Callous-unemotional traits, social goal orientations, and bullying perpetration: exploring concurrent associations during adolescence

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ABSTRACT

Bullying and cyberbullying is a severe problem afflicting adolescents worldwide, underscoring the need to understanding of the mechanisms behind bullying perpetration. In the current study, we examined the association between callous-unemotional traits, social goal orientations, and bullying/cyberbullying behaviours. The current study draws upon a sample of 435 adolescents, who completed an online questionnaire. A path model, which separately included the dimensions of callous-unemotional traits, revealed that callousness and agentic goals had a direct positive association with bullying and cyberbullying behaviours; uncaring also had a direct positive association with cyberbullying behaviour. There was a direct positive effect from callousness and uncaring onto agentic goals, and a negative effect onto communal goals. Unemotionality had a direct negative effect onto both agentic and communal goals. There was an additional indirect effect, linking callous-unemotional traits to bullying/cyberbullying behaviour via social goal orientations. We discuss the findings, drawing upon motivational, evolutionary, and social-emotional deficiency perspectives.

Bullying and cyberbullying has been identified as a severe problem afflicting adolescents worldwide (Brochado et al., 2017; W. Craig et al., 2009). Bullying is defined as a subset of aggressive behaviour, which occurs repeatedly with the intent of inflicting harm upon another within an imbalanced power relationship (Olweus, 2013). Cyberbullying focuses specifically on electronic forms of contact, but generally includes the same core criteria used to classify traditional forms of bullying (Smith et al., 2013). Numerous studies have demonstrated the various health and psychosocial problems associated with victimization (Dukes et al., 2009; Graham & Wood, 2019; Moore et al., 2017). However, engaging in bullying perpetration equally places adolescents at risk of both concurrent and lifetime maladjustment, including substance use (Arcadepani et al., 2021), deliberate self-harm (Heerde & Hemplill, 2019), and criminal offending (Ttofi et al., 2011). Given the negative impact for both victims and perpetrators, a more thorough understanding of the mechanisms behind bullying perpetration is needed, on which prevention and interventions can build. We set out to examine the influence of callous-unemotional traits and social goal orientations on bullying perpetration in a mediational path model.

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Supplemental data for this article can be accessed here.

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Callous-unemotional traits

Callous-unemotional traits describes an affective and interpersonal style, with a genetic and environmental aetiology (Frick et al., 2003; Henry et al., 2016). Individuals possessing callous-unemotional traits are characterized by a general lack of empathy and guilt, as well as a limited display of emotions, and a tendency to use others; the construct can be separated into three dimensions (Frick & White, 2008), namely callousness (i.e. lack of remorse and concern), uncaring (i.e. lack of empathy), and unemotionality (i.e. lack of emotional expression). Callous-unemotional traits have been described as a forerunner for psychopathic traits in adulthood, and there is empirical support for the notion that callous-unemotional traits designate a critical subgroup of antisocial adolescents and young adults, with more serious and severe problems (Frick & White, 2008). When antisocial behaviour is diagnosed as conduct disorder, it may co-occur with high levels of callous-unemotional traits, which has been taken into consideration in the DSM-5 (American Psychiatric Association, 2013); the specifier ‘with limited prosocial emotions’ is used to describe a long-lasting lack of remorse or guilt, a callous-lack of empathy, a lack of concern about performance, and a lack of or only shallow expression of emotions in multiple relationships or settings (American Psychiatric Association, 2013). However, not all individuals with callous-unemotional traits have conduct problems (Kumsta et al., 2012).

Although considered to be driven by genetic predispositions, there is mounting evidence of diverse developmental pathways in the aetiology of callous-unemotional traits (S. Craig et al., 2021; Frick et al., 2003; Henry et al., 2016). Callous-unemotional traits can stem from a biologically driven deficit in emotional processing, or from an affective deficit resulting from pathogenic environmental factors (S. Craig et al., 2021). Research has found that adolescents with callous-unemotional traits display emotional deficits, specifically in processing negative emotional and distressing stimuli (Kimonis et al., 2008). Furthermore, children exposed to trauma or negative family environments, may emotionally detach by adopting callousness and unemotionality as a coping strategy (S. Craig et al., 2021; Glenn, 2019).

