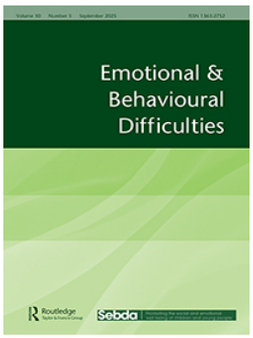

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An exploration of the impact of Callous-Unemotional traits on teachers' perceptions of student behaviour difficulties and on students' enjoyment of school

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ABSTRACT

Children with CU traits often present with significant conduct problems. This study investigated how CU traits may influence teachers' perceptions of students' behavioural difficulties, and how CU traits may impact students' enjoyment of school. The sample consisted of those who participated in the Healthy Start Happy Start (HSHS) study, including children aged 6–9 years ($n = 199$), their caregivers (n=199) and their teachers ($n = 95$). The HSHS sample comprised of children at higher risk of behavioural difficulties, due to indications of elevated early externalising behaviours. Three measures were included in the analysis: children's self-reported School Enjoyment (SE) survey, caregiver-reported Callous-Unemotional Traits Scale (CUTS), and teacher-reported Strengths and Difficulties Questionnaire (SDQ). The findings suggest that teachers perceive students with higher levels of CU traits to experience more behavioural difficulties overall, particularly in conduct and hyperactivity/inattention. However, students do not report any differences in their enjoyment of school based on their level of CU traits.

KEYWORDS

Externalising behaviour; Callous-Unemotional traits; teacher perceptions; school enjoyment

Callous-Unemotional (CU) traits are known to be particularly associated with significant conduct problems (Haas and Waschbusch 2012), as well as increased difficulties with peers, such as bullying (Viding et al. 2009). CU traits include low empathy, interpersonal callousness, restricted affect, and a lack of concern for academic performance (Horan et al. 2016). These traits have also been found to correlate with low guilt behaviours (Waller et al. 2020). Children with conduct problems and CU traits have been found to present with more symptoms typical of Oppositional Defiant Disorder (ODD) and/or Conduct Disorder (CD; Christian et al. 1997). Research also suggests that children with conduct problems and CU traits are likely to meet the criteria for ADHD (Haas and Waschbusch 2012). Frick, Bodin, and Barry (2000) found that ADHD is more prevalent in children with conduct problems who also present with CU traits, than in children with conduct problems but without CU traits.

Despite the evidence that CU traits are associated with conduct problems, peer problems, and ADHD, there is limited research on how teachers view children with high levels of CU traits. Students presenting with CU traits are typically less responsive to school discipline strategies and social

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rewards, seeming to lack the ability to learn from reinforcement information (Allen, Bird, and Chhoa 2018; Hwang et al. 2022; Viding and McCrory 2018). When universal behaviour management strategies, such as reward and sanction systems, are not effective for some students, more bespoke school interventions are often based on relational models. Examples include Collaborative and Proactive Solutions (Greene 2016) and Restorative Practice (Thorsborne and Blood 2013). These approaches are based on the building and maintenance of relationships to encourage appropriate behaviours within the school community.

There is also little research available on how children with high CU traits experience the school environment. School support has been found to be an important predictor of school enjoyment for students (Smith et al. 2016), with supportive student–teacher relationships being a potential source of enjoyment. However, students with CU traits tend to have poorer quality student–teacher relationships (Horan et al. 2016; Hwang et al. 2022). This is potentially problematic, as student–teacher relationships have been identified as being a predictor of students' internalising and externalising behaviours, and academic adjustment (Garcia-Rodriguez, Iriarte Redin, and Reparaz Abaitua 2023). In addition, Hwang et al. (2022) found that CU traits may reduce teacher-child affiliation, which could in turn potentially escalate the risk of a further increase in CU traits.

In a study investigating teacher-reported CU traits in the assessment of disruptive behaviours, it was found that teachers can distinguish CU traits from traditional indicators of disruptive behaviour (Willoughby et al. 2022). Few studies have requested teachers to assess CU traits specifically, and yet their perception of students' behavioural difficulties could be a very sensitive source of information about the prevalence of these behaviours (Squillaci and Benoit 2021). As such, the present study investigated whether teachers perceive students with higher levels of CU traits to have higher levels of behavioural difficulties.

