



Parent-emerging adult relationships and callous-unemotional traits: moderation by negative affect

Tram H. Nguyen¹ · Cliff McKinney¹

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Abstract

Callous-unemotional (CU) traits are an affective dimension of psychopathy. Although many studies have established the relation between parenting and CU traits, most have focused on children and adolescents. CU traits have been shown to extend beyond adolescence, and parenting remains pivotal to emerging adults. Thus, the current study examined how parenting quality might influence CU traits and how temperament, specifically negative affect, might moderate that relation in emerging adults across gender. Using a cross-sectional sample of 602 college-attending emerging adults, the current study found that maternal closeness was associated with lower CU traits across gender, but paternal closeness was only associated with lower CU traits in women. In contrast, paternal discord was associated with higher CU traits across gender, whereas maternal discord was only associated with higher CU traits in women. Our findings also suggested paternal discord was associated with higher levels of women's CU traits among those with low, but not high, negative affect. Results provide supporting evidence that positive parent-child relationships, especially in mixed-gender dyads, play a vital role in emerging adults' behavior. Clinical and treatment implications are discussed.

Keywords Callous-unemotional traits · Parent-child relationship · Temperament · Negative affect · Gender

Callous-unemotional (CU traits), including callousness (i.e., lack of concern for consequences and insensitivity to punishment), uncaringness (i.e., lack of empathy and remorse), and unemotionality (i.e., deficits in the ability to experience and express emotion), are among the core personality dimensions of psychopathy (Byrd et al., 2013; Frick, 2004). Although CU traits are highly heritable, the child's immediate environment during childhood and adolescence, such as parent-child relationships, may also influence the development of CU traits (Frick et al., 2014). As much research has centered around children and adolescents, little is known about parent-child relationships' continuing impact on emerging adult college students' current endorsement of

CU traits. Importantly, emerging adult college students have been shown to display higher rates of antisocial behaviors than initially thought (Bronchain et al., 2019; Sanz-García et al., 2021).

Besides the prevalence of psychopathy, emerging adulthood is a unique phase during which individuals transition into adulthood and experience an unforeseen combination of instability and changes (Arnett, 2014; Hong et al., 2021). Notably, the influence of negative affect may be particularly important given that it is common for emerging adults to experience elevated levels of negative affect as a response to this time of increased stress and uncertainty (Pusch et al., 2019). Although emerging adults' relationships with their parents change, they still saliently influence life exploration (Carlson, 2014). For example, qualitative studies on maternal and paternal closeness suggested that each has distinct effects on perceived social support in college students (Swartz et al., 2011) and that high maternal relationship quality alleviated the influence of paternal physical maltreatment on antisocial behaviors in emerging adult women (Van den Hurk & McKinney, 2022). Thus, the current study aimed to determine how positive and negative dimensions of parenting quality might influence CU traits in emerging

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✉ Tram H. Nguyen
tn596@msstate.edu

¹ Department of Psychology, Mississippi State University, Mississippi State, MS, United States

adults rather than children and whether negative affect moderated that association, controlling for age, hours spent with father, and hours spent with mother.

Parent-child relationship quality and CU traits

Accumulating research has explored risk factors contributing to the etiology of CU traits, including temperamental, neural, and genetic factors (Craig et al., 2021). However, there has been an increase in evidence for the potential influence of parental factors. According to Bowlby's (1969) attachment theory, the attachment style formed with caregivers during childhood provides a framework for future attachment through the child's internalized cognitive-affective schemas. Based on attachment theory, research has suggested that secure parent-child attachment may provide the emotional socialization and positive parenting needed for conscience development in children with CU temperaments (i.e., fearless, low in arousal). Waller et al. (2017) found that fearless temperament at 24 months was positively associated with CU-type behavior at 10–12 years among boys who reported a low level of positive parenting. Pardini et al. (2007) also found that a high level of parental warmth/involvement predicted decreasing levels of CU traits. Thus, high affective quality between parents and children may serve as a protective factor against the development of CU traits. On the other hand, the scarcity of affective experiences in parent-child relationships may contribute to the development of CU traits, especially in the secondary CU variant (i.e., characterized by high anxiety and thought to develop in response to environmental adversity) as compared to the primary CU variant (i.e., characterized by low anxiety and thought to be genetically determined; Kahn et al., 2013). Bisby et al. (2017) reported that maternal warmth mediated the association between child neglect and CU traits, suggesting that unresponsive and cold parenting might be the mechanism underlying the development of CU traits. These children may develop affective deficits as an adaptive response to trauma and maltreatment. Regardless of the types of CU variants, a growing body of research has suggested similar results that parental warmth is vital to children's emotional responsiveness.