Association with bullying and cyberbullying

Numerous studies have demonstrated that high levels of callous-unemotional traits place children and adolescents at an increased risk for aggressive and antisocial behaviour (Frick & White, 2008). Furthermore, studies have begun examining the association between callous-unemotional traits and bullying. Conducting a meta-analysis of ten studies, Van Geel et al. (2017) found a small to medium positive association between callous-unemotional traits and bullying in youth. A more recent meta-analysis of eight studies, reported that school bullies have significantly higher callous–unemotional traits than students who are not classified as bullies (Zych et al., 2019). Fanti et al. (2009) found that the association with bullying is not uniform across the three dimensions of callous-unemotional traits; callousness and uncaring are positively associated with bullying, whilst unemotionality is not (see also, Thornberg & Jungert, 2017). A few studies have also shown that there is an association with cyberbullying (Baroncelli et al., 2020), specifically, with the uncaring dimension (Ciucci et al., 2014).

Social goal orientations

To gain a deeper understanding of adolescents’ bullying behaviour an examination of their social motives is required, specifically their social goal orientations, which represent what they want to achieve or avoid in social interactions with their peers. In a list of definitions of social competence collected by Rose-Krasnor (1997), social goals appear as a central component; hence, they also make an appearance in various models of social competence (see, Erdley & Asher, 1999). For instance, in their model of social-emotional learning, Denham and Brown (2010; based on the model of Rose-Krasnor, 1997) highlight the importance of successfully achieving intra- and interpersonal goals for effective social interactions. Furthermore, in their social information-processing model of social adjustment, Crick and Dodge (1994) propose that children possess certain goal orientations; these are part of the data base, which in
turn inform situation-specific goals and responses to immediate social stimuli. Hence, social goal orientations represent generalized trait-like dispositions, that guide cognitive, emotional, and behavioural aspects in social interactions. Ojanen et al. (2005) conceptualized social goal orientations as two major clusters of social motives, i.e. orthogonal dimensions of agency and communality. Based on the interpersonal circumplex model as a theoretical framework (see, Locke, 2000), social goals are organized and described as the desire to gain agency versus submission, and communality versus separation. Based on these dimensions agentic goals represent the desire to appear confident and gain social status and authority over peers, and communal goals represent the desire for closeness and to foster intimate friendships with peers (Ojanen et al., 2005).

Association with bullying

Previous research investigating social goal orientations, has found these to be associated with both aggressive and prosocial behaviour (Ojanen et al., 2005; Samson et al., 2012); specifically, agentic goals predict more aggressive and less prosocial behaviours, while communal goals more prosocial behaviours (Ojanen et al., 2005). Furthermore, a general trend indicates that agentic goals are positively associated, (Caravita & Cillessen, 2012), and communal goals are negatively associated with bullying (Pan et al., 2020; Sijtsema et al., 2009), although individual differences exist. Sijtsema et al. (2009) proposed that bullying offers a way for adolescents with agentic goals to fulfill their desire to dominate, control, and coerce their peers. This aligns with resource control and social dominance theories, in which proactive aggression is viewed as a deliberate strategy to forcefully gain social status and thus resources, without regard for others (Thomas et al., 2018).

Callous-unemotional traits and social goal orientations

Based on complementary studies and theoretical notions, we maintain that callous-unemotional traits are linked with a higher endorsement of agentic goals. Conducting two studies with adolescents and young adults, Ojanen and Findley-van Nostrand (2019) found that affective-interpersonal psychopathy was positively associated with agentic goals and negatively with communal goals, and that an indirect association emerged with aggression via agentic goals. Closely related to callous-unemotional traits, Ojanen et al. (2012; see also, Ojanen & Findley-van Nostrand, 2020) found that narcissism was positively associated with agentic goals and negatively associated with communal goals in early adolescence; furthermore, these goals mediated the association between narcissism and aggression. Findley and Ojanen (2013) found that dispositional empathy was negatively associated with agentic goals and positively associated with communal goals in early adulthood. Furthermore, Van Hazebroek et al. (2017) found that the association between a lack of empathic concern and proactive aggression was partially mediated by agentic goals in adolescence.

