Callous-Unemotional Traits are Associated with Child-to-Parent Aggression

Running Head: Callous-Unemotional Traits and Child-to-Parent Aggression

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Compliance with Ethical Standards.

Conflict of Interest. The authors declare that they have no conflict of interest.

Abstract

This study examined the relations between callous-unemotional traits and perpetration of aggression towards parents in two separate studies, while also considering motivation for aggression and parenting styles experienced among young people. Study 1 involved 60 parents of children aged between 11-17 years old. The online study found high callous-unemotional traits, as reported by parents, to be associated with aggression towards both parents. Both types of motivation (proactive and reactive, as reported by parents) were associated with aggression towards parents. Study 2 involved 42 youths from an alternative education sample (between 11-16 years old). Youths with higher self-reported callous-unemotional traits reported more aggression towards both parents. Both studies, which had different reporters and different samples, showed youths with higher callous-unemotional traits were more aggressive towards their parents. In discussing the results, we note the importance of including callous-unemotional traits in future research on parent-directed aggression and in studies on domestic violence more broadly.

Keywords

Child-to-parent aggression, Callous-unemotional traits, Peer Aggression, Parenting Styles, Motivation of aggression.

Family abuse by young people is not a new phenomenon (Purcell et al., 2014), but to date, available studies in this area are somewhat limited compared to other types of violence and aggression that occurs within home settings. At present, a legal definition of child-to-parent aggression (CPA), violence, or abuse is still lacking. Cottrell, however, defined this incidence as 'any act of a child that is intended to cause physical, psychological or financial damage in order to gain control over a parent' (Cottrell, 2001). Due to the complexity of parent-directed aggression cases, no one factor is likely to explain such behavior. Among the factors identified are substance abuse, parenting styles, mental health issues, peer influence, poverty, and gender (i.e., male viewing themselves as more dominant than female) as contributors to the commission of parent abuse (Cottrell & Monk, 2004).

Callous-unemotional (CU) traits may be one factor that relates to aggression towards parents. CU traits are described as a group of traits of callousness, lacking remorse towards others, shallow affect and/or insensitivity towards the feelings of others (Kimonis et al., 2015). Such traits appear to further explain the early-onset of conduct disorder, which tend to still be present in their antisocial behavior in adulthood (Burke et al., 2007; Lynam et al., 2007; Pardini & Frick, 2013). CU traits are not only evident in children and adolescents (Frick & Marsee, 2006), but they are relatively stable across these developmental stages (i.e., based on studies that examined young people over 1, 2, and 5 year periods among children aged 7 to 17 years; Burke et al., 2007; Frick et al., 2003; Lynam et al., 2009). Not only are CU traits and aggression in children and adolescents are correlated (Waller et al., 2017), CU traits also characterize a group of young people who are more aggressive and have severe antisocial behavior (Edens et al., 2008; Frick & White, 2008; Frick & Hare, 2001; Ray & Frick, 2020). Recent studies also found that with the presence of elevated levels of CU traits among young people with problem behavior formed a 'sub-group' of those who are severely violent, thus difficult to treat (Blair et al., 2014; McMahon et al., 2010; Ray & Frick, 2020).

During middle childhood, individuals' lack of empathy and compassion towards others might relate to their egocentric behavior and higher tendency to lie, threaten, and be cruel towards their siblings and friends. As they move into adolescence, they continue to show violence at school and also towards their parents (Estévez & Góngora, 2009; Garrido, 2005). Since young people with CU traits fail to feel remorse or empathy for peers with whom they are aggressive, they may generalize to hurting their parents or other people in the home.

Evidently, a study conducted on 9,415 Polish adolescents found that those with high levels of CU traits were significantly more aggressive and persistent in their aggressive behavior compared to their peers who did not possess these traits (Perenc & Radochonski, 2014). Consequently, aggressive behavior are more stable among youth with high CU traits (Byrd et al., 2012; Frick & White, 2008; Munoz & Frick, 2007), which shows the importance of conducting assessment on these traits among CPA perpetrators. In their trait-based model proposed to explain the incidences of CPA, Kuay et al. (2017) theorized young people who perpetrate aggression towards their parents into two groups; the first group were called 'generalists' who were theorized to be high on CU traits and directed their aggression towards parents and peers as well as siblings. The second group were the 'specialists' who were theorized to be low on CU traits and targeted aggression towards the people who were perhaps harsh in their treatment of the young person – the parents, only.

There are several reasons why individuals high on CU traits were theorized to be less discerning in their use of aggression. For instance, juveniles with elevated CU traits believe that using aggression towards peers in a conflict situation will give them a positive outcome (Pardini, 2011; Perry et al., 1986). Some will use aggression against peers to achieve a secondary or instrumental goal, i.e., attaining 'respect' or getting money (Pardini et al., 2003). One could imagine demanding respect or achieving a particular goal (e.g., more money, independence) could generalize to treatment of one's parents. It is also less likely that

they will notice the suffering of their victims, which leads to continuous violent behavior (Pardini, 2011). Despite knowing that causing harm and pain on other people is wrong, they tend to justify their actions as necessary (i.e., blaming peers whom they have victimized for leaving them no other choice) (Hare, 1999). Indeed, Hare (2003) stated that people who are high in CU traits (measured as psychopathy) are manipulative, lacking emotions, irresponsible, and possess antisocial characteristics. For that reason, motivation or goals of perpetrating aggression is an important aspect to measure to better understand aggressive behavior in adolescents.

It has been argued that aggression among adolescents with CU traits can be both proactive and reactive in nature, while those without these traits tend to show lower aggression, which is more reactive in nature (Frick et al., 2003; Kruh et al., 2005). Based on social learning theory, parents who lacked parental warmth or used harsh parenting styles might promote aggression among their children – but Kuay et al. (2017) argued that this is applicable especially to children low on CU traits. In other words, increasing parental warmth can aid young people to build emotional attachments, while learning to read distress cues in others (Dadds et al., 2014). Past study also found that positive reinforcement from adoptive parents can protect children from the heritable risk of developing CU traits (Hyde et al., 2016). On the other hand, young people who are in absence of CU traits have the tendency to show higher negative emotion which is temperamental and more internalizing (Pardini et al., 2003). Furthermore, young people with poor anger regulation tend to develop aggression and conduct problems later in their life (Arsenio et al., 2000; Lengua & Kovacs, 2005). For instance, they might over-interpret vague social cues as threats and provocation, resulting in perpetration of aggression (Schultz et al., 2004). It is therefore important to test if peer aggression for certain motivations might be related to CPA, since the relation with CU has been shown in prior studies.

Adolescents who are high on CU traits are less responsive to punishment and are likely to be more responsive to reward-based discipline techniques (Hawes & Dadds, 2005; Kimonis et al., 2019). Given that punishment often does not appear to work for parents, the way youths with CU traits respond to parents' attempts to manage their behavior may be with coercive behavior or aggression. Also, coercive control may be reciprocal, from parent to child and child to parent. According to Kashahu (2014), "The process of a child's growth is based on the creation of reports and agreements between parent and child, where parents in most cases decide the best way to treat a child, maintaining a balance between freedom and coercion". In line with that, Paulson et al. (1990) found that non-abusive children tend to have the chance to discuss any issues including personal problems with parents, which may have helped to resolve parent-child conflicts using reasoning, rather than resorting to aggressive approach. Failing to acknowledge their children's good behavior also increases the chance of CPA (Jablonski, 2007). Parental permissiveness at home also predicted CPA (Cottrell & Monk, 2004; Paulson et al., 1990). This permissive parenting style tends to lead to the reversal of power between parent and child (Harbin & Maddin, 1979), where the child sees no serious consequences even if they were to show negative behavior (Hong et al. , 2011; Omer, 2000; Pagani et al., 2003). It is just a matter of time for the child to realize that being aggressive could successfully make their parents comply with their wishes.

Although previous studies have linked motivation or goals with aggression, to date, study which directly addresses this issue within the CPA context is still lacking. The closest study of this type was conducted by Purcell et al. (2014). In their research on aggression within the family, most perpetrators had repeated the offence for months or years prior to the parent's application for a court order. More than 10% of the perpetrators committed instrumental aggression to scare a sibling or to obtain material benefit from the parents (i.e., money or alcohol). Only 8% of the cases occurred after being provoked by the victim.