Additionally, prior research has examined the role of hostile parenting (i.e., punishment, high levels of control, aggression, and coercion) as a risk factor for CU traits. However, the findings are not unanimous across the literature. Due to fearless and low arousal characteristics, some studies have proposed that children high in CU traits might be less sensitive to harsh parenting. Pasalich et al. (2012) found that coercive parenting was more robustly and positively

associated with conduct problems in boys with lower CU traits. In contrast, there is some evidence that negative parenting in young children is associated with CU traits. For instance, Waller et al. (2018) found that 6- to 10-year-old children who received harsher parenting had high aggression and more CU traits. It was hypothesized that the lower emotional sensitivity to parenting effort and higher behavior perseveration might motivate parents to use harsher methods to force their children into changing their behaviors (Fanti et al., 2023). This proposal is consistent with some findings that harsh parenting results in CU traits across time. Salihovic et al. (2012) found that adolescent psychopathic traits drove increases in negative parenting behaviors (e.g., coldness rejection, adverse reactions to disclosure) over 4 years. Similarly, Fanti et al. (2023) conducted a longitudinal study and found that CU traits partially mediated the influence of fearless and harsh parenting on conduct problems. This finding suggested that harsh parenting increases the likelihood of parent-child conflict, limiting socialization experiences and disrupting moral development.

The secondary CU variant might also explain the variance in the association between negative parent-child relationship and CU traits (Craig et al., 2021). It was reported that negative parenting might result in hyperarousal and a high level of negative affect in children with high-anxious, secondary CU traits that disrupts the development of perspective-taking. Even though evidence for the association between harsh parenting and CU traits has been reported in some studies, findings suggest that positive parenting is a more robust predictor of changes in CU traits than negative parenting.

Although the association between parent-child relationship quality and CU traits is well-documented in the literature, less is known about the stability of this association in emerging adulthood. Previous research has suggested that emerging adults' attachment style does not solely reflect childhood attachment (Cassidy & Shaver, 2016). Lopez and Gormley (2002) found that approximately 33% of college students in their sample migrated to a different attachment style within 1 year. During this crucial transition from adolescence to adulthood, emerging adult children and their parents experience many changes in their relationship dynamics. According to the family system perspective, emerging adults and parents must reevaluate parents' expectations of relatedness to accommodate children's needs to balance dependence and autonomy (Minuchin, 1974). During this unique transitional phase, how adult children interpret their parents' behavior might differ from when they were younger, particularly given the changing developmental needs and increasing environmental stressors. For example, Padilla-Walker et al. (2008) found that adults with higher parental closeness might be more likely

to perceive parental involvement as a legitimate concern than those experiencing parental monitoring within a discordant relationship. In contrast, parental behavior low in warmth and high in criticism has been associated with delinquency and poor psychological adjustment in emerging adults (Padilla-Walker et al., 2019). <https://link.springer.com/article/10.1007/s10826-017-0719-3CU>.

Traits and negative affect

As discussed above, the affective quality of the parent-child relationship and CU traits appear to have a bidirectional relation. According to Patterson's (2016) coercion model, children's disruptive behaviors evoke ineffective parenting practices (e.g., harsh parenting and low warmth), leading to coercive exchange and conflict between parents and children, reinforcing children's conduct problems. Thus, individual factors such as temperament including negative affect might moderate the effect of positive and negative parenting on CU traits. For example, Fanti et al. (2023) found that time 1 fearlessness (age 3–5 years) increased the likelihood of time 2 (age 4–6 years) harsh parenting, time 3 (age 5–7 years) parent-child conflict and time 4 (age 8–10) CU traits. Other studies have also explored children's personality traits and negative affectivity. Fanti et al. (2017) reported that CU traits were positively correlated with neuroticism and negative affectivity. When examining different classes of CU traits based on severity, they reported that neuroticism decreased in order from the most to the least severe class (classes 1 to 4).