Additionally, authors have begun to highlight the importance of investigating and understanding what motivates individuals with psychopathic traits (Bernard, 2013; Glenn et al., 2017; Groat & Shane, 2020). Examining life values and aspirations, Glenn et al. (2017) found that psychopathic traits were positively associated with pleasure-seeking and desire for social status, including the attainment of power and financial success, as well as a strong preference for social dominance. With a community sample of adult males, Foulkes et al. (2014) found that the affective-interpersonal dimension of assessed psychopathic traits were positively associated with the life goals to be a wealthy and portray a certain image (both indicative of status), and negatively associated with the life goals to better the community and to have close friends and family.
The current study

Although a review of the literature indicates that there is a positive association between callous-unemotional traits and bullying/cyberbullying, only very few studies have focused on the mediating mechanisms thereof. The aim of the current study is to examine whether social goals mediate the association between callous-unemotional traits and bullying/cyberbullying in adolescence. Although direct associations have been investigated to a certain extent, the current study expands on prior findings by separately investigating the callous-unemotional dimensions, examining associations with cyberbullying, and integrating all constructs into one model. Regarding the direct effects, we hypothesized that the dimensions callousness and uncaring are positively associated with bullying and cyberbullying, whilst unemotionality is not associated with these (H1). Furthermore, we hypothesized that agentic goals are positively associated, and communal goals are negatively associated with bullying and cyberbullying (H2). Lastly, we hypothesized that the callous-unemotional dimensions would be positively associated with agentic goals, and negatively associated with communal goals (H3). Regarding the indirect effects, we hypothesized that agentic and communal goals would mediate the association between callousness/uncaring and bullying/cyberbullying (H4).

Methods

Participants

Participants were recruited from 17 secondary schools (Grade 5 to 13) in Germany. The current study draws upon a sample of 435 adolescents, including 243 females and 192 males with a mean age of 14.12 (SD = 1.76). In total 90.3% stated that they were born in Germany, and 83.4% that German was the language they spoke most often at home. The majority of the students attended an intermediate secondary school (48.5%; Realschule), a grammar school (33.6%; Gymnasium), or a unified comprehensive school (15.2%; Oberschule).

Design and procedure

As part of a larger research project, cross-sectional data was collected in 2020. Prior to data collection, approval was obtained from the university’s ethics committee (Carl von Ossietzky University of Oldenburg Research Ethics Committee; Drs.EK/2019/054) and data protection officer, as well as the regional school authority board. Relying on convenience sampling, secondary schools in northern Germany were approached and invited to participate in the study. Due to COVID-19 pandemic related school closures, the data collection was changed to online. The 17 secondary schools that had voluntarily agreed to participate were asked to send an informational letter with a link to parents via Email; some schools opted to send the letter to the parents of all students, whilst other schools opted to only send the letter to certain grades. The link contained an informed consent segment for parents and students, and again participation was voluntarily. The questionnaire assessed various constructs, yet in the following we focus only on the variables relevant for the current research aim.

Instruments

Callous-unemotional traits

Callous-unemotional traits were assessed with the Inventory of Callous-Unemotional Traits (ICU; Essau et al., 2006), which is a frequently used instrument to assess callous-unemotional traits in children and adolescents worldwide (Cardinale & Marsh, 2020; Ueno et al., 2021). Participants responded to items on a scale ranging from (0) not at all true to (3) definitely true. The questionnaire included the dimension callousness (e.g. not concerned about the feelings of others), unemotionality (e.g. not showing emotions to others), and uncaring (e.g. not caring about others).
Social goals
Social goals were assessed with a back-translated version of the Interpersonal Goal Inventory for Children (IGI-C; Ojanen et al., 2005). Participants responded to items on a scale ranging from (1) not at all to (4) very. Two items did not seem age appropriate, and thus we amended these slightly (e.g. deciding where to go, instead of what to play). The circumplex dispositions along the dimensions of agency and communion are assessed via the merging of eight subscales, including agentic (e.g. gaining respect from others), agentic-communal (e.g. having others listen to your opinion), communal (e.g. developing real friendships), submissive-communal (e.g. being liked by others), submissive (e.g. aiming to please others), submissive-separate (e.g. avoiding ridicule), separate (e.g. keeping to yourself), and agentic-separate goals (e.g. getting your way), which were used to obtain global vectors scores for the agentic and communal goal dimensions. Vector scores were calculated based on the formula reported by Ojanen et al. (2005):

\[
\text{Agentic Vector} = \text{Agentic} - \text{Submissive} + 0.707 \times (\text{Agentic and Communal} + \text{Agentic and Separate} - \text{Submissive and Communal} - \text{Submissive and Separate})
\]

\[
\text{Communal Vector} = \text{Communal} - \text{Separate} + 0.707 \times (\text{Agentic and Communal} + \text{Submissive and Communal} - \text{Agentic and Separate} - \text{Submissive and Separate})
\]

Agentic vector scores range from gaining status and appearing confident to avoiding conflict and submitting to others, and communal vector scores range from striving for closeness and fostering relationships to keeping a distance from others. These vector scores are used to measure agentic and communal goals (Findley & Ojanen, 2013).