In addition, the present study explored whether students report any differences in their enjoyment of school, depending on their level of CU traits. School enjoyment can be defined as having a positive emotional connection to school, specifically students who indicate they 'like school' (Smith et al. 2016). Students' enjoyment of school has been linked to academic achievement, with increased enjoyment being associated with improved academic outcomes (Morris et al. 2021) and better educational engagement (Gutman and Vorhaus 2012). As students with CU traits may experience a lack of concern for academic performance (Horan et al. 2016), this could potentially be associated with less enjoyment of school.

Cadman et al. (2021) suggest that children's experience of school could be an important modifiable risk factor for low attainment in children with mental health problems, as school enjoyment was found to partially mediate between earlier depressive and externalising symptoms and academic attainment. This suggestion builds on the finding from Smith et al. (2016), that mental health needs were a predictor of school enjoyment and academic aspirations. In Smith et al.'s (2016) study, students with lower mental health concerns were found to be more likely to enjoy school. Whilst CU traits are commonly found to co-occur with externalising problems, there have also been links found between CU traits and internalising problems such as anxiety and depression (Squillaci and Benoit 2021). If these issues co-occur with CU traits, this could then have a detrimental impact on the student's enjoyment of school.

As enjoyment of school is linked to students' academic outcomes, educational engagement, and mental health needs, it is important to understand whether CU traits may impact this aspect of students' school experience. One of the strengths of the current study is the use of multiple informants to gather information, with school enjoyment being self-reported by the child participants, child's CU traits being reported by their caregivers, and child's behavioural difficulties in school being reported by their teachers.

Research questions

The research questions (RQs) for this study are:

RQ1: Do teachers perceive students with CU traits to have more behavioural difficulties than students without CU traits?

RQ2: Do students with CU traits report a difference in their level of school enjoyment, compared to students without CU traits?

To address these research questions, the study conducted a secondary data analysis using extracts from the data set of the Healthy Start Happy Start (HSHS) follow-up study. The data was collected between 2022 and 2023. Caregiver and child participants in the follow-up study had all taken part in the original HSHS study, which took place between 2015 and 2018 (O'Farrelly et al. 2021). The original HSHS study sought to test the clinical effectiveness of a brief parenting intervention in reducing behaviour problems in children aged 12 to 36 months. Potential child participants were screened using the Strengths and Difficulties Questionnaire (SDQ).

The SDQ is a measure of emotional and behavioural problems in children. It includes 25 items across 5 subscales (Emotional Problems, Peer Problems, Prosocial Behaviours, Conduct Problems, and Hyperactivity/inattention), with each item focussing on a particular behaviour.

Those families invited to take part included a child who scored in the top 20% for externalising behaviours on the SDQ (≥8 on the externalising score, which consists of the Conduct Problems and Hyperactivity/inattention subscales). This characteristic means that the sample of children were at high risk of presenting with conduct problems in later childhood, as they were displaying early elevated externalising behaviour problems. It was found that the intervention was effective in reducing symptoms of early behaviour problems in young children when it was delivered in a routine health service context (O'Farrelly et al. 2021). The present study analysed data from the HSHS follow-up study which collected data from the same participant families between 5 to 6 years post-intervention, when the children were aged between 6 and 9 years old (mean age 8.2 years).

Hypotheses

The main hypothesis (H1) for the present study was that the teacher-reported SDQ scores will be higher for participants with higher CUTS scores. This would indicate that teachers perceive students with higher levels of CU traits to experience higher levels of behavioural difficulties, compared to students with lower levels of CU traits. Previous studies have found links between higher CU traits and higher psychopathology. For example, a study by Moran et al. (2009) found that CU traits were longitudinally associated with the SDQ overall score, as well as specifically with the subscales of conduct and emotional problems.

It was also hypothesised (H2) that participant-reported levels of school enjoyment will be lower for students with higher CUTS scores. This would indicate that students with higher levels of CU traits experienced less enjoyment of school, compared to those with lower levels of CU traits.