Considering these findings in the context of Patterson's (2016) coercion model, negative affect might moderate the association between the parent-child relationship and CU traits. Specifically, children with high negative affect might be particularly sensitive to coercive processes in addition to being at risk of evoking harsher parental responses related to their higher negative affectivity. Dargis and Li (2020) proposed that negative affect (i.e., the experience of sadness, frustration, and fear) might moderate the association between parenting quality on CU traits in children aged 5 to 6 years. They found that negative parenting was associated positively with CU traits only among children with high negative affect. Specifically, high negative affect may increase children's sensitivity to harsh parenting, create conflict, and reinforce CU characteristics.

However, the role of negative affect in explaining variance in CU traits has not been consistently documented. Individuals with CU traits have been characterized by shallow and deficient affect and having difficulty attending to and responding to emotional stimuli (Frick, 2014). Some evidence suggests that individuals with CU traits have low reactivity to negative emotional experiences and

limited emotional expression (Sylvers et al., 2011). On the other hand, some researchers proposed that unemotionality does not fully capture the internal emotional experience of individuals with CU traits (Gill & Stickle, 2016). Marsh et al. (2011) found no differences in the level of sympathetic arousal and subjective experience of anger, disgust, or sadness between high CU youths and the healthy control group while recalling emotional life events. Moreover, boys higher on CU traits were more expressive of their negative emotions (i.e., fear and sadness) in conversations with caregivers than boys with low CU traits (Pasalich et al., 2012). In a recent study, negative affect has also been reported to mediate the association between CU traits and suicidal ideation (Liu et al., 2023). Thus, some researchers proposed that even though individuals with CU traits might present as cold and distant, they might internally experience a wide range of emotional disturbances. Nevertheless, in a study that examined the longitudinal invariance of psychopathic traits, Hawes et al. (2014) found that CU traits were positively associated with neuroticism while remaining unrelated to negative emotionality (e.g., anxiety, depression). The inconsistency in these findings raises the need to refine the definitions of unemotionality and examine how negative affect might influence CU traits in relation to parent-child relationships.

Gender differences

Gender differences have provided a more nuanced understanding of parent-child relationships and psychopathology. Among different theories, social learning theory (Bandura & Walters, 1963) is commonly cited to explain children's gendered behaviors. Regarding children's gender differences, some evidence suggests that daughters are at higher risk for internalizing problems and react more strongly than sons to difficulties in parent-child relationships (Lippold et al., 2016). Based on social learning theory, some studies proposed that daughters are socialized to express their negative emotions (Leaper, 2002) and ruminate (Hampel & Petermann, 2006). Previous studies also support parents' gender-differentiated parent-child interactions (Donnelly et al., 2013). For example, Nelson et al. (2011) found that mothers demonstrated a higher level of warmth and involvement than fathers, whereas fathers employed more punishment and verbal hostility than mothers. Social learning theory also proposes that same-gender parent-child dyads might have greater influence on children because they tend to look to the most relevant model based on perceived similarity (Bandura & Walters, 1963). Despite theory and evidence for gender differences in parent-child dyads, some researchers even argue that the differences in the maternal and paternal parenting of daughters and sons are minimal

in some instances, for example, when examining parental control (Endendijk et al., 2016). These conflicting findings demonstrate the complexity of parent-child dyads, suggesting the need for studying parent-child dyads at the intersection of gender.