Bullying and cyberbullying behaviours
Bullying and cyberbullying behaviours were assessed with adapted items created by Bergmann et al. (2017). Participants were asked to think about their behaviour towards others (during the last half a school year) and respond to items regarding their frequency on a scale ranging from (1) never to (6) multiple times a week. Bullying behaviours were assessed with six items, which included aspects of physical aggression, teasing, property damage, stealing, and social exclusion. Cyberbullying behaviours were assessed with four items, which included aspects of teasing, insulting, threatening, spreading rumours, social exclusion, and sharing private data online. Hence, we relied on a behaviour-based measurement that required adolescents to respond to a list of behaviours and did not refer to the term ‘bullying’; behaviour-based measurement aim to counteract personal stigmas or perceptions associated with being a ‘bully’, and rather focus on the frequency with which bullying behaviours are perpetrated (Thomas et al., 2015).

Results
Missing data
We initially removed all cases for which not a single item on the questionnaires relevant for the current study was answered, which left a total of 607 participants. As each subscale consisted of multiple items, we computed means (of the original scales) even if one item was missing. If more than one item in a subscale was unanswered it was treated as a missing value. An analysis of missing data patterns, for the variables relevant for the analyses, revealed that 20.63% of values were missing, afflicting 172 of the cases. The cases largely represent the participants who dropped out before completing the online study. Little’s MCAR test was not significant, \(\chi^2 = 53.64, \text{df} = 51, p = .37\), which allowed us to proceed with listwise deletion. Thus, the following data analyses is based on a final sample of 435 students (as described in the participants section).
Table 1. Descriptive statistics for callous-unemotional traits, social goals, bullying and cyberbullying.

|                | 1     | 2     | 3     | 4     | 5     | 6     | 7     |
|----------------|-------|-------|-------|-------|-------|-------|-------|
| 1. Callousness | −     | .48** | .30** | .32** | −.24**| .47** | .29** |
| 2. Uncaring    | −     | .28** | .26** | −.23**| .32** | .28** |
| 3. Unemotional | −     | −.03  | −.32**| .11*  |       | .11*  |
| 4. Agentic Goals| −    | .03   | .30** | .24** |
| 5. Communal Goals | − | −.09 |       | .006  |
| 6. Bullying    | −     |       | .65** |
| 7. Cyberbullying| −    |       |       |
| M              | .61   | .91   | 1.51  | −.98  | 2.14  | .35   | .30   |
| SD             | .42   | .52   | .62   | 1.42  | 1.81  | .46   | .54   |

*p<.05, **p<.01.

Table 2. Confirmatory factor analyses of the instruments.

|                            | CFA | χ²/df | p    | CFI  | TLI  | RMSEA |
|---------------------------|-----|-------|------|------|------|-------|
| **ICU**                   |     |       |      |      |      |       |
| Hierarchical Model        |     | 4.00  | <.00 | .69  | .63  | .08   |
| Hierarchical Model, 1 item removed |     | 4.19  | <.00 | .70  | .64  | .09   |
| Hierarchical Model, 1 item removed, with correlated item residuals |     | 2.90  | <.00 | .83  | .78  | .07   |
| **IGI-C**                 |     |       |      |      |      |       |
| Circumplex Model          |     | 2.58  | <.00 | .84  | .80  | .06   |
| Circumplex Model, 3 items removed |     | 2.41  | <.00 | .87  | .84  | .06   |
| Circumplex Model, 3 items removed, with correlated item residuals |     | 2.30  | <.00 | .88  | .85  | .06   |
| **Bullying and Cyberbullying Perpetration** | | | | | | |
| Bi-factor Model           |     | 12.97 | <.00 | .70  | .52  | .17   |
| Bi-factor Model, with correlated item residuals | | 4.89  | <.00 | .93  | .84  | .10   |

Models adjusted according to item loading and correlating item residuals (based on modification indices).