Moreover, Calvete et al. (2014) interviewed children from the support group and received responses indicating they have learnt that aggression was necessary in order to take control of their parents, and most importantly, to gain respect. The findings showed that aggressive behavior was related to how people view aggression as a tool to bring them closer to their goals. It is possible that adolescents may choose to abuse their parents for personal gain, or it might be due to wanting to get revenge as a response towards harsh parenting (Kuay et al., 2017). Of importance, most past studies were conducted on various populations which included adjudicated, clinical, special, and general populations. However, it can be argued that these studies did not take into account factors that may have contributed to aggression towards parents. Most importantly, to the best of our knowledge, there has yet to be a study that examined CU traits among youth CPA perpetrators.

The Present Study

Two studies were conducted that aimed to explore the relationship between the study variables, including motivation of aggression towards parents (i.e., proactive vs reactive) in Study 1, motivation of peer-directed aggression (i.e., proactive vs reactive) in Study 2, parenting styles, CU traits, and child aggression towards parents. One study (Study 1) involved an online survey for parents. The other study (Study 2) involved self-report measures by youths as well as teacher-reports of peer aggression in school, and parent-report of parenting. To ensure variability in aggression, Study 2 was conducted in an alternative education school (specializing in education for youths with Emotional and Behavioral Difficulties).

Specifically, Study 1 aimed to look at the unique association between CU traits and aggression towards fathers/mothers, but also to examine the associations between motivations of aggression and aggression towards fathers/mothers. Further, negative and positive parenting practices were included as covariates since parenting has been associated with CU

traits and with CPA. In Study 2, the aims were to test the unique association between CU traits and aggression towards fathers/mothers. This time, we examined the association between sub-types of peer aggression to test if motivations for peer aggression were related to aggression towards fathers/mothers. Again, we included parenting practices.

Study 1

Method

Sample

Sixty parents of children (31 boys, 29 girls) aged between 11 to 17 years old (M_{age} = 14, *SD* = 1.8) who were residing in the UK (n = 48), USA (n = 10), or Canada (n = 2) during the data collection period took part in answering an online survey. Thirty-five of the parents found the link for the survey on social network (i.e., Facebook and Twitter), 13 from parenting blog (i.e., Mumsnet, Netmums, etc.), and 12 received the link through email or text messages (i.e., Whatsapp). Parents were aged between 28 to 60 (M_{age} = 42, *SD* = 6.7) with an annual household income between $15,000 (£11,323.50) to $150,000 (£113,235) (*M* = $45,000 (£33,975), *SD* = $22,500 (£16,987.50)). Most of the respondents were the biological mothers of the young person (n = 53) and the others were the biological father (n = 5) or others (n = 2). Forty-six of the young people were living with both parents. About 92% (n = 55) of the mother and 85% (n = 51) of the father reported that their child perpetrated verbal aggression towards them. Nearly 43% (n = 26) of parents reported physical aggression towards mother and 38% (n = 23) were towards father. Data was inspected for face validity and responses that seemed inaccurate or incomplete were removed from analysis. Full information was given in the recruitment letter about the type of questions that will be asked in the survey.

Measures

Aggression towards parents. Aggression towards parents was measured using the Conflict Tactics Scales (CTS) (Straus et al., 2006). The CTS is a widely used measure for conflict management within the family. Tactics of conflict management was measured using the three scales: reasoning, usage of verbal aggression, and violence (physical aggression) (Straus, 1979). The 62-items are rated on a 7-point Likert scale from 1 (not in the past and not previously, never) to 7 (21 or more times in the past year). In the present study, parent-report data was obtained. Similarly, a previous study also used parent-report data on children between the ages of 2 to 17 years old (Eriksen & Jensen, 2006). The scale showed high internal consistency in the past studies. There are three subscales in CTS, which measures verbal and physical aggression and using reasoning in resolving conflict with parents. The verbal and physical aggression subscales were combined in this study to form parent-directed aggression subscale (i.e., separately, towards mother and father). Each subscale had high reliabilities, with the Cronbach's alphas between α = .89 to α = .97.

Callous-unemotional traits. The Inventory of Callous-Unemotional Traits (ICU) (Frick, 2004) was used to measure adolescent's CU traits. The 24-item inventory is rated on a 4-point Likert scale from 0 (not at all true) to 3 (definitely true). Example of the items are "does not show emotions" and "shows no remorse when doing something wrong". Parent-reports for ICU were obtained in this study. Parent report on ICU was used in studies that were conducted within the UK and showed good internal consistencies (Muñoz et al., 2011). The scale has high reliability with the study sample with Cronbach's α = .88.

Motivation for aggression. Parents chose a statement from the list which best describes what they perceive to be the motivation of their child's aggression. The list was created based on Hunt's (1993) five types of aggression. The items have been modified to fit the context of violence within the home and for parents to answer. There are six questions from the list, whereby three of the items represent proactive motivation and three items

represent reactive aggression. The participants were requested to choose a statement that best represent their child's motivation of aggression. The responses were converted to dichotomous answers (Yes = 1, No = 0, for each reactive and proactive motivation of aggression). This was done to give a clear distinction of the type of motivation the young aggressors were more likely to use. Example of the items on this scale is "he/she uses aggression to get his/her own way" (proactive) and "he/she is normally seeking revenge" (reactive).

Parenting. The Alabama Parenting Questionnaire (APQ) (Frick, 1991) was used to measure parenting behavior. The 42-item scale is rated with a 5-point Likert scale ranging from 1 (never) to 5 (always). There are five subscales from the questionnaire, which are monitoring and supervision, inconsistent punishment, corporal punishment, positive parenting, and involvement. Seven additional items which measured specific discipline practices were included (i.e., other discipline practices subscale) to reduce the negative bias towards corporal punishment questions (Shelton et al., 1996). The APQ has been used in previous studies within the UK and showed broadly satisfactory internal consistencies (Psychogiou et al., 2007; Scott et al., 2012). The Cronbach's alpha for the subscales were between α = .67 to .91. Example of the items in the scale are, "you have a friendly talk with your child" and "you yell or scream at your child when he/she has done something wrong".

Procedure

The study obtained approval from the university's Institutional Review Board (IRB). The survey was posted using a secure internal server to ensure security of the data. Full consent was taken before they could proceed with the survey (participants ticked the consent box to proceed with the survey). All server-side data is anonymous, and no Internet Protocol (IP) address is collected from the survey. Each participant was given a 6-digit randomly generated alphanumeric code at the beginning of the survey. The 6-digit code were only

known to the participant. The rationale of including this 6-digit code was to ensure that the participants can withdraw from the study after submitting their answers. There was no direct contact between the researcher and participants throughout the study, which helps in preserving the participants' identity and as explained by Birnbaum (2001) as "fewer opportunity for bias due to researcher's interactions with the participants". This may also help the participants to share the information willingly, due to what they may perceive as the "feeling of anonymity" (McBride, 2016). In addition, it was considered to be convenient for the participants as they were able to answer the survey questions at their own time and pace (McBride, 2016). No identifiable information (i.e., names, contact number, address, etc.) were collected through the online survey. A few background questions were included in the survey for analysis purposes (i.e., age of the child and parent, socioeconomic status of the family). The administration time for each participant was on average 15 minutes.

Statistical Analysis

Data were analyzed using Jamovi 1.6.23 (The Jamovi Project, 2021) to test the hypotheses of this study. The assumptions for normality (e.g., boxplots, z-scores of skewness/kurtosis, violin plots and Q-Q plots) were tested and the assumptions were met. However, corporal punishment and involvement did not show enough variance to be included. Inconsistent discipline and poor monitoring were combined as has been done in other studies and this was positively skewed (z-skew > 4.00); thus, a log transformation was performed bringing it to 2.47 z-score for skewness. Motivations of reactive and goal-oriented were dichotomous as 0 and 1. To deal with the nominal and non-parametric data, Spearman correlations were performed to examine associations among the main study measures. G*Power shows a sample size of 42 is required for this study with the effect size of $R^2 = .5$. Effect sizes are reported to indicate percentage of variance explained by the effect, which

ranges from small (.2), medium (.5), and large (.8) (Cohen, 1988, p.22). Thus, the sample size of the present study is sufficient to run a correlation analysis.