Current study

The first goal of the current study was to investigate the association between positive and negative parenting quality with CU traits in emerging adulthood. It was hypothesized that negative parenting would positively associate with CU traits, whereas positive parenting would associate negatively. Next, the current study tested the moderating effect of emerging adults' negative affect concerning the relation between parenting quality and CU traits. Based on previous findings reported by Dargis and Li (2020) suggesting that negative affect might make children with CU traits become more sensitive to negative parenting, it was hypothesized that negative affect would exacerbate the association between negative parenting quality and emerging adults' CU traits. In contrast, previous studies have suggested children with high negative affect experience greater difficulty with socially appropriate behaviors as positive parenting increases (Danzig et al., 2015). Thus, we also hypothesize that negative affect would reduce the protective association between positive parenting and CU traits. While parenting was examined as positive and negative parenting similar to Dargis and Li (2020), the current study also explored whether both children's gender and parents' gender further moderated the interaction between parenting and negative affect on CU traits given mixed findings on parent-child gender dyads (McKinney et al., 2018). It was hypothesized that the moderation effect would be more salient in same-gender dyads, consistent with social learning theory (i.e., same gender parent is a more relevant/similar model).

Method

Participants

The current study consisted of 602 college-attending emerging adults (68.6% women, 31.4% men; 67.6% White or European American, 27.6% Black or African American, 2% Latino/a, 1% Asian/Asian American, 1.8% different race) aged 18 to 27 years ($M=19.65$, $SD=1.49$). Participants reported having a biological mother (95.7%) or father (74.3%) in their childhood home, whereas others indicated that they had a stepfather (16.1%), stepmother (5.5%), adoptive parent (2.7%), or foster parent (0.5%). Participants indicated that their parents varied in education level: 5.3%

of fathers and 3.5% mothers did not complete high school; 35.9% of fathers and 22.4% of mothers had a high school diploma; 10.1% of fathers and 16.8% of mothers had a 2-year degree; 29.2% of fathers and 32.9% of mothers had a 4-year degree; 19.1% of fathers and 24.4% of mothers had a graduate degree. Participants also reported on their average daily contact hours with their mother figure ($M=1.50$, $SD=1.71$) and father figure ($M=0.88$, $SD=0.99$).

Measures

Adult temperament questionnaire

The Adult Temperament Questionnaire (ATQ; Evans & Rothbart, 2007) is a 77-item self-report questionnaire assessing different facets of temperament (e.g., effortful control, surgency). For the purpose of current study, the negative affect (e.g., *It doesn't take very much to make me feel frustrated or irritated*) scale was used. Participants were asked to rate how well items describe them on a 1 (*extremely untrue*) to 7 (*extremely true*) scale. Good internal consistency and construct validity have been demonstrated in community samples (Evans & Rothbart, 2007). The negative affect scale had an α of 0.85 for the current study.

Network relationship inventory

The Network Relationship Inventory - Relationship Qualities Version (NRI-RQV; Buhrmester and Furman, 2008) is a 30-item self-report survey that measures current perceptions of relationship quality. The instrument assesses five negative relationship features (i.e., criticism, dominance, exclusion, pressure, and conflict) and five positive relationship qualities (i.e., companionship, disclosure, emotional support, approval, and satisfaction) through behavior frequency rating. Participants rated how frequently each feature occurred in their maternal and paternal relationships using 5-point Likert scales ranging from 1 = *Little or None* to 5 = *the Most*. Scale scores for broad factors of closeness (e.g., *How often does this person seem proud of you?*) and discord (e.g., *How much do you and this person say mean or harsh things to each other?*) were derived by separately averaging the items on relevant negative and positive subscales as suggested by Buhrmester and Furman (2008). The two factors demonstrated good internal consistency for the current study: closeness with mother ($\alpha=0.92$) and father ($\alpha=0.93$), discord with mother ($\alpha=0.85$) and father ($\alpha=0.85$).

Callous-unemotional traits

The Inventory of Callous-Unemotional Traits (ICU; Frick, 2004) uses 24 items to measure three dimensions of CU traits, including callousness (e.g., *the feelings of others are unimportant to me*), unemotional (e.g., *I hide my feelings from others*), and uncaring (e.g., *I try not to hurt others' feelings*, reversed). Participants were asked to rate the statement accuracy on a 4-point scale ranging from 0-not at all true to 3-definitely true. A meta-analysis on the ICU concluded that the measurement demonstrated acceptable internal consistency and validity for total ICU scores (Cardinale & Marsh, 2020). For this study, the total score ($\alpha=0.83$) was used as recommended by Frick et al. (2014) as the most reliable indicator of CU traits.