**Preliminary analyses**

Table 1 displays the means and standard deviations of the variables, as well as the correlations between them. Callousness, uncaring, and unemotionality correlated positively with bullying and cyberbullying behaviours, and negatively with communal goals. Callousness and uncaring correlated positively with agentic goals, which in turn correlated positively with bullying and cyberbullying behaviours. Aligning with the theoretical assumption that agentic and communal goals form two orthogonal dimensions (see, Ojanen et al., 2005), there was no significant correlation between them. Age correlated significantly with callousness ($r = .12, p = .01$), agentic goals ($r = .16, p < .01$), communal goals ($r = .12, p = .01$), bullying behaviour ($r = .12, p = .02$), and cyberbullying behaviour ($r = .14, p = .01$). Examining gender differences, we found that boys reported higher levels of callousness ($t(433) = 4.08, p < .01$), uncaring ($t(433) = 4.48, p < .01$), and bullying behaviour ($t(433) = 2.41, p = .02$). An examination of normal Q-Q Plots revealed that unemotionality, agentic goals, and communal goals are normally distributed, and agentic and callousness have slight deviations thereof; bullying and cyberbullying behaviours are both right skewed. Values from the CFA are reported in Table 2, and the reliability of the adapted scales in Table 3; the values are comparable to those reported in previous studies.

**Path analysis**

Our path model included the dimensions callousness, uncaring, and unemotionality as independent variables, agentic and communal (vector) goals as mediators, and bullying and cyberbullying behaviours as dependent variables. Gender and age were added as controls, with direct paths to the variables were gender and age differences were found. The model included covariances between residuals for the callous-unemotional trait dimensions, agentic and communal goals, and bullying and cyberbullying behaviours. Total, direct, and indirect effects were calculated using the bootstrapping method, with 5000 bootstrap samples and 95% confidence intervals.
Table 3. Descriptive values and reliability of scales.

| Scales          | Number of Items | Mean Inter-Item Correlations | Cronbach’s Alpha | McDonald’s Omega |
|-----------------|-----------------|------------------------------|------------------|------------------|
| ICU             |                 |                              |                  |                  |
| Callousness     | 10              | .20                          | .70              | .70              |
| Unemotionality  | 5               | .34                          | .72              | .73              |
| Uncaring        | 8               | .30                          | .77              | .77              |
| IGI-C           |                 |                              |                  |                  |
| Agentic         | 3               | .34                          | .60              | .61              |
| Agentic-Communal| 3               | .23                          | .45              | .48              |
| Communal        | 4               | .39                          | .72              | .72              |
| Submissive-Communal| 4      | .22                          | .51              | .56              |
| Submissive      | 3               | .52                          | .77              | .78              |
| Submissive-Separate | 4     | .53                          | .82              | .83              |
| Separate        | 6               | .31                          | .73              | .74              |
| Agentic-Separate| 3               | .46                          | .72              | .72              |
| Perpetration    |                 |                              |                  |                  |
| Bullying        | 6               | .31                          | .65              | .57              |
| Cyberbullying   | 4               | .38                          | .71              | .73              |

The scales include the number of items after removal based on the CFA.

The model generally exhibited good fit values; $\chi^2/df = 1.081$, $p = .372$, CFI = .999, TLI = .996, RMSEA = .014 [CI 90% (.00, .062)]. CFI and TLI values $\geq .95$ (Hu & Bentler, 1999) and a RMSEA value < .05 (Browne & Cudeck, 1993) indicates a good/acceptable model fit. Figure 1 depicts the significant associations in the final model. There was a significant direct effect on agentic goals from callousness ($\beta = .28$, $p < .01$, 95% CI [.18, .37]), unemotionalty ($\beta = -.17$, $p < .01$, 95% CI [-.26, -.07]), and age ($\beta = .13$, $p = .01$, 95% CI [.04, .21]). In total 15% of the variance in agentic goals was accounted for. There was a significant direct effect on communal goals from callousness ($\beta = -.13$, $p = .02$, 95% CI [-.23, -.02]), unemotionalty ($\beta = -.10$, $p = .04$, 95% CI [-.20, -.001]), unemotionalty ($\beta = -.26$, $p < .01$, 95% CI [-.35, -.19]), and age ($\beta = .16$, $p < .01$, 95% CI [.07, .24]). In total 17% of the variance in communal goals was accounted for. Only callousness and agentic goals had a significant direct effect on bullying behaviour ($\beta = .38$, $p < .01$, 95% CI [.25, .50], and $\beta = .14$, $p < .01$, 95% CI [.06, .22], respectively), whilst unemotionalty ($\beta = .10$, $p = .14$, 95% CI [-.03, .21]), unemotionalty ($\beta = -.02$, $p = .65$, 95% CI [-.12, .07]), communal goals ($\beta = .01$, $p = .83$, 95% CI [-.09, .12]), age ($\beta = .04$, $p = .33$, 95% CI [-.04, .12]), and gender ($\beta = -.06$, $p = .13$, 95% CI [-.12, .02]) did not. There was a significant direct effect on cyberbullying behaviour from callousness ($\beta = -.17$, $p < .01$, 95% CI [.05, .28]), unemotionalty ($\beta = .17$, $p < .01$, 95% CI [.06, .28]), and agentic goals ($\beta = .13$, $p < .01$, 95% CI [.05, .20]), but not from unemotionalty ($\beta = .04$, $p = .33$, 95% CI [-.04, .12]), communal goals