Methods

Participants

The present study analysed data from participants of the HSHS follow-up study. The original HSHS study recruited families in England with child participants aged 12 to 36 months, who scored in the top 20% for externalising behaviours on the Strengths and Difficulties Questionnaire (SDQ) based on the 2- to 4-year-old norming sample (O'Farrelly et al. 2021). This characteristic suggests that the sample displayed elevated externalising behaviours, including aggression, non-compliance, tantrums, hyperactivity, and inattention, placing them at high risk of presenting with behavioural

difficulties. The sample analysed in the present study includes caregiver and child participants from both the intervention and the control group.

There were 244 families included in the HSHS follow-up study, with the children all aged between 6 and 9 years old at the time of data collection. However, some data were missing for the measures that were used in the present study. As the caregivers and children took part in a range of research measures as part of the HSHS follow-up assessment, there were some occasions where families did not have time, or chose not, to participate in all the measures. This meant that the CUTS and/or School Enjoyment survey were not completed for all 244 caregiver and child participants. There was also missing data from the teacher-reported SDQ as not all the children's teachers responded to the request to complete the SDQ as part of the follow-up study.

Participants with missing data from child, caregiver, or teacher measures were excluded from the analysis. This meant that there were 95 child participants included in the analysis for RQ1, and 199 child participants included in the analysis for RQ2.

Regarding the sample of 95 participants used in the analysis for RQ1, the children were aged between 7 years and 9 years 6 months. The mean age of the children was 8 years 1 month. The sample was broadly balanced in terms of gender, with slightly more girls (50.5%) than boys (49.5%). The mean age of the children's caregivers was 41.89 years (94.7% Female). Most of the children attended a state primary school (86.3%), with the rest attending independent primary schools (13.7%). All the children were in school Years 2 to 5, with most in Year 3 (52.6%). The mean age of the children's teachers was 35.38 years (82.1% Female). The mean length of time their teachers had spent working professionally with children was 10.41 years. The mean length of time their teachers had known the child participant was 14.62 months, with an average of 24.56 hours per week direct contact with the child.

Regarding the sample of 199 participants used in the analysis for RQ2, the children were aged between 6 years 7 months and 9 years 6 months. The mean age of the children was 8 years 1 month. Again, the sample was broadly balanced in terms of gender, this time with slightly more boys (50.8%) than girls (48.7%). One child (0.5%) did not state their gender. Most of the children attended a state primary school (87.4%), with the rest either attending independent primary schools (11.1%) or being home-educated (0.5%). Two children (1%) did not state the type of school they attended. As with the sample for RQ1, all the children were in school Years 2 to 5, with most in Year 3 (53.3%).

Procedure

A range of measures were collected in the HSHS follow-up study. The data was primarily gathered during a visit to the family home by a Research Assistant. Data was gathered from the child participant and their primary caregiver. Where parental consent was given to contact the child's school, data was also gathered from their teacher. Teachers were contacted via email to ask them to complete a short survey online. The secondary analysis of the HSHS data for the present study was approved by the ethics committee of the first author's departmental institution.

Measures

Teachers' perceptions of behavioural difficulties

The child participants' teachers were asked to complete the teacher-report Strengths and Difficulties Questionnaire (SDQ; Goodman 1997) as an online survey. The SDQ consists of 25 items across 5 subscales (Emotional Problems, Peer Problems, Prosocial Behaviours, Conduct Problems, and Hyperactivity/inattention). Each item focuses on a particular behaviour and is given a rating on a 3-point Likert scale (*Not true, Somewhat true, Certainly true*). The subscale scores (excluding Prosocial Behaviours) are combined to create a score for overall difficulties (maximum score = 40). This paper does not report on any associations between CU traits and the SDQ Prosocial Behaviours

sub-scale. This is due to the CU traits measure including the SDQ prosocial items, making it difficult to interpret, despite different raters for each measure.