Procedure

Participants were recruited from an online participant pool provided by a psychological research program during Spring 2018. Participants read the description of the study on the website and accessed the informed consent form. Then, they completed questionnaires in random order based on current perceptions. As the participants finished or voluntarily withdrew from the study, they received a debriefing document and research credit. The author's institutional review board approved the study procedures and participants were treated in accordance with the American Psychological Association Code of Ethics.

Data analysis

Missing data occurred at a rate of less than 2% and was imputed with predictive mean matching; such a low rate of

missingness is highly unlikely to affect analyses (Schafer, 1999). Data were found to be within normal limits regarding normality and multicollinearity (Kline, 2023). Path analysis was completed in AMOS 28.0 to examine main and interaction effects in a single model, where gender was examined using multiple group analysis (i.e., coefficients are modeled for each gender and compared statistically). Observed predictors were mean centered and included maternal and paternal closeness and discord from the NRI-RQV and emerging adult negative affect from the ATQ. Interaction terms were created using the following products: maternal closeness * negative affect, maternal discord * negative affect, paternal closeness * negative affect, and paternal discord * negative affect. All predictors and interaction terms were associated with the total ICU score while controlling for the child's age, hours spent with father, and hours spent with mother (Fig. 1). The fitted model was saturated (i.e., all paths modeled) and thus fit the data perfectly. Significant interactions were interpreted with spotlight analysis at $\pm 1 SD$.

Results

Descriptive statistics and correlations among variables are shown in Table 1. In examining mean differences across gender, men reported higher total CU scores than women. Additionally, men reported higher closeness and discord with their fathers compared to women, whereas women reported higher closeness with mothers.

It was hypothesized that negative parenting would positively associate with total CU traits, whereas positive parenting would have a negative relation. As shown in Table 2, results for women indicated that CU traits had significant negative associations with maternal and paternal closeness,

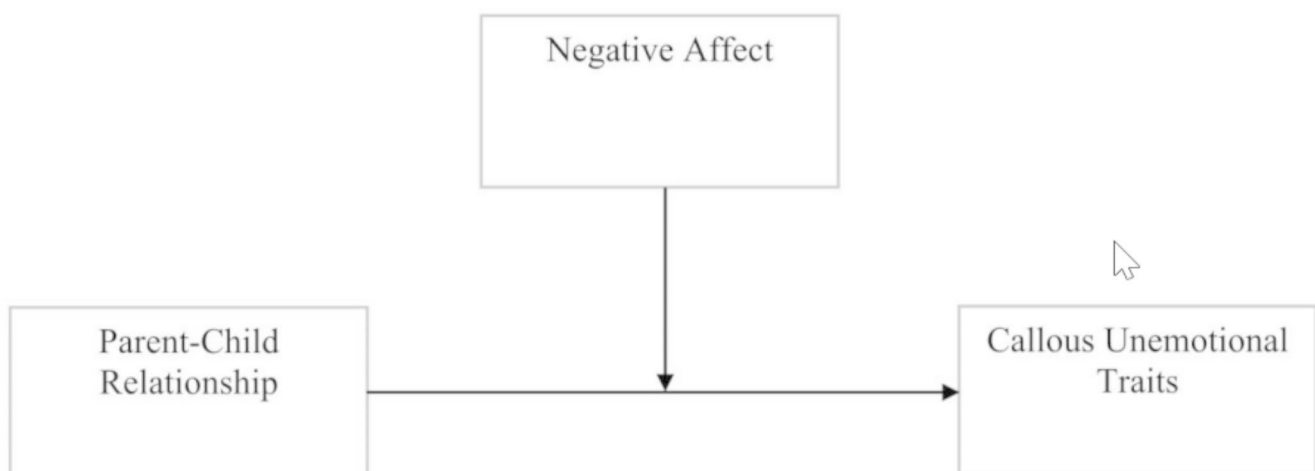


Fig. 1 The Moderation effect of negative affect on parent-child relationship and callous unemotional traits. Note. The Parent-Child Relationship box represents four variables: maternal closeness, paternal

closeness, maternal discord, and paternal discord. The model also includes three control variables: hours spent with mother, hours spent with father, and child's age