Then, we examined the question regarding CU traits statistically predicting CPA for mothers and fathers separately via negative binomial regression using log link function. This was used to deal with count data with overdispersion. Deviance and AIC were used to compare Poisson and negative binomial models and the latter was favored. This is similar to tests for distribution based on AIC as outlined by Payne et al. (2018). We entered motives and parenting in the first regression, noting significant Loglikelihoods and AIC and Deviance. Then, we conducted the regression again, adding CU traits to see if there was an increase in fit indices (reduction of AIC and Deviance) and an increase in variance explained (R-squared) (Gallucci, 2019; R Core Team, 2020). Using G*Power, we selected Poisson regression with default settings for Posthoc analysis and the power obtained for the sample size of n=60 was 0.17 (Buchner et al., 2017; Faul et al., 2009).

Study 2

Method

Sample

The participants for the present study were recruited from two special schools for Social, Emotional, and Behavioral Difficulties within the North East of England. They were selected using opportunity sampling due to limited numbers of potential participants. Forty-two adolescents (36 males, 6 females) aged between 11 to 16 years old (M = 14 years, SD = 18 months) with parental consent agreed to take part in the study. They scored an average of 89 on verbal abilities that were measured using the British Picture Vocabulary Scale (BPVS-III) (Dunn et al., 2009). This means that all of them have the verbal ability to understand the survey questions, so none of them were excluded from the study. The parents/guardians were later contacted for a phone interview. Thirty-three parents/guardians took part in answering

the questionnaire through the phone (23 mothers, seven fathers, three others). Most parents who participated were unemployed (n = 21). The class teachers (n=8) also took part in answering the questionnaire. From the available data, n=14 of the adolescents came from single parent families, while those living with both biological parents numbered less (n = 12). About n=11 of the families earned a gross annual household income of between USD24,030.81 (£18,000) and USD32,025.06 (£23,988), which is lower than the average salary in the UK which was USD36,851.52 (£27600) for the 2015 tax year (Office for National Statistics, 2015). All young people reportedly perpetrated both proactive and reactive aggression towards peers. About 86% of them reported aggression towards their father (verbal, 85%, n = 31; physical, 20%, n=6). While 95% perpetrated aggression towards their mother (verbal, 95%, n = 40; physical, 40%, n = 17).

Measures

Aggression towards parents. Aggression towards parents was measured using the Conflict Tactics Scales (CTS) (Straus et al., 2006) which was self-reported by the adolescents. The verbal aggression and physical aggression subscales were included in this study. The scores were summed to made up an aggression towards parent's score. Similarly, a previous study also used self-reported data for CTS on children aged between 6 to 13 years old (Kolko et al., 1996). The scale showed high internal consistency in the past studies. The study sample yielded a Cronbach's alpha between α = .67 and .88.

Callous-unemotional traits. The Inventory of Callous-Unemotional Traits (ICU) (Frick, 2004) was used to measure adolescent's CU traits. The present study reported the total score and not the sub-dimensions. Adolescent self-report for ICU was obtained in this study. Self-reported data for ICU has also been used in previous studies on children aged between 13 to 18 years old (e.g., Muñoz et al., 2008) and showed high internal consistency. Likewise, the inter-item reliability for the scale in the present study was α = .89.

Peer aggression. Aggression towards peers was measured using The Teacher Rating Scale for Reactive and Proactive Aggression (RPA) (Dodge & Coie, 1987). The 6-item teacher-report questionnaire measures proactive aggression and reactive aggression. Each item was scored on a 5-point Likert scale ranging from 1 (never true) to 5 (almost always true). The scale was shown to be high in internal consistency for use in measuring aggression in children and adolescents (Xu et al., 2014) and has been previously used on a Continental European sample (Gremigni et al., 2013). The Cronbach's alpha for the scales for the present study sample were between α = .82 to .87. Example of item on this scale is "this child always claims that other children are to blame in a fight and feels that they started the trouble", and "this child threatens or bully others in order to get his/her own way".

Parenting. The parent self-report of the Alabama Parenting Questionnaire (APQ) (Frick, 1991) was used to measure parenting behavior. Similar to study 1, five subscales (including seven additional items on specific discipline practices) were measured in this study. The APQ has been used in previous studies within the UK and showed broadly satisfactory internal consistencies (Psychogiou et al., 2007; Scott et al., 2012). The Cronbach's alpha for the composites in this study range between α = .74 to .91.

Procedure

The study was approved by the university's Institutional Review Board (IRB). Head teachers were contacted through email or visits to the schools to seek permission to conduct the study in the schools and plan for the study. To obtain parental consent, the support staff in the special schools contacted the parents to inform them about the study and to gauge interest in participation. Parents who showed interest were passed on to the researcher who then explained the study and obtained recorded phone consent. Upon parental consent, the researcher made several visits to the school during school hours to obtain child assent and to proceed with data collection. Each student who gave their assent had a one-to-one session

with the researcher in a separate room. The British Picture Vocabulary Scale (BPVS-III) was administered at the beginning of the session and was followed by the questionnaires. During the session, the questions from the CTS and the ICU were read out loud to each participant. The administration time for each student was on average 30 minutes.

Class teachers were provided with the Rating Scale for Reactive and Proactive Aggression (RPA) to complete during their free time. Data on delinquency and educational statement of special needs of the adolescents was obtained (with parental consent) from their school record in consultation with the head administrative staff to ensure confidentiality of the information. Parents who gave consent for their child to take part in the study were contacted for a phone interview. They answered the APQ via a 10-minute phone call.

Statistical Analysis

Data were analyzed using Jamovi 1.6.23 (The Jamovi Project, 2021) to test the hypotheses of Study 2. The assumptions for normality (e.g., boxplots, z-scores of skewness/kurtosis, violin plots and q-q plots) were tested and the assumptions were met. Corporal punishment, again, did not show enough variance to be included. Inconsistent discipline and poor monitoring were combined into total negative parenting as were involvement and positive parenting, which was termed total positive parenting. Motivations of reactive and proactive were continuous and indicated motivations for peer aggression in this case. Pearson correlations were performed to examine associations among the main study measures, except for correlations involving gender, where we used Spearman's. G*Power shows a sample size of 42 is required for this study with the effect size of $R^2 = .5$. Effect sizes are reported to indicate percentage of variance explained by the effect, which ranges from small (.2), medium (.5), and large (.8) (Cohen, 1988, p.22). Thus, the sample size of the present study is sufficient to run a correlation analysis.

A two-stage hierarchical linear regression was conducted by entering the predictors in the order of their importance to predict child aggression towards father and mother (Gallucci, 2019; R Core Team, 2020). Peer aggression (proactive and reactive) was entered into the first model. We examined parenting styles (total positive parenting and total negative parenting) as a further covariate to include in first model. CU traits were entered into the second model. CPA against fathers was moderately skewed, so a square root transformation was performed. Since CPA measures were not over dispersed, we conducted linear regressions assuming parametric data. The Q-Q plots showed good multivariate normality. Using G*Power program, the required sample size to obtain a large effect ($f^2 = .26$) for linear regression is n=52. The effect size corresponds with Cohen's (1988) benchmark.

Results

Study 1

Associations Among Study Variables

Table 1 showed that CU traits were significantly correlated with aggression towards father ($r = .46$, $p <. 001$) and mother ($r = .61$, $p < .001$). Total positive parenting was negatively correlated with aggression towards father ($r = -.33$, $p <. 05$) and mother ($r = -.36$, $p <. 01$). Total negative parenting was positively correlated with aggression towards father ($r =.35$, $p <. 01$) and mother ($r = .50$, $p <. 001$). Goal-oriented or proactive aggression was significantly correlated with CU traits ($r = .45$, $p <. 001$), aggression towards father ($r = .26$, $p <. 05$) and aggression towards mother ($r = .42$, $p <. 001$). However, reactive motivation of aggression was not significantly correlated with CU traits or aggression towards parents.

<INSERT TABLE 1 HERE>

Do CU traits statistically predict CPA towards mothers and fathers?