The internal consistency of the teacher-reported SDQ has been found in previous studies to be acceptable, with the overall difficulties score and all the subscales score, except for the Peer Problems (α = .63), having a Cronbach's α value of .70 or above (Stone et al. 2010). A more recent study by Heuvel et al. (2017) reports similar findings, with the teacher-reported SDQ overall difficulties score having good internal consistency (α = .80). All subscales also had Cronbach's α of .70 or above, except for Peer Problems (α = .60) and Conduct Problems (α = .64).

School enjoyment

The School Enjoyment (SE) survey data was gathered from the child participants as part of a range of measures during the HSHS follow-up assessment visit, which took place at the child's home with their main caregiver. The SE survey asks two questions; namely, whether the child likes school and how much they like going to school. This is in line with the Avon Longitudinal Study of Parents and Children (ALSPAC), in which parents were asked these same two questions, at age 6 years and age 6.5 years respectively (Morris et al. 2021). The first question, asking whether the child likes school, has a binary response of either yes or no. The second question is answered on a three-point Likert scale (*I like school a lot, I like school a bit, I don't like school*). Morris et al. (2021), using the same ALSPAC SE measure, found that school enjoyment was strongly associated with later academic achievement. In addition, using the ALSPAC SE data, Gutman and Vorhaus (2012) found that levels of school enjoyment have a strong association with educational engagement, and Cadman et al. (2021) examined school enjoyment as a mediator between earlier depressive and externalising symptoms and academic achievement.

Callous-Unemotional traits

The Callous-Unemotional Traits Scale (CUTS) data was also gathered as part of the range of measures at the HSHS follow-up assessment visit. The scale was completed by the child's main caregiver. It assesses CU traits using four items (reverse scored) from the SDQ (Goodman 1997) prosocial scale (i.e. 'Considerate of other people's feelings', 'Helpful if someone is hurt', 'Have at least one good friend', and 'Kind to younger children') and three items adapted from the Antisocial Process Screening Device (APSD; Frick and Hare 2001) CU subscale (i.e. 'Feels bad or guilty when he/she has done something wrong' (reverse scored), 'Seems motivated to do his/her best in structured activities' (reverse scored), and 'Does not show emotions'). This created a seven-item scale that has been used in prior studies of CU traits (e.g. Takahashi et al. 2020), as a brief measure of caregiver-reported CU traits. Each item was rated on a three-point Likert scale (*Not true, Somewhat true, Certainly true*). The maximum score on the CUTS is 14. As there is not a standard cut-off point indicating high levels of CU traits for this measure, this study used the median point of the CUTS scores for the study sample to allocate participants to the high or low CU traits groups.

Takahashi et al. (2020) conducted a series of confirmatory factor analyses on the CU traits measure and found that the items used in the CUTS were developmentally invariant and measured single factors, enabling assessment of individual differences in CU traits. Similar 7 to 9 item measures of CU traits, including items taken from the APSD and SDQ, have been used in other previous studies (eg (Dadds et al. 2005).

Data analysis

The secondary data analysis for the present study has been pre-registered with the Centre for Open Science (OSF; Oxley et al. 2024).

The participants were allocated to two groups based on their CUTS score: namely, High CU Traits (HCUT) and Low CU Traits (LCUT). As the CUTS is a relatively new measure, there is not a standard cut-off point available. Therefore, participants were allocated to groups using the median point of 3 as

a threshold, with those who had a CUTS score of 4 or above being allocated to the Higher CU Traits (HCUT) group.

To address Research Question 1 (RQ1), the teacher-reported SDQ data set was analysed to investigate whether teachers perceived greater behavioural difficulties (as indicated by a higher SDQ score) for participants with higher CU traits than for those with lower CU traits (as indicated by their CUTS score). It was initially intended to conduct a series of independent samples t-tests to compare the means between the two groups (HCUT vs LCUT) on each of the SDQ subscales, as well as the overall SDQ score. However, this was not possible due to the data for the SDQ subscales and overall SDQ scores not being normally distributed, as indicated by a Shapiro–Wilks test ($p < .001$ for all subscales and overall score). Therefore, a Mann-Whitney U test was conducted as a non-parametric alternative. As five tests are being performed (comprising the four SDQ subscales (not including the Prosocial sub-scale) and the overall SDQ score), correction for multiple comparisons has been made using the Bonferroni adjustment. This means that the significance level will be set at $p < .01$, rather than the usual $p < .05$. Correlations were also explored between the CUTS scores and the SDQ subscales and overall scores. As the data was again not normally distributed, Spearman's test was conducted.