Table 1 Correlations and Mean Comparisons Across Gender

	Women						Men					
	1.	2.	3.	4.	5.	6.	M	SD	t	d	α	
1. Negative Affect	1	0.05	0.03	-0.03	0.05	-0.01	4.11	0.64	0.51	-4.90**	0.47	0.85
2. Maternal Closeness	0.04	1	0.23**	0.46**	0.07	-0.26**	3.84	0.94	0.82	-3.60*	0.33	0.92
3. Maternal Discord	-0.01	-0.08	1	0.11	0.60**	0.15*	2.52	0.77	0.76	0.10	0.01	0.85
4. Paternal Closeness	-0.04	0.37**	-0.08	1	0.19*	-0.14	3.30	1.08	0.88	0.35	0.03	0.93
5. Paternal Discord	0.02	-0.03	0.47**	0.08	1	0.25**	2.29	0.81	0.76	2.51*	0.24	0.85
6. Total CU Traits	-0.03	-0.27**	0.31**	-0.18**	0.29**	1	42.53	7.95	8.22	7.54**	0.66	0.83

Note. *n* = 189 for men (above the diagonal), *n* = 413 for women (below the diagonal). ** indicates *p* < .001 (two-tailed). * indicates *p* < .05 (two-tailed). CU = Callous Unemotional. Negative Affect minimum = 2.12, maximum = 5.77; Maternal and Paternal Closeness and Discord minimum = 1, maximum = 5; CU Traits minimum = 26, maximum = 68

Table 2 Path Analysis for Standardized Main and Interaction Effects Across Gender

Main Effects	Total Callous-Unemotional Traits	
	Women	Men
Negative Affect	-0.01	-0.01
Maternal Closeness	-0.23**	-0.23*
Maternal Discord	0.08*	0.10
Paternal Closeness	-0.11*	-0.10
Paternal Discord	0.27**	0.22*
Interaction Effects		
Negative Affect * Maternal Closeness	0.08	-0.04
Negative Affect * Paternal Closeness	0.02	0.05
Negative Affect * Maternal Discord	0.08	0.06
Negative Affect * Paternal Discord	-0.20**	-0.09

Note. ** *p* < .001 (two-tailed). * *p* < .05 (two-tailed)

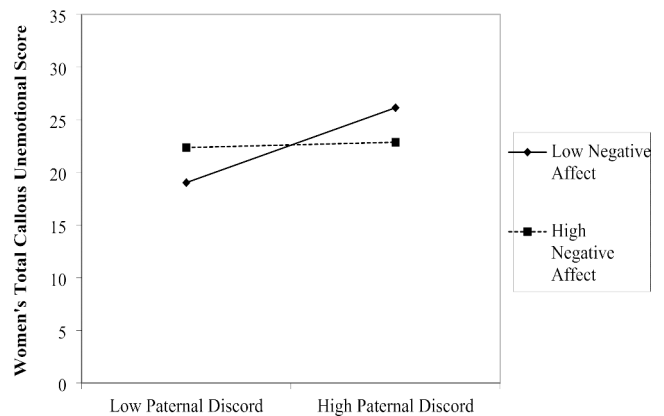


Fig. 2 Interaction Effect of Paternal Discord and Negative Affect on Women’s Callous Unemotional Traits

while having positive associations with maternal and paternal discord. Although findings for men suggested a negative association between maternal closeness and CU traits, paternal closeness did not significantly predict CU traits in men. Moreover, CU traits in men were positively associated with paternal but not maternal discord.

The current study also postulated that negative affect would moderate the association between parent-child relationship quality and CU traits. Maternal effects did not yield any significant interactions, suggesting that negative affect did not moderate the relations between mother-child relationship quality and CU traits for both men and women (Table 2). Paternal effects yielded significant interactions for women but not men. Particularly, findings indicated the presence of an interaction between negative affect and perceived paternal discord. For women with lower negative affect, paternal discord associated positively with CU traits; however, paternal discord did not associate strongly (i.e., zero to weak relation) with CU traits for women with higher negative affect (Fig. 2).

