)	63 (39.13)	124 (50.20)	$p=.002$
Age *	*Mean years*	13.94	13.82	14.14	13.73	14.05	$F(3,705)=3.216$
	SD	1.35	1.39	1.40	1.38	1.26	$p=.022$
Ethnicity	*White British*	605 (85.33)	138 (85.71)	111 (79.29)	142 (88.20)	214 (86.64)	$\chi^2(3,709)=5.502$
	Other	104 (14.67)	23 (14.29)	29 (20.71)	19 (11.80)	33 (13.36)	$p=.139$
PP *	*No*	552 (77.86)	142 (88.20)	108 (77.14)	127 (78.88)	175 (70.85)	$\chi^2(3,709)=17.161$
	Yes	157 (22.14)	19 (11.80)	32 (22.86)	34 (21.12)	72 (29.15)	$p=.001$

NOTE: PP=Pupil Premium

* Significant differences between groups ($p<.05$).

Table 2. Adjusted means, standard error (SE) and 95 confidence intervals (95% CI) for bullying roles for empathy (cognitive and affective), callous-unemotional traits (CU Traits), and affective instability.

		Cognitive Empathy		Affective Empathy		CU Traits		Affective Instability	
Role	*N*	*M (SE)*	*95% CI*	*M (SE)*	*95% CI*	*M (SE)*	*95% CI*	*M (SE)*	*95% CI*
Uninvolved	161	16.41 [a] (.36)	(15.70, 17.12)	18.64 [a] (.34)	(17.98, 19.30)	22.13 [a] (.64)	(20.87, 23.38)	31.33 [a] (.83)	(29.70, 32.96)
Bullies	140	15.29 [a b] (.39)	(14.53, 16.05)	17.52 [a b] (.36)	(16.81, 18.23)	25.55 [b] (.68)	(24.20, 26.89)	33.05 [a] (.89)	(31.31, 34.79)
Victims	161	16.40 [a] (.37)	(15.68, 17.13)	17.91 [a b] (.34)	(17.24, 18.59)	24.35 [a b] (.65)	(23.07, 25.63)	40.47 [b] (.85)	(38.81, 42.13)
Bully-victims	247	14.72 [b] (.29)	(14.14, 15.29)	17.28 [b] (.27)	(16.75, 17.81)	26.96 [b] (.52)	(25.95, 27.97)	37.74 [b] (.67)	(36.43, 39.05)

Total *N*=709.

NOTE: Means are adjusted for the inclusion of covariates: age (in years), pupil premium status.

Roles that do not share the same superscript ([a b]) are significantly different at the $p<.05$ level (E.g. For cognitive empathy, the mean scores of bully-victims ([b]) are significantly different to victims and those uninvolved ([a])).

Table 3. Factors predicting the classification of participants as bullies, victims, and bully-victims.

	Bully			Victim			Bully-victim		
	OR (95% CI)	*SE*	*p*	*OR* (95% CI)	*SE*	*p*	*OR* (95% CI)	*SE*	*p*
Affective Empathy	.992	.037	.820	.924	.038	.037	.984	.034	.635
	(.922, 1.067)			(.858, .995)			(.920, 1.052)		
Cognitive Empathy	.991	.031	.773	1.058	.032	.073	.974	.028	.355
	(.933, 1.053)			(.995, 1.126)			(.922, 1.030)		
CU Traits	1.052	.019	.009	1.024	.019	.230	1.067	.018	<.001
	(1.012, 1.092)			(.985, 1.063)			(1.030, 1.105)		
Affective Instability	1.017	.012	.139	1.095	.012	<.001	1.063	.011	<.001
	(.994, 1.041)			(1.069, 1.121)			(1.041, 1.086)		
Gender	1.230	.257	.419	1.034	.257	.896	.849	.234	.484
	(.744, 2.035)			(.625, 1.712)			(.536, 1.344)		

NOTE: 95% CI, 95% confidence intervals. The uninvolved role was the reference category. Age and pupil premium status were included as covariates in the model.

Model is significant: $\chi^2(21) = 156.58$, $p < .001$.

Supplementary Material

Supplementary Table 1. Rules for assigning stage 1 participants to bullying roles based on self- and peer- reported bullying involvement

Bullying Group	**Assignment Rules**
Bullies	Self-reported bully OR peer-nominated bully (z-score >1) AND not also a self-reported or peer-nominated victim
Victims	Self-reported victim AND not a self-reported or peer-nominated bully [1]
Bully-victims	Self- reported or peer-nominated bully and victim (z-score >1) OR any combination of bully and victim on self and peer measures
Uninvolved	Not a self-reported victim or bully AND no peer-nominations as a victim or a bully

[1] Due to the high self-reporting of victimization, peer-nomination data was not used in the categorization of victims. However, explorative analyses confirmed including peer-nominations of victimization would not have allocated further participants to the victim group.