To address Research Question 2 (RQ2), the participant-reported School Enjoyment (SE) survey data set was analysed to examine whether there was any difference between whether, and how much, the participants reported enjoying school, depending on whether they were allocated to the HCUT group or LCUT group. The responses to the first survey question are binary categorical data, and the responses to the second survey question are ordinal with three points on the scale. The intended analysis was independent sample t-tests (Oxley et al. 2024), which was not possible as the SE survey data is not continuous. As such, a Chi-Square test was conducted on the data for the first survey question, and a Mann-Whitney U test was conducted on the data for the second survey question. For this second question, a point-biserial correlation coefficient was also used to look for any relationship between school enjoyment and CUTS scores.

Results

The findings in response to RQ1, of whether teachers perceive students with higher levels of CU traits to experience higher levels of behavioural difficulties, compared to students with lower levels of CU traits, are presented below.

Research question 1: teachers' perceptions of student behavioural difficulties, depending on the level of CU traits

A total of 244 families took part in the HSHS follow-up study between 2022 and 2023. Of these, 210 children completed the CUTS measure, and 95 of the children's teachers completed the teacher-reported SDQ. This gave 95 child participants with data for both CUTS and SDQ. The SDQ demonstrated good internal reliability (Overall score α = .88; Emotional Problems α = .82; Peer Problems α

Table 1. Descriptive analysis of CUTS data for RQ1 group.

CUTS data ($n = 95$)	
Range	0–11
Mean	3.06
Median	3
Mode	3
SD	2.04

Table 2. Descriptive analysis of CUTS data for RQ1 HCUT and LCUT groups.

LCUT group ($n = 60$)		HCUT group ($n = 35$)	
Range	0–3	Range	4–11
Mean	1.82	Mean	5.2
Median	2	Median	5
Mode	2	Mode	4
SD	0.97	*SD*	1.55

= .68; Conduct Problems α = .76; and Hyperactivity/inattention α = .88). A descriptive analysis of the CUTS data for this group (RQ1) is shown in Table 1.

The participants were allocated to two groups based on their CUTS score, using the median point of 3 as a threshold, with those who had a CUTS score of 4 or above being allocated to the Higher CU Traits (HCUT) group. There were 60 (63%) participants allocated to the Lower CU Traits (LCUT) group and 35 (37%) participants allocated to the HCUT group. The proportion of the participants in the Lower and Higher CU trait groups is in line with previous reports (Kahn et al. 2012). A descriptive analysis of the CUTS data for each group is shown in Table 2.

A Mann-Whitney U test was conducted to compare the differences between the two groups on the four SDQ scales and overall SDQ score.

The results indicated there were statistically significant differences between the LCUT group and HCUT group on the SDQ scales of conduct problems ($U = 687.5$, $r_{rb} = .218$, $p = .002$), and hyperactivity/inattention ($U = 559.5$, $r_{rb} = .271$, $p < .001$), as well as on the overall SDQ score ($U = 654.5$, $r_{rb} = .217$, $p = .002$). There was no statistically significant difference between the groups on the SDQ scales of emotional symptoms ($U = 1024.5$, $r_{rb} = .014$, $p = .839$) and peer problems ($U = 876$, $r_{rb} = .101$, $p = .155$).

A post-hoc power analysis was conducted using G*Power 3.1.9.7. The analysis indicated that the achieved power was .09 for the overall SDQ score; .09 for conduct problems; .14 for hyperactivity/inattention; .01 for emotional symptoms; and .03 for peer problems. Whilst this suggests that the study may be underpowered, post-hoc power analysis must be interpreted with caution. It is also possible that the difference in size between the two groups may have an impact on the power reported.