Pairwise comparisons across gender in the multiple group analysis indicated that path coefficients did not significantly differ between women and men. When comparing maternal and paternal paths, however, the interaction between perceived paternal discord and negative affect in women was significantly different from the interaction between perceived maternal discord and negative affect ($Z = -3.50$, $p < .05$). This finding suggests that the two-way interaction of paternal discord * negative affect in women was further moderated by parental gender. This finding is contrary to the hypothesis that same-gender dyads would have stronger relations.

Discussion

The present study tested the moderating effect of negative affect on the association between parent-child relationship quality and CU traits in a cross-sectional sample of college-attending emerging adults. Current results indicated some main effects of positive and negative parenting quality on CU traits. Findings also suggested that negative affect moderated the association between paternal-child relationship quality and women's CU traits. Inconsistent with the hypothesis, negative affect does not seem to exacerbate the effect of negative parent-child relationship on CU traits. The moderating effect of negative affect was stronger for father-daughter dyads than mother-daughter dyads.

Like Dargis and Li (2020), we found some associations between maternal and paternal-relationship quality and CU traits. Indeed, the relations that maternal closeness and paternal discord shared with CU traits are the most robust findings of the current study, signifying the continued importance of parent-child relationship quality during emerging adulthood. These findings are supportive of previous conclusions on the association between parent-child relationship and CU traits (Alzeer et al., 2019). They also reflect the continuing influence of attachment on emerging adults (Cassidy & Shaver, 2016), such that maternal closeness is associated with lower levels of CU traits. Conversely, the current study also demonstrated variability among maternal- and paternal-child dyads. Both relationship qualities with mothers and fathers played a significant role in women's CU traits; specifically, higher closeness and lower discord with parents were associated with lower CU traits. Moreover, the current findings show that men's CU traits were mainly associated with maternal closeness and paternal discord. These findings might be explained by Nelson et al. (2011)'s study, which found that mothers of emerging adults demonstrated a higher level of warmth and involvement than fathers, whereas fathers employed more punishment and verbal hostility than mothers.

Our study did not detect a significant association between negative affect and CU traits. Individuals with CU traits might vary on their negative affect depending on whether they have primary or secondary variants. This explanation aligns with findings from Kyranides and Neofytou (2021), suggesting that type of attachment style is crucial in the direction of the relation between attachment and CU traits. Specifically, individuals with low anxious attachment or high avoidant attachment were at higher risk of developing CU traits; that is, one type of attachment was related negatively to CU traits, whereas the other type of attachment was related positively. As such, it is plausible that a portion of our sample could demonstrate a significant association between negative affect and CU traits, for example, depending on their attachment style. However, the current study did not assess this or other possible features (e.g., primary vs. secondary psychopathy) that might explain how our current study found no overall association between negative affect and CU traits.

We hypothesized that negative affect would exacerbate the association between negative parenting quality and emerging adults' CU traits and reduce the association between positive parenting and CU traits. However, we only found one significant moderating effect of negative affect on paternal discord and women's CU traits. This suggests that negative affect might not be a robust predictor of CU traits in emerging adulthood compared to closeness with parents and supported previous findings that reported insignificant associations between negative affect and CU traits. Nevertheless, it is interesting that high negative affect appears to alleviate the impact of poor paternal-child relationships on CU traits at face value in women. Our hypothesis was based on Patterson's (2016) coercion model, proposing that harsh parenting and children's strong negative emotion expression promotes coercive exchanges, which might result in more disruptive behaviors. However, Pasalich et al. (2012) also found that parents' focus on negative emotions had a strong negative association with high CU traits during parent-child encounters. They suggested that more frequent parent-child emotion processing may help train children to pay attention to other people's negative affect and develop empathic concern. It is plausible that women's high negative affect is more salient in high conflict environments. In particular, fathers may approach conflict more willingly than mothers to attend to children's needs in high conflict environments (Shewark & Blandon, 2014). In essence, high negative affect in women in response to paternal discord may serve as a protective factor against CU traits by creating more opportunities for emotion expression, processing, and development.