For the negative binomial regression predicting CPA against fathers from motivations and parenting, AIC was 313.43 and Deviance was 64.88. These reduced, indicating a better

fit when including CU traits: AIC = 311.23; Deviance = 64.08. R-squared increased from .36 to .40 with the addition of CU traits. CU traits were a significant predictor, $\chi^2 = 4.31$, $p = .038$. Reactive aggression motivations for CPA were also significant, $\chi^2 = 6.04$, $p = .014$. Table 2 notes parameter estimates, standard errors, confidence intervals around the odds ratios, and significance for the two models with and without CU traits. As can be seen by the odds ratio for CU traits and the 95% confidence interval around that, the effect size of CU traits was small; that is, where the lower 95% confidence interval included 1.0. Yet, for reactive motivations, there was a 123% increase in the odds of CPA against fathers with every unit increase in CU. Figure 1 graphs the effect of CU traits while also showing the raw data.

<INSERT TABLE 2 HERE>

<INSERT FIGURE 1 HERE>

For the first model predicting CPA against mothers, AIC was 312.31 and Deviance was 65.13. R-squared was .51. After including CU traits into model 2, AIC and Deviance reduced to 310.55 and 64.06, respectively. R-squared increased to .54. CU traits were not significant in the loglikelihood, $\chi^2 = 3.83$, $p = .050$. Goal oriented (proactive), reactive, and negative parenting were significant predictors, $\chi^2 = 4.68$, $p = .030$; $\chi^2 = 12.18$, $p < .001$; $\chi^2 = 4.06$, $p = .044$, respectively. Table 3 notes the parameter estimates, standard errors, confidence intervals around the odds ratios, and significance. The CU traits beta and odds ratio was significant, but again represented a very small effect size where the lower confidence interval included 1.0. As shown in the Table 3, for reactive and goal-oriented motivations, there was doubling of the odds of CPA against mothers. For negative parenting, there was a four-times increase in the odds of CPA against mothers. The odds ratio for reactive aggression was of a larger effect, given the distance of the confidence intervals from

1.0. This is similar to the findings for fathers. Figure 2 shows the effect of CU traits on CPA against mothers, which was similar to that of fathers.

<INSERT TABLE 3 HERE>

<INSERT FIGURE 2 HERE>

Study 2

Relationship Among the Study Variables

Pearson's correlations were conducted to examine the zero order correlations of the study variables. As presented in Table 4, CU traits were significantly correlated with aggression towards father (r = .46, p <. 01) and mother (r = .36, p <. 05). Parenting styles did not show significant associations but were still included in the regressions. Proactive peer aggression (r = .64, p <. 001) and reactive peer aggression (r = .53, p <. 001) were significantly and positively correlated with CU traits. Both types of peer aggressions were also significantly correlated with adolescents' aggression towards mother (proactive, r = .36, p <. 05; reactive, r = .36, p <. 05). However, no such correlation was significant for aggression towards father.

<INSERT TABLE 4 HERE>

Do CU traits statistically predict CPA in an alternative school sample?

In Table 5, the summary of the hierarchical regression analysis to predict aggression towards fathers is presented. Result shows that at stage one, proactive and reactive peer aggression (positive and negative parenting styles as covariates) did not give significant findings to the regression model, F (4, 22) = .236, p=.915 and accounted for 0.4% of the variance in aggression towards father. At stage two, CU traits were added to the regression model and it explained 3.6% variance in aggression towards father but the change in R square was also not significant (F (5, 21) = 2.32, p=.079).

<INSERT TABLE 5 HERE>

In Table 6, the hierarchical regression revealed that at stage one, proactive and reactive peer aggression (total positive and negative parenting as covariates) did not bring significant contribution to the regression model, F (4, 25) = 1.02, *p*=.415 and accounted for 1.4% of the variance in aggression towards mother. At stage two, CU traits were added to the regression model and it also explained 1.4% variance in aggression towards mother, but again, the change in R square was not significant (F (5, 24) = .0,79, *p*=.564).

<INSERT TABLE 6 HERE>

General Discussion

Across two studies of children and adolescents and with different reporters, we found CU traits to be associated with greater aggression perpetrated towards both fathers and mothers. Prior studies have not directly examined the association between CU traits and aggression towards parents, so we feel this is an important finding that was replicated across two samples and with different sampling methods. Indeed, CU traits have been associated with antisocial behavior in youth, such as conduct problems, aggression towards peers and delinquency (Edens et al., 2008; Frick & White, 2008). We extend these findings by showing an additional association with child-to-parent aggression.

Study 1 showed parents who used positive parenting styles with their children were less likely to experience aggression from their children. Paulson et al. (1990) supported this finding where they also found that non-abusive children tend to discuss any issues including personal problems with parents, which may have helped to resolve any parent-child conflicts using reasoning rather than using an aggressive approach. Kawabata et al. (2011) also found paternal and maternal negative, harsh, uninvolved, and controlling parenting practices were positively associated with relational aggression. In study 1, parents who used negative parenting styles were more likely to experience aggression from their children, which was in line with past findings (Jablonski, 2007; Peek et al., 1985). But this finding should be

interpreted with caution because it may be viewed as ‘unfair’ and ‘inaccurate’ by some researchers – since parents who experienced abuse from one child may not have problem with the other children, and it may also be possible that the child only targeted aggression at home but not anywhere else (Holt, 2013). In this sense, it is fair to include CU traits into the picture, which may supplement the explanation of why one child is different from the other, although parented the same way. Paulson et al. (1990), also found parents of assaultive children were more permissive in their discipline than parents of non-assaultive children. Parents who failed to acknowledge their children’s good behavior or lacking in positive reinforcement also increased the chance of experiencing aggression from their children (Clark & Frick, 2018; Jablonski, 2007).

In line with Calvete et al.'s (2014) idea of CPA being more proactive in nature, study 1 found the relationship between goal-oriented aggression and aggression towards both parents. This may also explain why reactive aggression has no significant relationship with parent-directed aggression in the present study. In study 2, as hypothesized, reactive and proactive peer aggression was both significantly and positively correlated with adolescent’s aggression towards mother. Routt and Anderson (2015) confirmed that young people use both reactive and proactive aggression to perpetrate violence within the home, although this was based on their experience as practitioners in the field, not research. To clarify, the results of the present study did not show significant relationship between reactive or proactive peer aggression and aggression towards fathers. This was most likely due to most adolescents in the study not having consistent contact with their father. Thus, the available responses were not able to detect significant findings.

Study 1 found proactive and reactive aggression and parenting styles as unique predictors of aggression towards father and mother; however, this finding was not evident in study 2. In study 1, CU traits significantly predict aggression towards father or mother. The

finding in study 1 was supported by Routt and Anderson (2015) assumption that young people who directed aggression towards their parents may be driven by revenge or the goal to dominate their parents. Our findings was also in line with Kuay et al., (2017) trait-based model. Studies have consistently documented that young people who received poor parenting are more likely to be aggressive (Clark & Frick, 2018; Jia et al., 2014; Kimonis et al., 2006), but in terms of CPA, evidence is still limited. Our findings are consistent with the theory which linked parental involvement and aggression. Parents who use negative parenting, especially yelling, name-calling, physical threats or aggression, and regular negative commands would set an example to the child that being abusive can resolve conflict (Routt & Anderson, 2015). Moreover, harsh parenting may serve to authenticate the expression of anger such that it is both threatening and hateful; thus, increasing the likelihood of children perpetrating aggression towards parents (Chang et al., 2003). Study 2 also did not show significant finding for predictors of aggression towards father and mother. This can be explained by the small number of participants in the study, thus lacking in power to detect any significant findings.