A Spearman's test was conducted on the SDQ scale scores and the CUTS scores to explore correlations. The test shows that there was a statistically significant positive correlation between the CUTS scores and the overall SDQ score ($r = .313$, $p = .002$); conduct problems ($r = .371$, $p < .001$); and hyperactivity/inattention ($r = .337$, $p < .001$). There were no statistically significant correlations between the CUTS scores and emotional problems ($r = .059$, $p = .568$) and peer problems ($r = .179$, $p = .083$).

The findings in response to RQ2, of whether students with higher levels of CU traits experience less enjoyment of school, compared to those with lower levels of CU traits, are presented below.

Research question 2: students' enjoyment of school, depending on level of CU traits

Of the 210 participants who completed the CUTS measure, there were 199 participants who completed both the CUTS measure and the School Enjoyment survey. A descriptive analysis of the CUTS data for this group (RQ2) is shown in Table 3.

The participants for the RQ2 group were allocated to two groups based on their CUTS score, using the median point of 3 as a threshold. This was the same threshold as was used for allocating participants in the RQ1 group. Those who had a CUTS score of 4 or above were allocated to the Higher CU Traits (HCUT) group. There were 125 (62.8%) participants allocated to the Lower CU Traits (LCUT) group and 74 (37.2%) participants allocated to the HCUT group. As with the groups in RQ1,

Table 3. Descriptive analysis of CUTS data for RQ2 group.

CUTS data ($n = 199$)	
Range	0–11
Mean	3.16
Median	3
Mode	3
SD	2.19

Table 4. Descriptive analysis of CUTS data for RQ2 HCUT and LCUT groups.

LCUT group ($n = 125$)		HCUT group ($n = 74$)	
Range	0–3	Range	4–11
Mean	1.77	Mean	5.5
Median	2	Median	5
Mode	3	Mode	4
SD	1.05	*SD*	1.49

the proportion of the participants in the Lower and Higher CU trait groups is in line with previous studies (Kahn et al., 2012).

The descriptive data for the SE survey show that in both groups more participants said that they enjoyed school ($n_{LCUT} = 111$ [88.8%], $n_{HCUT} = 64$ [86.5%]) than those who said that they did not enjoy school (LCUT n=14 [11.2%], HCUT $n = 10$ [13.5%]). There were slightly more participants in the HCUT group who said that they did not enjoy school, compared to the LCUT group (13.5% vs 11.2%).

In both groups, most participants said that they liked school a lot ($n_{LCUT} = 69$ [55.2%], $n_{HCUT} = 35$ [47.3%]), and the smallest number of participants said that they did not like school at all ($n_{LCUT} = 11$ [8.8%], $n_{HCUT} = 4$ [5.4%]). There were slightly more participants in the LCUT group who said that they did not like school at all, compared to the HCUT group (8.8% vs 5.4%).

A descriptive analysis of the CUTS data for each group is shown in Table 4 and a summary of the School Enjoyment survey responses is shown in Table 5.

A Chi Square test was conducted to examine whether there was any relationship between the two categorical variables; namely, the CU group and whether the participant likes school.

The results of the Chi Square test (χ^2 (1, $N = 199$) = .235, $p = .628$, Cramer's V = .034) show that there is no statistically significant difference between the report of school enjoyment and the participant's level of CU traits. A post-hoc power analysis was conducted using G*Power 3.1.9.7. The analysis indicated that the achieved power was .987.

A point-biserial correlation coefficient was conducted to look for any relationship between the participants' CU group and their liking of school. The results of this test (r_{pb} (197) = .030, $p = .672$) show that there is no statistically significant relationship between the two variables.

Table 5. Summary of the school enjoyment survey responses.

LCUT	SE Q1 (*n*)	%	HCUT	SE Q1 (*n*)	%
1 (yes)	111	88.8	1 (yes)	64	86.5
2 (no)	14	11.2	2 (no)	10	13.5
LCUT	SE Q2 (*n*)	%	HCUT	SE Q2 (*n*)	%
1 (a lot)	69	55.2	1 (a lot)	35	47.3
2 (a bit)	45	36	2 (a bit)	33	44.6
3 (don't)	11	8.8	3 (don't)	4	5.4

A Mann-Whitney U test was conducted to compare the differences between the two CU groups and the response to their liking of school on the 3-point Likert scale (*I like school a lot, I like school a bit, I don't like school*). This non-parametric test was chosen as the dependent variable (the question response) is ordinal. The results of the Mann-Whitney U test ($U = 4306$, $p = .363$) show that there is no statistically significant difference between how much participants report enjoying school and their level of CU traits.