We aimed to expand Dargis and Li's (2020) study by examining the moderation effect within same-gender and

mixed-gender dyads. Even though we hypothesized that the effect would be stronger in same-gender dyads, we found that the moderating effect only existed in father-daughter dyads. Our hypothesis was based on social learning theory, proposing that same-gender parent-child dyads might have greater influence on children because they tend to look to the most relevant model based on perceived similarity (Bandura & Walters, 1963). Keizer et al. (2019) found that changes in perceived quality of the attachment relationship with father were only significantly linked to changes in women's self-esteem, not to that of men. They proposed that women might start to appreciate their fathers' encouragement to be independent, which elicits positive changes in father-daughter relationships. Therefore, it is possible that gender differences in parent-child dyads might vary depending on age, as same-gender dyads might have stronger influence in younger children than emerging adults.

Implications, limitations, and future directions

Considering the reportedly higher rates of psychopathic characteristics in college samples relative to other types of community samples, the current study highlighted the continued role of parent-child relationship quality regarding CU traits. Even though several treatment studies that target parent-child relationships have been shown to reduce CU traits in younger children, it might be difficult to implement parental interventions for emerging adults. However, emerging adults, especially college students, might benefit from treatment that promotes parental warmth and helps them process negative parenting relationships. This study also supported the potential influence of individual differences in negative affect. Examining college students' typical reaction to negative stimuli might be helpful in assessing their emotion recognition, emotion regulation, and empathy deficits. Taken together, parent-child relationships and temperament can provide information that would be beneficial to identifying high-risk individuals and address interpersonal problems during adulthood.

The current study explored the generalizability of Dargis and Li (2020)'s results by examining both paternal and maternal relationship quality with emerging adult women and men. However, the current findings have their limitations. First, the correlational nature of the study limits the ability to infer causal or directional effects. It is unclear whether negative affect moderates parent-child relationship's impact on CU traits or if CU traits might predict different parent-child relationship quality under the influence of negative affect. Future research can consider examining different directions of this association, especially longitudinally, with parent-child relationship quality as a dependent variable, for example. Second, the current study did not

account for potential cultural influences. Hispanic or Asian cultures might highlight the importance of close relationships with parents and the need for higher parental control (Fung & Lau, 2012). It might be interesting to learn how children of family-oriented cultures interpret closeness with parents. Additionally, these findings might not be generalizable to emerging adults across different educational, racial, ethnic, and cultural groups since most of the sample was White and were all attending college. Thus, future research can expand these findings on a more diverse sample of college and community emerging adults. Future research also is encouraged to collect data beyond single-informant self-report; although valid, this method is subject to various biases. Despite the listed drawbacks, these findings still provide meaningful insights regarding individuals differences in CU traits in relation to emerging adults' current interpersonal relationships with their parents.

Conclusions

The present study examined the impact of continuing parent-child relationship quality on emerging adults' CU traits in the context of negative affect and gender. The current findings suggest that having a positive maternal relationship might associate with lower CU traits across gender. Interestingly, having a positive paternal relationship was only associated with lower CU traits in women but not men. Current findings also highlight the unique associations that poor paternal-relationship quality alongside emerging adult women's negative affect have with CU traits. Specifically in high discord settings, negative affect could act as a protective factor against CU traits, although various bidirectional effects that could be investigated longitudinally are likely at play. Future research and interventions may benefit from evaluating the interaction between parent-child relationship quality and children's temperaments.

Author contributions Tram Nguyen developed the idea, wrote the manuscript, developed the method, and conducted and interpreted analyses. Cliff McKinney assisted with the revisions and oversaw the data collection.

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Availability of data and material The dataset for the current study is available from the corresponding author on reasonable request.

Declarations

Conflict of Interest The authors have no competing interests to disclose.

Ethical approval The university's IRB approved the study.

Informed consent Informed consent was obtained from all participants. The study was conducted in accordance with the APA Code of Ethics.

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