Limitations, Implications, and Conclusion

Study 1 is unique by examining parent-directed aggression by taking into consideration the level of CU traits among the perpetrators, which is a limited study area. Adding to that, the relationship between CU, parenting styles, and aggression towards parents were examined. All these were done through an internet-mediated study in the general population, which may have helped the participants to share the information willingly and enable them to complete to survey questions at their own time and pace (McBride, 2016). However, the study may have faced issue with under-reporting by parents. Another limitation of the current study was its cross-sectional nature. Additional time points of measurement would have allowed the investigation of trajectories of change over time (Muthén & Muthén,

2017). Thus, future research should consider investigating how CU traits relate to changes in aggressive behavior and linking CU traits to aggressive behavior during adolescence and adulthood. Another limitation that is worth noting is the common method variance that could occur when data is collected via electronic survey. The researchers tried to prevent/dismiss this issue by providing guaranteed anonymity to the participants, including information that there were no right or wrong answers in the survey, and that the gathered data will be averaged rather than interpreted individually (Podsakoff et al., 2003; Steenkamp et al., 2010).

Study 2 also has several limitations that provide opportunities for future studies. One of them is the small number of participants, which may have reduced the power to detect more significant findings. This can potentially be overcome in future studies by using larger samples of adolescents and their parents. Despite this, the findings from this study are still reliable by using multiple informants (i.e., adolescent, parent, teacher). Another limitation is that majority of participants are boys, so the study findings are not generalizable to girls with conduct problems/from special school. However, since the participants were recruited from a special population with boys as the majority, and also support from past studies that boys perpetrate more aggression within the family, this appears to be acceptable. Future studies should consider including more girls with conduct problems to get a more proportionate representative of male and female participants.

Although we found that young people high on CU traits to be more inclined to perpetrating aggression in general, we only examined young people from special schools who are more likely to possess higher CU traits, consequently, have higher risks towards perpetrating aggression. We also found that high CU young people would perpetrate goal-directed aggression. What if parents could intervene their child from developing aggressive behavior? As suggested by the research on maternal mind-mindedness, parental sensitivity to children's psychological needs is more valuable than physical needs (Meins, Fernyhough,

Fradley, & Tuckey, 2001). So, having a close relationship and understanding a child's psychological needs may reduce externalizing problems or specifically aggression towards parents, as how it worked on younger children as shown by longitudinal studies. For this reason, we suggest for future studies to examine the protective factors among young people which may refrain them from using aggression towards parents.

Despite the limitations, the present study contributes to our knowledge on CPA by exploring CU traits. Study 1 and 2 not only found the relations between the two variables, but also found young people with higher levels of CU traits to be more likely to target their aggression towards multiple people (parents and peers), not only towards a specific person (in this case, towards parents). Therefore, they are 'generalist' aggressors. Most importantly, aggression towards their parents also correlated with parenting styles. This highlighted the importance of including CU traits in future research on parent-directed aggression and even in studies on domestic violence in general. That would aid in developing effective treatment programs that are tailored according to the levels of CU traits, which would be more useful to reduce the risk for serious antisocial behaviors, especially aggression. Above all, knowing the level of CU traits has the potential to help parents to in effect to some degree, customize their parenting styles to suit the 'needs' of each child. In addition, reward-based intervention technique, such as those demonstrated in the parent-child interaction therapy (PCIT) may be more effective in reducing behavioral problems especially among youths who are high in CU traits (Kimonis et al., 2019). Finally, the findings supported the hypothesis of the study that high CU young people are 'generalists' aggressors, perpetrating more serious and purposeful aggression towards multiple people, with the goal to be in control or seek revenge towards their parents.

References

Anderson, C. A., & Murphy, C. R. (2003). Violent Video Games and Aggressive Behavior in Young Women. *Aggressive Behavior*, *29*(March 2001), 423–429.

https://doi.org/10.1002/ab.10042
Arsenio, W. F., Cooperman, S., & Lover, A. (2000). Affective predictors of preschoolers' aggression and peer acceptance: direct and indirect effects. *Developmental Psychology, 36*(4), 438–448.
Birnbaum, M. H. (2001). *Introduction to Behavioral Research on the Internet*. Prentice-Hall.
Blair, R. J. R., Leibenluft, E., & Pine, D. S. (2014). Conduct disorder and callous-unemotional traits in youth. *New England Journal of Medicine, 371*, 2207–2216. https://doi.org/10.1056/NEJMra1315612
Buchner, A., Erdfelder, E., Faul, F., & Lang, A.-G. (2017). *G*Power 3.1 manual*. Heinrich-Heine-Universität Düsseldorf. http://www.gpower.hhu.de/fileadmin/redaktion/Fakultaeten/Mathematisch-Naturwissenschaftliche_Fakultaet/Psychologie/AAP/gpower/GPowerManual.pdf
Burke, J. D., Loeber, R., & Lahey, B. B. (2007). Adolescent conduct disorder and interpersonal callousness as predictors of psychopathy in young adults. *Journal of Clinical Child and Adolescent Psychology*, *36*, 334–346.
Byrd, A. L., Loeber, R., & Pardini, D. A. (2012). Understanding desisting and persisting forms of delinquency: The unique contributions of disruptive behavior disorders and interpersonal callousness. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *53*, 371–380. https://doi.org/10.1111/j.1469-7610.2011.02504.x
Calvete, E., Orue, I., Bertino, L., Gonzalez, Z., Montes, Y., Padilla, P., & Pereira, R. (2014). Child-to-parent violence in adolescents: The perspectives of the parents, children, and professionals in a sample of Spanish focus group participants. *Journal of Family Violence*, *29*, 343–352.
Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology*, *17*(4), 598–606.
Clark, J. E., & Frick, P. J. (2018). Positive parenting and callous-unemotional traits: Their association with school behavior problems in young children. *Journal of Clinical Child & Adolescent Psychology*, *Division 5*(47(sup1)), S242–S254. https://doi.org/https://doi.org/10.1080/15374416.2016.1253016
Cohen, J. W. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates.
Cottrell, B. (2001). *Parent abuse: The abuse of parents by their teenage children*. Health Canada.
Cottrell, B., & Monk, P. (2004). Adolescent-to-Parent Abuse: A Qualitative Overview of Common Themes. *Journal of Family Issues*, *25*(8), 1072–1095. https://doi.org/10.1177/0192513X03261330
Dadds, M. R., Allen, J. L., McGregor, K., Woolgar, M., Viding, E., & Scott, S. (2014). Callous-unemotional traits in children and mechanisms of impaired eye contact during expressions of love: a treatment target? *Journal of Child Psychology and Psychiatry*, *55*(7), 771–780. https://doi.org/https://doi.org/10.1111/jcpp.12155
Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology*, *53*(6), 1146–1158. https://doi.org/10.1037/0022-3514.53.6.1146
Dunn, L. M., Dunn, D. M., Styles, B., & Sewell, J. (2009). *The British picture vocabulary scale* (3rd ed.). GL Assessment.
Edens, J. F., Skopp, N. A., & Cahill, M. A. (2008). Psychopathic features moderate the relationship between harsh and inconsistent parental discipline and adolescent antisocial behavior. *Journal of Child and Adolescent Psychology*, *37*, 472–476.
Eriksen, S., & Jensen, V. (2006). All in the Family? Family Environment Factors in Sibling