![Figure 1](image-url)
Callousness had a significant indirect effect on bullying behaviour ($\beta = .04, p = .01, 95\% \text{ CI} [.01, .07]$), and unemotionality had a significant indirect effect on cyberbullying behaviour ($\beta = -.05, p = .01, 95\% \text{ CI} [-.09, -.01]$). In total 26% of the variance in bullying behaviour was accounted for, and 14% of the variance in cyberbullying behaviour.

**Discussion**

Examining the associations between callous-unemotional traits, social goals, and bullying/cyberbullying perpetration, we found both direct and indirect effects in a path model. Separating the three dimensions of callous-unemotional traits revealed that these were differentially related to bullying and cyberbullying behaviours. As hypothesized, and aligning well with previous findings (Fanti et al., 2009), a direct positive association was found between callousness and bullying/cyberbullying behaviours. Uncaring was only related to cyberbullying behaviours, and unemotionality was not directly associated with bullying nor cyberbullying behaviours. Although the three dimensions of callous-unemotional traits have emerged as a best-fit model, studies show that the dimensions may be differentially associated with antisocial behaviours (Cardinale & Marsh, 2020), and our findings indicate that this may also be the case with bullying behaviour. Unemotionality reflects reduced emotional expression, which in and of itself, is not necessarily a predictive factor for bullying (see, Chervonsky & Hunt, 2018); hence, when considering the construct in isolation from, a direct association may be lacking. Uncaring being not directly related to bullying is contradictory to previous studies (Ciucci et al., 2014; Fanti et al., 2009). Arguing from an operationalization perspective, uncaring includes both social (e.g. not caring about others’ feelings) and non-social aspects (e.g. not caring about doing well at school), and if high scores on this dimension are driven by the later, than it could potentially explain the missing direct association.

Regarding the direct effects with social goals, we found that only agentic goals were positively associated with bullying and cyberbullying behaviours, and that communal goals were not associated with either. Caravita and Cillessen (2012) similarly only found a direct association between agentic goals and bullying, and not between communal goals and bullying. Agentic goals being associated with bullying and cyberbullying behaviours, aligns well with theoretical perspectives that suggest bullying offers a platform for exerting dominance over others (Thomas et al., 2018). Furthermore, a study by Smalley and Banerjee (2014), which examined situation-specific social goals in provocation scenarios, found that bullying was positively related with goals to be assertive (and negatively with relationship building goals). The current findings demonstrate that the higher a general goal orientation to attain status and authority over peers, the more frequently adolescents are to engage in bullying and cyberbullying behaviours. It should however be noted that in the model less variance was explained for cyberbullying than for bullying perpetration. Although a direct link is found between agentic goals and cyberbullying behaviour, and authors have previously applied the social dominance theory to this context (e.g. Espelage et al., 2013), we believe that future research should examine the underlying mechanisms linking the constructs more closely. As there is a high rate of overlap between bullying and cyberbullying (Estévez et al., 2020), it would be interesting to investigate whether cyberbullying is similarly driven by a desire for social dominance, and if so, how is this is achieved/subj ectively experienced by perpetrators especially under conditions of anonymity.

As hypothesized, all three callous-unemotional trait dimensions were negatively associated with communal goals, indicating a stronger endorsement of separation in peer interactions than affiliation and intimacy. This ties in with results that have shown that adjudicated adolescents with higher levels of callous-unemotional traits, are more likely to endorse dominance and forced respect goals when responding to hypothetical peer provocation situations, and less likely to endorse relationship building and conflict avoidance goals (Pardini, 2011). Many theories suggest that emotion regulation (including emotion expression) is essential for social interactions (Rose-Krasnor, 1997), and thus to develop and maintain intimate friendships. Furthermore, empathy has a positive influence on intimacy management competences and in turn with friendship closeness (Chow et al., 2013). Hence, high levels of callous-unemotional traits could result in adolescents opting for goal orientations that avoid fostering friendships,
so that they can keep their thoughts and feelings concealed, or because they may not have the required competencies to form high quality friendships. Haas et al. (2018) have found that even within (perceived) friendships, callous-unemotional traits were negatively associated with engagement in intimate exchange. We further found that callousness and uncaring were positively associated with agentic goals, indicating that adolescents with a lack of remorse, concern, and empathy are more likely to strive for status among their peers. Unemotionality was negatively association with agentic goals, indicating a stronger endorsement for submission (i.e. avoiding confrontation). It has been suggested that the expression of emotions, specifically anger, is a strategy to gain social status (Tiedens, 2001), and thus adolescents might avoid setting agentic goals which require emotion expression.