Discussion

The present study investigated whether teachers perceive students with higher levels of CU traits to experience higher levels of behavioural difficulties, compared to students with lower levels of CU traits. It also explored whether students with higher levels of CU traits reported less enjoyment of school, compared to those with lower levels of CU traits.

Teachers perceive increased behavioural difficulties for students with higher CU traits

The study results suggest that teachers do perceive students with higher levels of CU traits (as identified by the participants' caregivers) to experience higher levels of behavioural difficulties, thus indicating that H1 was supported. The results showed that teachers perceived the students in the HCUT group to have increased difficulties in the areas of conduct problems and hyperactivity/inattention, as well as perceiving them to experience more behavioural difficulties overall, compared to the students in the LCUT group. The direction of the relationships found in the correlations was as expected, with the conduct problems, hyperactivity/inattention, and overall difficulties score being higher for students with higher CU traits.

The relationship between CU traits and hyperactivity/inattention was particularly strong. This supports previous studies which have found associations between CU traits, Attention Deficit Hyperactivity Disorder (ADHD), and conduct problems (Babinski et al. 2017). Both ADHD and CU traits have been found to moderate conduct problems in the classroom (Waschbusch and Willoughby 2008). Whilst Waller et al. (2015) found that there are unique dimensions to CU traits, oppositional behaviour, and ADHD, they also found that CU traits predicted an increase in teacher-reported externalising behaviours from ages 3–6 years over and above covariates, and ADHD and oppositional behaviour. Moran et al. (2009) did not find that CU traits were longitudinally associated with hyperactivity problems. However, they did find that there were longitudinal associations between CU traits and the overall SDQ score, as well as the conduct problems and emotional problems subscale. In addition, Viding, Fontaine, and McCrory (2012) suggest that children with high levels of CU traits are highly likely to display high levels of conduct problems.

It could be expected that students with higher CU traits may experience increased peer problems due to their difficulty forming and maintaining relationships. Links between CU traits and increased peer problems have been suggested by previous studies. For example, Viding et al. (2009) found that higher levels of CU traits were associated with higher levels of direct bullying. However, this was not shown to be the case in the current study, with no relationship found between peer problems and level of CU traits. It may be that the prior findings could in part reflect a rater bias as the same rater (the child) reported on both peer problems and CU traits.

The SDQ Emotional Problems subscale may be interpreted as reflecting anxious behaviours. Squillaci and Benoit (2021) found associations between CU traits and internalising problems such as anxiety and depression, and levels of anxiety co-occurring with CU traits have been used for identifying primary (associated with a strong genetic influence) and secondary (associated with experience of adversity) variants of CU traits (Tomlinson et al. 2025). However, previous studies have found that high levels of CU traits are strongly influenced by genetics, regardless of level of anxiety (Humayun et al. 2013). Michielsen et al. (2022) found that adolescents with intermediate CU traits

and high anxiety were most likely to present with aggressive behaviour, compared to adolescents with high CU traits and low anxiety as well as a control group with low CU traits and low anxiety.

Students with higher CU traits may be perceived to experience fewer emotional problems due to their presentation of restricted affect. However, the present study did not find any relationship between emotional problems and the level of CU traits. This finding is in contrast to Moran et al. (2009) findings of a positive association between CU traits and the emotional problems subscale. Waller et al. (2015) found that, although there were significant correlations between CU traits and ADHD behaviour, only ADHD was related to lower emotion understanding. Despite cognitive understanding of emotions, the study found that children with CU traits appeared to lack emotional empathy. These findings could perhaps explain to some extent the findings of the present study. However, it is also important to note that many other studies have also reported no or negative associations between CU traits and emotional problems (for example, Frick and White 2008).