Violence. *Journal of Family Violence*, *21*(8), 497–507. https://doi.org/10.1007/s10896-006-9048-9
Estévez, E., & Góngora, J. N. (2009). Adolescent aggression towards parents: Factors associated and intervention proposals. In C. Q. and S. Tawse (Ed.), *Handbook of Aggressive Behavior Research* (pp. 143–164). Nova Science Publishers, In.
Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149–1160.
Frick, P. J. (1991). *The Alabama parenting questionnaire*. University of Alabama.
Frick, P. J. (2004). *The Inventory of Callous-Unemotional Traits*.
Frick, P. J., Cornell, A. H., Bodin, S. D., Dane, H. E., Barry, C. T., & Loney, B. R. (2003). Callous-unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychology*, *39*, 246–260.
Frick, P. J., & Hare, R. D. (2001). *The antisocial process screening device*. Multi-Health Systems.
Frick, P. J., & Marsee, M. A. (2006). Psychopathy and developmental pathways to antisocal behavior in youth. In C. J. Patrick (Ed.), *Handbook of psychopathy* (Eds, pp. 353–374). Guilford Press.
Frick, P. J., & White, S. F. (2008). Research Review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *49*(4), 359–375. https://doi.org/10.1111/j.1469-7610.2007.01862.x
Gallucci, M. (2019). *GAMLj: General analyses for linear models. [jamovi module]*.
Garrido, V. (2005). *Tyrannical children. The emperor syndrome*. Ariel.
Gremigni, P., Damasio, B. F., & Bors, J. C. (2013). Development and validation of a questionnaire to evaluate overt aggression. *Psicologia: Reflexao e Critica*, *26*(2), 311–318. https://doi.org/10.1590/S0102-79722013000200011
Harbin, H. T., & Maddin, D. J. (1979). Battered parents: A new syndrome. *American Journal of Psychiatry*, *136*, 1288–1291.
Hare, R. D. (1999). *Without Conscience: The Disturbing World of the Psychopath*. The Guilford Press.
Hare, R. D. (2003). *The Hare Psychopathy Checklist-Revised* (2nd ed.). Multi-Health Systems.
Hawes, D. J., & Dadds, M. R. (2005). The treatment of conduct problems in children with callous-unemotional traits. *Journal of Consulting and Clinical Psychology*, *73*(4), 737–741. https://doi.org/10.1037/0022-006X.73.4.737
Holt, A. (2013). *Adolescent-to-Parent Abuse: Current Understandings in Research, Policy and Practice*. Policy Press.
Hong, J. S., Kral, M. J., Espelage, D. L., & Allen-Meares, P. (2011). The social ecology of adolescent initiated parent abuse: A review of the literature. *Child Psychiatry & Human Development*, *43*, 431–454.
Hunt, R. (1993). Neurological patterns of aggression. *Journal of Emotional and Behavioral Problems*, *2*(1), 14–20.
Hyde, L. W., Waller, R., Trentacosta, C. J., Shaw, D. S., Neiderhiser, J. M., Ganiban, J. M., Reiss, D., & Leve, L. D. (2016). Heritable and nonheritable pathways to early callous-unemotional behaviors. *American Journal of Psychiatry*, *173*(9), 903–910. https://doi.org/https://doi.org/10.1176/appi.ajp.2016.15111381
Jablonski, J. (2007). *Characteristics of Parenting Associated with Adolescent to Parent Aggression*. Chestnut Hill College.
Jia, S., Wang, L., & Shi, Y. (2014). Relationship between parenting and proactive versus

reactive aggression among Chinese preschool children. *Archives of Psychiatric Nursing*, *28*(2), 152–157.
Kashahu, L., Dibra, G., Osmanaga, F., & Bushati, J. (2014). The relationship between parental demographics, parenting styles and student academic achievement. *European Scientific Journal*, *10*(13), 237–251.
Kawabata, Y., Alink, L. R. A., Tseng, W.-L., van Ijzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review*, *31*, 240–278.
Kimonis, E. R., Fleming, G., Briggs, N., Brouwer-French, L., Frick, P. J., Hawes, D. J., Bagner, D. M., Thomas, R., & Dadds, M. (2019). Parent-Child Interaction Therapy Adapted for Preschoolers with Callous-Unemotional Traits: An Open Trial Pilot Study. *Journal of Clinical Child & Adolescent Psychology*, *Division 5*(48 (sup1)), S347–S361. https://doi.org/https://doi.org/10.1080/15374416.2018.1479966
Kimonis, E. R., Fanti, K. A., Frick, P. J., Moffitt, T. E., & Marsee, M. A. (2015). Using self-reported callous-unemotional traits to cross-nationally assess the DSM-5 "With Limited Prosocial Emotions" specifier. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *56*(11), 1249–1261. https://doi.org/10.1111/jcpp.12357
Kimonis, E. R., Frick, P. J., Boris, N. W., Smyke, A. T., Cornell, A. H., Farrell, J. M., & Zeanah, C. H. (2006). Callous-unemotional features, behavioral inhibition, and parenting: Independent predictors of aggression in a high-risk preschool sample. *Journal of Child and Family Studies*, *15*(6), 741–752. https://doi.org/10.1007/s10826-006-9047-8
Kolko, D. J., Kazdin, A. E., & Day, B. T. (1996). Children's Perspectives in the Assessment of Family Violence: Psychometric Characteristics and Comparison to Parent Reports. *Child Maltreatment*, *1*(2), 156–167. https://doi.org/10.1177/1077559596001002007
Kruh, I. P., Frick, P. J., & Clements, C. B. (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behavior*, *32*, 69–96.
Kuay, H. S., Tiffin, P. A., Boothroyd, L. G., Towl, G. J., & Centifanti, L. C. M. (2017). A New Trait-Based Model of Child-to-Parent Aggression. *Adolescent Research Review*. https://doi.org/10.1007/s40894-017-0061-4
Lengua, L. J., & Kovacs, E. A. (2005). Bidirectional associations between temperament and parenting and the prediction of adjustment problems in middle childhood. *Journal of Applied Developmental Psychology*, *26*, 21–38.
Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology*, *116*, 155–165.
Lynam, D. R., Charnigo, R., Moffitt, T. E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2009). The stability of psychopathy across adolescence. *Development and Psychopathology*, *21*(4), 1133–1153.
McBride, D. M. (2016). *The Process of Research in Psychology* (3rd ed.). Sage Publications Inc.
McMahon, R. J., Witkiewitz, K., Kotler, J. S., & Conduct Problems Prevention Research Group. (2010). Predictive validity of callous-unemotional traits measured in early adolescence with respect to multiple antisocial outcomes. *Journal of Abnormal Psychology*, *119*(4), 723–763.
Meins, E., Fernyhough, C., Fradley, E., & Tuckey, M. (2001). Rethinking maternal sensitivity: Mothers' comments on infants' mental processes predict security of attachment at 12-months. *Journal of Child Psychology and Psychiatry*, *42*, 637–648.
Munoz, L. C., & Frick, P. J. (2007). The reliability, stability, and predictive utility of the self-

report version of the antisocial process screening device. *Scandinavian Journal of Psychology*, *48*, 299–312.
Muñoz, L. C., Frick, P. J., Kimonis, E. R., & Aucoin, K. J. (2008). Types of aggression, responsiveness to provocation, and callous-unemotional traits in detained adolescents. *Journal of Abnormal Child Psychology*, *36*, 15–28. https://doi.org/10.1007/s10802-007-9137-0
Muñoz, L. C., Qualter, P., & Padgett, G. (2011). Empathy and bullying: Exploring the influence of callous-unemotional traits. *Child Psychiatry and Human Development*, *42*, 183–196. https://doi.org/10.1007/s10578-010-0206-1
Muthén, L. K., & Muthén, B. O. (2017). *Mplus User's Guide* (Fifth). Muthén & Muthén. https://www.statmodel.com/download/usersguide/MplusUserGuideVer_8.pdf
Office for National Statistics. (2015). *Annual Survey of Hours and Earnings: 2015 Provisional Results*. http://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2015provisionalresults
Omer, H. (2000). *Parental Presence*. Zeig, Tucker.
Pagani, L. S., Larocque, D., Vitaro, F., & Tremblay, R. E. (2003). Verbal and physical abuse toward mothers: The role of family configuration, environment, and coping strategies. *Journal of Youth and Adolescence*, *32*(2), 215−223.
Pardini, D. (2011). Perceptions of social conflicts among incarcerated adolescents with callous-unemotional traits: "You're going to pay. It's going to hurt, but I don't care." *Journal of Child Psychology and Psychiatry*, *52*(3), 248–255.
Pardini, D. A., Lochman, J. E., & Frick, P. J. (2003). Callous/unemotional traits and social-cognitive processes in adjudicated youths. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*, 364–371.
Pardini, D., & Frick, P. J. (2013). Multiple developmental pathways to conduct disorder: current conceptualizations and clinical implications. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *22*(1), 20–25.
Paulson, M. J., Coombs, R. H., & Landsverk, J. (1990). Youth who physically assault their parents. *Journal of Family Violence*, *5*(2), 121–133. https://doi.org/10.1007/BF00978515
Payne, E. H., Gebregziabher, M., Hardin, J. W., Ramakrishnan, V., & Egede, L. E. (2018). An empirical approach to determine a threshold for assessing overdispersion in Poisson and negative binomial models for count data. *Communications in Statistics: Simulation and Computation*, *47*(6), 722–1738. https://doi.org/https://doi.org/10.1080/03610918.2017.1323223
Peek, C. W., Fischer, J. L., & Kidwell, J. S. (1985). Teenage Violence toward Parents: A Neglected Dimension of Family Violence. *Journal of Marriage and the Family*, *47*(4), 1051. https://doi.org/10.2307/352350
Perenc, L., & Radochonski, M. (2014). Psychopathic traits and reactive-proactive aggression in a large community sample of polish adolescents. *Child Psychiatry Human Development*, *45*, 464–471.
Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. *Child Development*, *57*, 700–711.
Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method bias in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879–903. https://doi.org/https://doi.org/10.1037/0021-9010.88.5.879
Psychogiou, L., Daley, D., Thompson, M. J., & Sonuga-Barke, E. (2007). Testing the interactive effect of parent and child ADHD on parenting in mothers and fathers: A

further test of the similarity-fit hypothesis. *British Journal of Developmental Psychology*, *25*(3), 419–433. https://doi.org/10.1348/026151006X170281