In line with our mediational hypothesis, and similar to the findings by Ojanen and Findley-van Nostrand (2019), the current findings indicate an additional indirect effect, linking callous-unemotional traits to bullying behaviour via agentic goals. Hence, the endorsement of agentic goals can be seen as a social-cognitive factor that describes one possible mechanism with which callous-unemotional traits are linked to bullying. A study by Fanti et al. (2009) found that adolescents with callous-unemotional traits showed more proactive aggression, which Matlasz et al. (2020) interpreted as using proactive aggression to assert dominance, as items were formulated to include this purpose (e.g. having fights to get peers to do what they want, or to show they are on top). Linking callous-unemotional traits and social goals with bullying can be theoretically embedded both in a social-emotional deficiency perspective, as well as an evolutionary perspective.

As noted earlier, children and adolescents with callous-unemotional traits have affective deficits, specifically in their processing of emotional and distressing stimuli (Kimonis et al., 2008). Further studies have demonstrated that callous-unemotional traits are also linked with deficits in responding to punishment and reward cues (Marini & Stickle, 2010), and are associated with poor theory of mind skills (Stellwagen & Krig, 2013). These social-emotional deficiencies and early social interactions may have led to acquired rules, social schemas, and knowledge (i.e. stored within the data base), and may predispose adolescents to endorse agentic goals over communal goals. For instance, adolescents with high callous-unemotional traits may not be able to recognize the value of communal goals. This is mirrored in studies which found that children high on callous-unemotional traits show deficits in the understanding of moral norms (Jambon & Smetana, 2018), and that adult psychopaths can accurately distinguish right and wrong in moral judgements, but simply do not care about this knowledge when responding (Cima et al., 2010). In line with the social information processing theory (see, Thomas et al., 2018), adolescents with callous-unemotional traits and agentic goals may then engage in aggressive behaviour, including bullying. Hence, this line of argumentation presumes that the pathway from callous-unemotional traits to bullying behaviours via agentic goals can be ascribed to early social-emotional deficiencies.

However, each of these constructs has also been presented as a functional adaptation within an evolutionary perspective. Although the presence of callous-unemotional traits may have negative consequences for the individual as well as society (and thereby causing harm, Jurjak, 2019), their heritability (amongst other factors) has led some authors to suggest that they can be adaptive when present at low frequencies in the overall population (i.e. opportunities of exploiting others, Glenn, 2019; Jurjak, 2019); furthermore, they may be functional for individuals under certain harsh environmental circumstances (i.e. increasing fitness, or coping, Glenn, 2019; Jurjak, 2019). Aligning with the two developmental pathways described earlier (S. Craig et al., 2021), the adaptive calibration model (Del Giudice et al., 2011) has been proposed as an evolutionary-developmental model for the aetiology of callous-unemotional and psychopathic traits (Glenn, 2019). The model proposes that children and adolescents develop blunted stress responsivity, also termed unemotionality, due to genetic predispositions or chronic/traumatic environmental stress; this unemotionality than manifests into psychopathy and associated aggressive behaviours (Glenn, 2019).

Regarding bullying, research has demonstrated that, just like aggression, it is to a certain extent heritable (Thomas et al., 2018), and may be viewed a proactive behaviour, an adaptive evolutionary strategy (i.e. resource control), focused on gaining social status and dominance to rudimentarily ensure
survival and reproduction (Volk et al., 2012). This perspective also highlights how agentic goals can serve an evolutionary function, and adolescents with high callous-unemotional traits may simply see more value in the attainment of agentic goals (at least in certain contexts). Hence, from an evolutionary perspective, callous-unemotional traits (just like other personality traits, see, Buss, 2009) genetically predispose children and adolescents to endorse motives for dominance and status, as well as aggressive and antisocial behaviours, such as bullying.