Students report no difference in their enjoyment of school based on their level of CU traits

The analysis did not show any statistically significant differences between how much participants reported enjoying school and whether they have higher or lower CU traits. This means that our H2 was not confirmed and students in our sample with higher CU traits do not report any difference in their level of school enjoyment, compared to students with lower CU traits. Future research is needed to confirm whether this finding will replicate or, for example, hold for older children.

There were some inconsistencies in the students' reports about their school enjoyment. For example, in the LCUT group, there were 14 (11.2%) participants who said that they did not enjoy school in response to the first question, and then 11 (8.8%) of these participants maintained this view in the second question by stating that they did not like school at all. However, in the HCUT group, there were 10 (13.5%) participants who said that they did not enjoy school in response to the first question, but only 4 (5.4%) participants maintained this view in their response to the second question by stating that they did not like school at all. This suggests that the participants in the HCUT group were less consistent in their reports of school enjoyment.

Despite H2 not being supported in this study, these findings are still potentially of interest, especially when considered in conjunction with the findings from RQ1. It suggests that students with higher CU traits still enjoy school to the same extent as students with lower CU traits. This enjoyment holds true despite the potential for poorer quality student–teacher relationships, which have been shown in previous studies to predict a range of student-related factors (Garcia-Rodriguez, Iriarte Redin, and Reparaz Abaitua 2023) that could be considered to potentially contribute to student enjoyment of school. Perhaps a consequence of the CU traits, such as restricted affect, mean that the poorer quality of student–teacher relationships does not matter as much to students with a higher level of these traits, thus not making an impact on whether or not they enjoy school.

It could also be considered a positive finding, in that most students are enjoying school, regardless of their level of CU traits and regardless of their teachers' perceptions of their behavioural difficulties.

Limitations and future Research

The present study was a secondary data analysis, which had associated problems with some participants' data found to be missing, which reduced the final sample size included in the analysis. That is, out of an initial sample of 244 participants, the present study could only include 199 participants for RQ2 and 95 participants for RQ1.

Furthermore, the present study did not include a separate measure of conduct problems for the participants. This meant that, for RQ1, we were unable to ascertain whether teachers perceived students with higher levels of CU traits to have had more overall behavioural difficulties due to a biased perception held by the teachers. This could potentially be due to the presence of CU traits,

for example causing a poorer quality student–teacher relationship. Future research could build on the findings of this study by gathering data on student CU traits, as well as data for the same students on student–teacher relationship quality (for example, via the Student–Teacher Relationship Scale; Pianta 2001) and on conduct problems (for example, via measures of school exclusion and internal school sanctions such as behaviour points or detentions). Careful consideration should be given to the measurement of conduct problems to ensure it is as objective as possible. Including these sources of data in a similar analysis would enable consideration to be given as to the origin of the perception of the higher level of behavioural difficulties for students with higher levels of CU traits.

In addition, future research could consider different aspects of school enjoyment. This would enable examination of whether children with high levels of CU traits enjoy the same or different aspects of school, compared to children without CU traits.

Conclusion

Findings from the study suggest that teachers may perceive students who present with higher levels of caregiver rated CU traits to have more behavioural difficulties overall, compared to students with lower levels of caregiver rated CU traits. Regardless of the origin of the perception of increased behavioural difficulties, this belief is likely to negatively impact student–teacher relationships. In turn, these poorer quality student–teacher relationships could have an adverse influence on students' internalising and externalising behaviours and academic adjustment. However, findings from the study also showed that there was no difference in the level of school enjoyment reported by the students, irrespective of their level of CU traits. This finding suggests that, despite the teachers' perception of additional behavioural difficulties, the students themselves are not finding these to impact their enjoyment of school.

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Data availability statement

Deidentified participant data collected during the study will be made available to researchers who provide a methodologically sound proposal and have the required institutional approvals in place to achieve aims in the approved proposal. Proposals should be directed to the primary corresponding author, Dr Christine O'Farrelly (cmo41@cam.ac.uk), to gain access, and requestors will be asked to sign a data access agreement. The study protocol and informed consent form will also be available.

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