Purcell, R., Baksheev, G. N., & Mullen, P. E. (2014). A descriptive study of juvenile family violence: Data from intervention order applications in a Childrens Court. *International Journal of Law and Psychiatry*, *37*(6), 558–563. https://doi.org/10.1016/j.ijlp.2014.02.029

Ray, J. V., & Frick, P. J. (2020). Assessing Callous-Unemotional Traits Using the Total Score from the Inventory of Callous-Unemotional Traits: A Meta-Analysis. *Journal of Clinical Child and Adolescent Psychology : The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *49*(2), 190–199. https://doi.org/https://doi.org/10.1080/15374416.2018.1504297

R Core Team. (2020). *R: A Language and environment for statistical computing. (Version 4.0)*. https://cran.r-project.org.

Routt, G., & Anderson, L. (2015). *Adolescent Violence in the Home: Restorative Approaches to Building Healthy, Respectful Family Relationships*. Routledge.

Schultz, D., Izard, C. E., & Bear, G. (2004). Children's emotion processing: relations to emotionality and aggression. *Development and Psychopathology*, *16*(2), 371–387.

Scott, S., Doolan, M., Harry, S., & Cartwright, S. (2012). *How is parenting style related to child antisocial behaviour ? Preliminary findings from the Helping Children Achieve Study*.

Shelton, K. K., Frick, P. J., & Wootton, J. (1996). Assessment of parenting practices in families of elementary school-age children. *Journal of Clinical Child Psychology*, *25*, 317–327.

Steenkamp, J.-B. E. M., de Jong, M. G., & Baumgartner, H. (2010). Socially desirable response tendencies in survey research. *Journal of Marketing Research*, *47*(2), 199–214.

Straus, M. A. (1979). *Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. Journal of Marriage and the Family*. *41*, 75–88.

Straus, M. A., Gelles, R. J., & Steinmetz, S. K. (2006). *Violence in the American Family: Behind Closed Doors*. Transaction Publishers.

The Jamovi Project. (2021). *Jamovi. (Version 1.6)*. https://www.jamovi.org.

Waller, R., Hyde, L. W., Baskin-sommers, A. R., & Olson, S. L. (2017). Interactions between Callous Unemotional Behaviors and Executive Function in Early Childhood Predict later Aggression and Lower Peer-liking in Late-childhood. *Journal of Abnormal Child Psychology*, *45*(3), 597–609. https://doi.org/10.1007/s10802-016-0184-2

Xu, Y., Raine, A., Yu, L., & Krieg, A. (2014). Resting heart rate, vagal tone, and reactive and proactive aggression in Chinese children. *Journal of Abnormal Child Psychology*, *42*(3), 501–514. https://doi.org/10.1007/s10802-013-9792-2