Irrespective of the taken perspective, our findings reveal that adolescents with high callous-unemotional traits are more likely to desire social status, control, and dominance over peers, which is distinctively different from a previously speculated motivation to simply inflict suffering onto others (Baroncelli et al., 2020). Our findings give merit to the examination of a motivational framework for psychopathy (Groat & Shane, 2020), as a new perspective to better understand engagement in antisocial behaviour. Denissen and Penke (2008) proposed that personality traits should be conceptualized as individual differences in motivational reaction norms to environmental stimuli; coupling this notion with callous-unemotional traits, we maintain that the motivational component should not be neglected in future studies examining social-cognitive processes and behaviours in adolescents with high callous-unemotional traits.

As bullying can be seen as a strategic behaviour for acquiring dominance (Ollthof et al., 2011), our mediational model suggests that adolescents with high callous-unemotional traits could be utilizing bullying as a strategy to attain their agentic goals. This sentiment has been proposed by others, who suggest that individuals with high psychopathic traits may be more likely to utilize aggression as a strategy to gain peer status and more frequent dating and sexual opportunities (Vaillancourt & Sunderani, 2011). Indeed, adolescents with high levels of callous-unemotional traits are more likely to strive for peer popularity (Fanti et al., 2013), and engage in more popularity-motivated aggression (Wright et al., 2021), as well as expecting positive outcomes for aggressive behaviours (Pardini et al., 2003). Furthermore, Pardini and Byrd (2012) found that children with high callous-unemotional traits thought that using aggression in hypothetical aggressive peer conflicts would increase their sense of dominance over the peer.

**Limitations and future research**

A main limitation in the current study is the reliability and the validity of the used instruments. Yet, an examination of previous literature demonstrated similar values for the ICU (see, Cardinale & Marsh, 2020; Essau et al., 2006; Ueno et al., 2021) and the IGI-C (see, Findley & Ojanen, 2013; Ojanen et al., 2005), indicating that this may be an issue with the instruments in general and not limited to the current study/sample. Although these instruments are widely used, a general revision might be necessary. Regarding the assessment of bullying behaviours, we did not utilize a definition-based measurement, which may be the more preferred method, especially for prevalence reporting (Thomas et al., 2015), nor did we assess different forms of bullying. The questionable reliability may be due to the broad operationalization of bullying, with items assessing all facets of bullying; thereby it would be classified as a heterogeneous construct, and hence reveal a lower Cronbach’s alpha (Tavakol & Dennick, 2011). Furthermore, we present cross-sectional data and thus causality cannot be inferred. Nonetheless, we maintain that the theoretical underpinnings, as well as the developmental chronology of the constructs, allows for a modest reconciliation with the path-analysis investigated in the current study; nonetheless, future longitudinal research is needed. Considering that agentic and communal goals are orthogonal dimensions, future studies could utilize person-centred analysis to focus on bi-strategic controllers, who utilize both aggressive and prosocial behaviours to achieve control and social status. Lastly, we note very little research has examined evolutionary-relevant variables in association with callous-unemotional traits, which is required to further theoretical understanding thereof.
**Suggestions for interventions**

Erdley and Asher (1999) concluded that interventions focusing on social goals may be more effective for children with emotional and behavioural disorders, than simply targeting their social skills. Similarly, Rose-Krasnor (1997) notes that children who have adequate social skills may still be involved in bullying perpetration if they endorse dominance goals. As the current findings indicate an association with agentic goals, we likewise maintain that social goals should be included as an additional component in bullying interventions. The anti-bullying programme KiVa (see, Salmivalli et al., 2013) builds on the notion that bullies are often driven by the desire for status and control over peers (i.e. agentic goals), and that the behaviour of bystanders, such as laughing, provides bullies with exactly what they desire. Hence, the intervention focuses on bystanders’ responses, so that bullying is no longer a strategy that can be used for gaining status and dominance. Alternatively, Volk et al. (2012) suggest that interventions with bullies could focus on communicating alternative, more prosocial, strategies that can be used to attain social dominance (e.g. acts of charity to flaunt their resources, or using strength to help defend victims). In a similar manner, social goals and prosocial strategies to attain status might also be integrated into interventions focused on callous-unemotional traits, for which treatment approaches that directly involve children and adolescents are needed (Wilkinson et al., 2016). Acknowledging that the behaviours of adolescents with high callous-unemotional traits may not only be driven by a lack of social-emotional skills, but also by strategic, motivated processes can offer new insights for interventions.

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