Figure 1

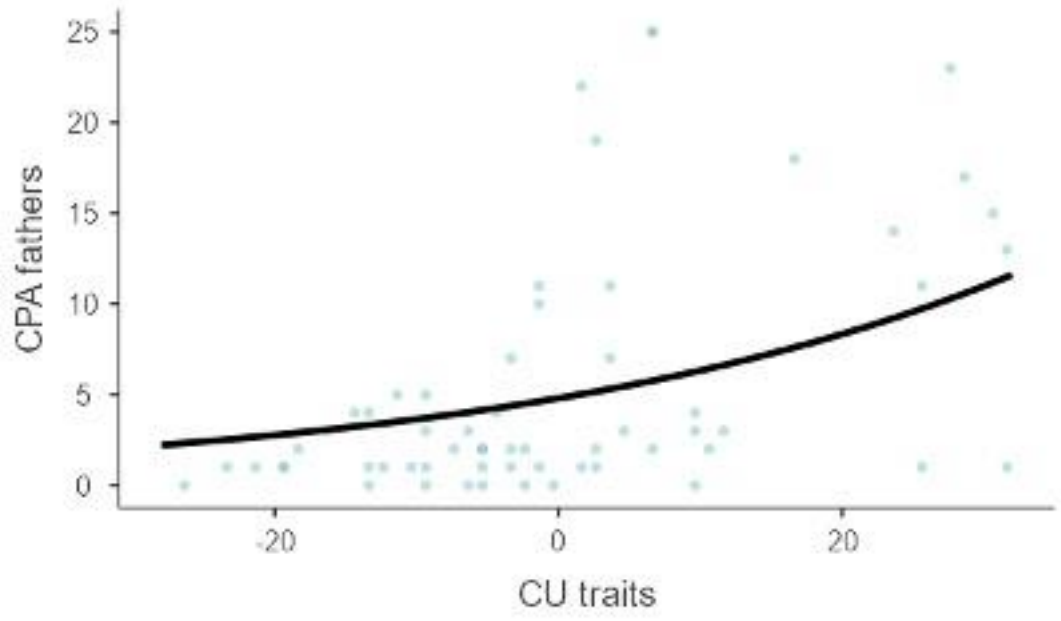

Figure 2

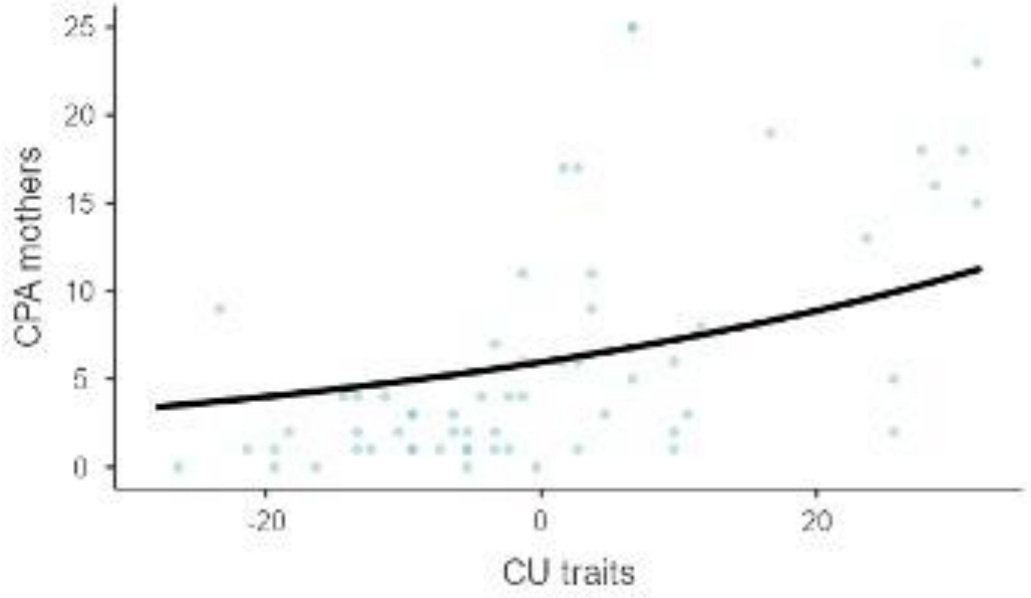

Table 1

Correlations among main study measures for Study 1

	CU Traits	**Proactive Aggression**	**Reactive Aggression**	**Negative Parenting**	**Positive Parenting**	**Aggression Towards Father**	**Aggression Towards Mother**	**Family Income**	**Child's Age**
	Range of 1 to 59 (*M*=27.4, *SD*=14.4)	Range of 0 to 1 (*M*=0.18, *SD*=0.39)	Range of 0 to 1 (*M*=0.42, *SD*=0.49)	Range of 11 to 24 (*M*=14.6, *SD*=2.53)	Range of 7 to 30) (*M*=17.5, *SD*=4.6)	Range of 0 to 25 (*M*=5.42, *SD*=6.95)	Range of 0 to 25 (*M*=6.05, *SD*=6.79)		Range of 11 to 17 (*M*=14, *SD*=1.8)
CU Traits	—								
Proactive Aggression	0.454***	—							
Reactive Aggression	0.109	-0.4**	—						
Total Negative Parenting	0.495***	0.386**	0.091	—					
Total Positive Perenting	-0.388**	-0.304*	0.107	-0.31*	—				
Aggression Towards Father	0.461***	0.255*	0.137	0.352**	-0.327*	—			
Aggression Towards Mother	0.614***	0.42***	0.208	0.502***	-0.362**	0.698***	—		
Family Income	-0.03	-0.065	-0.026	-0.115	0.012	0.139	-0.098	—	
Child's Age	0.019	0.049	-0.129	-0.073	-0.084	0.045	-0.033	-0.207	—
Child's Gender (0=Male, 1=Female)	-0.078	-0.184	-0.181	-0.167	-0.08	-0.285*	-0.197	-0.071	0.144

Pearson's correlations except for gender where we used Spearman's; Note. * p < .05, ** p < .01, *** p < .001

Table 2

Parameter estimates for the negative binomial regressions predicting CPA against fathers

				95% Exp(B) Confidence Interval			
Names	**Estimate**	**SE**	**exp(B)**	**Lower**	**Upper**	**z**	**p**
Model 1							
(Intercept)	1.80	0.18	6.07	4.21	9.01	9.76	< .001
Proactive	1.03	0.41	2.79	1.19	6.69	2.50	0.012
Reactive	1.02	0.31	2.76	1.47	5.22	3.30	< .001
Negative Parenting	1.53	0.89	4.60	0.81	29.16	1.71	0.088
Positive Parenting	-0.06	0.03	0.95	0.89	1.01	-1.75	0.081
Model 2							
(Intercept)	1.57	0.20	4.80	3.21	7.37	7.76	< .001
Proactive	0.44	0.47	1.55	0.60	4.18	0.94	0.346
Reactive	0.80	0.31	2.23	1.18	4.26	2.56	0.01
Negative Parenting	1.06	0.90	2.89	0.53	17.39	1.18	0.24
Positive Parenting	-0.05	0.03	0.96	0.90	1.02	-1.42	0.156
CU traits	0.03	0.01	1.03	1.00	1.06	2.27	0.023

Table 3

Parameter estimates for the negative binomial regressions predicting CPA against mothers

				95% Exp(B) Confidence Interval			
Names	**Estimate**	**SE**	**exp(B)**	**Lower**	**Upper**	**z**	**p**
Model 1							
(Intercept)	1.92	0.14	6.79	5.14	9.08	13.61	< .001
Proactive	1.12	0.32	3.07	1.62	5.92	3.54	< .001
Reactive	0.95	0.25	2.59	1.58	4.26	3.84	< .001
Negative Parenting	1.91	0.69	6.78	1.76	27.68	2.79	0.005
Positive Parenting	-0.05	0.03	0.95	0.91	1.00	-2.00	0.046
Model 2							
(Intercept)	1.78	0.15	5.96	4.42	8.10	11.57	< .001
Proactive	0.78	0.36	2.18	1.08	4.47	2.15	0.031
Reactive	0.87	0.25	2.38	1.46	3.91	3.43	< .001
Negative Parenting	1.42	0.70	4.13	1.04	17.35	2.04	0.042
Positive Parenting	-0.04	0.03	0.96	0.92	1.01	-1.48	0.139
CU traits	0.02	0.01	1.02	1.00	1.04	2.13	0.034

Table 4

Correlations among the main study measures for Study 2

	CU Traits	**Proactive Aggression**	**Reactive Aggression**	**Aggression Towards Father**	**Aggression Towards Mother**	**Total Negative Parenting**	**Total Positive Parenting**	**BPVS Standardized Score**	**Age**	**Gender**
	Range of 16 to 51 (M=33.6, SD=8.99)	Range of 3 to 15 (M=7.35, SD=3.11)	Range of 3 to 15 (M=10.1, SD=2.74)	Range of 0 to 13 (M=3.61, SD=3.15)	Range of 0 to 8 (M=3.64, SD=2.31)	Range of 8 to 26 (M=16.45, SD=4.11)	Range of 36 to 78 (M=62.09, SD=10.75)	Range of 70 to 117 (M=88.95, SD=13.07)	Range of 11 to 16 (M=14.04, SD=1.47)	(0=Male, 1=Female)
CU Traits	—									
Proactive Aggression	0.643***	—								
Reactive Aggression	0.531***	0.609***	—							
Aggression Towards Father	0.457**	0.112	0.016	—						
Aggression Towards Mother	0.356*	0.355*	0.356*	0.418*	—					
Total Negative Parenting	0.168	0.209	0.076	0.166	0.149	—				
Total Positive Perenting	-0.12	-0.256	-0.176	-0.052	-0.01	-0.731***	—			
BPVS Standardised Score	-0.005	-0.029	0.006	0.34*	0.088	0.058	0.114	—		
Age	-0.091	0.048	-0.033	-0.16	-0.089	0.265	-0.099	0.101	—	
Gender	0.152	0.327*	0.252	-0.171	0.292	0.076	0.044	-0.09	0.119	—

Note. Pearson's correlations except for gender where we used Spearman's; * p < .05, ** p<.01, *** p < .00

Table 5

Hierarchical regressions to predict aggression towards fathers

						95% Confidence Interval	
Predictor	**Estimate**	**SE**	**t**	**p**	**Stand. Estimate**	**Lower**	**Upper**
Model 1							
Intercept	0.85	2.06	0.41	0.685			
Reactive Aggression	-0.02	0.09	-0.22	0.83	-0.06	-0.64	0.52
Proactive Aggression	0.02	0.07	0.30	0.768	0.08	-0.50	0.67
Negative Parenting	0.03	0.04	0.87	0.396	0.26	-0.37	0.89
Positive Parenting	0.02	0.04	0.48	0.639	0.15	-0.49	0.79
Model 2							
Intercept	1.29	1.73	0.74	0.465			
Reactive Aggression	-0.07	0.08	-0.98	0.337	-0.24	-0.74	0.26
Proactive Aggression	-0.07	0.06	-1.09	0.29	-0.29	-0.84	0.26
Negative Parenting	0.01	0.03	0.33	0.743	0.09	-0.45	0.63
Positive Parenting	-0.01	0.04	-0.29	0.772	-0.08	-0.64	0.48
CU Traits	0.06	0.02	3.21	0.004	0.75	0.26	1.24

Table 6

Hierarchical regressions to predict aggression towards mothers

						95% Confidence Interval	
Predictor	**Estimate**	**SE**	**t**	**p**	**Stand. Estimate**	**Lower**	**Upper**
Model 1							
Intercept	-6.1071	6.137	-0.995	0.329			
Reactive Aggression	0.2502	0.257	0.974	0.339	0.243	-0.271	0.758
Proactive Aggression	0.0871	0.192	0.454	0.654	0.114	-0.404	0.632
Negative Parenting	0.133	0.113	1.175	0.251	0.314	-0.237	0.865
Positive Parenting	0.1442	0.125	1.155	0.259	0.318	-0.249	0.886
Model 2							
Intercept	-6.0484	6.2649	-0.965	0.344			
Reactive Aggression	0.2382	0.2686	0.887	0.384	0.2317	-0.308	0.771
Proactive Aggression	0.0673	0.2185	0.308	0.761	0.0883	-0.503	0.679
Negative Parenting	0.1289	0.1172	1.1	0.282	0.3047	-0.267	0.876
Positive Parenting	0.1389	0.13	1.068	0.296	0.3064	-0.286	0.899
CU Traits	0.0133	0.0653	0.203	0.841	0.0514	-0.471	0.574