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The Romantic Relationships of Young Adults with Elevated Callous-Unemotional Traits

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The Romantic Relationships of Young Adults with Elevated Callous-Unemotional Traits

A Dissertation

Submitted to Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Development Psychology

by

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M.S. University of New Orleans, 2013

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*For my mother and father, whose juxtaposition, as the sun and moon,
illuminated my heart, mind, and soul.*

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Abstract

Callous-unemotional (CU) traits, an affective component of psychopathy, are associated with problematic outcomes in social relationships in adolescents. However, their association with problematic romantic relationships in young adults has not been the focus of research. In a community sample of 216 college students (167 females) between the ages of 18 to 50, the current study examined the association between CU traits and several important romantic relationship outcomes. Results indicated that CU traits showed positive associations with dominance and partner's perceived submissiveness, but negative associations with relationship satisfaction, even after controlling for impulsivity and antisocial behavior. On the other hand, antisocial behavior showed unique positive associations with short-term mating, psychological aggression towards partner, and partner's perceived CU traits, even after controlling for CU traits. Further, results indicated that CU traits, impulsivity, and antisocial behavior showed positive associations with physical aggression towards partner. However, once these variables were entered in a multiple regression model simultaneously, none of these associations remained significant, suggesting it is the shared variance across these three variables that accounts for physical aggression. Implications for research and treatment are discussed.

Keywords: callous-unemotional traits, antisocial behavior, psychopathy, romantic relationships, relationship satisfaction, college sample

Introduction

Psychopathy is a constellation of affective, interpersonal, and behavioral traits including lack of guilt and empathy, shallow and deficient emotions, manipulation, superficial charm, and impulsive and risk-taking behaviors (Cleckley, 1941; Hare, 1993). Extensive research with incarcerated adults indicates that psychopathy is associated with a particularly severe and violent pattern of antisocial behavior (Hart & Hare, 1997; Hart, Kropp, & Hare, 1988; Leistico, Salekin, DeCoster, & Rogers, 2008). Importantly, researchers contend that antisocial behavior in the presence of psychopathic traits is associated with distinct etiological factors compared to antisocial behavior in those without significant psychopathic traits (Blair, Mitchell, & Blair, 2005; Lykken, 1995).

Research has extended the concept of psychopathy to children and adolescents in an effort to advance knowledge of how these traits develop. This research has focused on callous-unemotional (CU) traits, which capture the affective component of psychopathy. Specifically, CU traits are characterized by a lack of guilt and empathy, shallow and deficient affect, and the callous use of others for one's own personal gain (Frick, Ray, Thornton, & Kahn, 2014a). Furthermore, youth with CU traits show earlier onset of conduct problems characterized by a more severe pattern of aggression (Kahn, Frick, Youngstrom, Findling, & Youngstrom, 2012; Pardini, Stepp, Hipwell, Stouthamer-Loeber, & Loeber, 2012). For example, in both clinic-referred preadolescents (Caputo, Frick, & Brodsky, 1999) and juvenile offenders (Christian, Frick, Hill, Tyler, & Frazer, 1997), CU traits designate a more severe and aggressive subgroup of youths with conduct problems. Importantly, this severity and earlier onset of conduct problems is associated with stability in conduct problems into adulthood in youths with elevated CU traits (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005; McMahon, Witkiewitz, & Kotler, 2010;

Rowe et al., 2010). For example, McMahon and colleagues (2010) examined CU traits in a large at-risk community sample of 754 7th graders. They showed that CU traits measured in the 7th grade predicted future adult arrests and antisocial personality symptomology even controlling for conduct problems and attention deficit hyperactivity disorder (ADHD). Thus, CU traits are associated with a more severe, aggressive, and stable pattern of antisocial behavior, similar to research on the relationship between psychopathy and antisocial behavior in adult samples.

Based on these findings that CU traits designate a clinically important subgroup of youth with severe behavior problems, they have been integrated in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders—5th Edition (DSM-5; American Psychiatric Association, 2013) as a specifier for Conduct Disorder. Specifically, individuals diagnosed with Conduct Disorder qualify for the specifier “with limited prosocial emotions” if they exhibit at least two of four CU traits (i.e., “lack of remorse or guilt,” “callous— lack of empathy,” “unconcerned about performance,” or “shallow or deficient affect”) over a 12-month period in a variety of contexts.

In addition to the more severe and stable antisocial behavior displayed by youth with elevated CU traits, research also suggests that youth with CU traits present with distinct cognitive and affective features when compared to youth with conduct problems without CU traits (Frick, 2009; Frick et al., 2014a; Frick & White, 2008). Specifically, CU traits are associated with decreased sensitivity to punishment cues (Fisher & Blair, 1998; Blair, Colledge, & Mitchell, 2001), a reward-dominant response style (Barry et al., 2000; O’Brian & Frick, 1996), and deficits in recognizing and processing negative emotions including fear and sadness (Blair, Colledge, Murray, & Mitchell, 2001; Fairchild, Stobbe, van Goozen, Calder, & Goyer, 2010; Stevens, Charman, & Blair, 2001). Moreover, CU traits are associated with a reduced

amygdala response when processing fearful faces (Viding et al., 2012) and when responding to affective Theory of Mind tasks (Sebastian et al., 2012). Further, youth with CU traits exhibit blunted physiological reactivity to emotional stimuli, including reduced magnitude in change of heart rate in response to emotionally evocative films (Anastassiou-Hadjicharalambou & Warren, 2008; de Wied, van Boxtel, Matyhys, & Meeus, 2012), lower skin conductance reactivity in response to peer provocation (Kimonis et al., 2008), and blunted cortisol reactivity in response to experimentally induced stress (Stadler et al., 2011).

These findings have led to theories hypothesizing distinct developmental causes leading to the antisocial behavior in those with and without significant levels of CU traits, each involving unique cognitive, affective, biological, and personality features (see Frick, Ray, Thornton, & Kahn, 2014b and Frick & Viding, 2009 for full reviews). Specifically, these authors proposed that youth with CU traits appear to have a temperament that is characterized by fearlessness, insensitivity to punishment cues, and decreased responsivity to distress cues from others that disrupts the normal development of empathy, guilt, and other aspects of conscience. In contrast, antisocial youth that are not elevated on CU traits do not show these problems related to conscience development and instead show problems regulating intense emotional arousal or problems in the executive control of behavior. Thus, there is substantial literature suggesting that youth with CU traits are a clinically and etiologically important subgroup of youth with serious conduct problems.

Peer Relationships in Youth with Elevated CU Traits

Research has also begun to study how CU traits and other characteristics associated with these traits influence a child's peer relationships. The most common finding is that youth with CU traits tend to associate with delinquent and antisocial peers (Goldweber, Dmitrieva,

Cauffman, & Steinberg; Kimonis, Frick, & Barry, 2004; Muñoz, Kerr, & Besic, 2013, Thornton et al., 2015). In a 4-year longitudinal study with 98 at-risk children with conduct problems, Kimonis and colleagues (2004) reported that those with high levels of CU traits showed the highest level of deviant peer affiliation. Research also indicates that adolescents with CU traits are more likely to commit crimes in groups, as opposed to offending alone (Goldweber et al., 2011; Thornton et al., 2015).

In addition to associating with deviant peers, youth with CU traits are more likely to show premeditated and instrumental aggression (i.e., aggression that is used to obtain a personal goal; Crapanzano, Frick & Terranova, 2010; Frick, Cornell, Barry, Bodin, & Dane, 2003; Lawing, Frick, & Cruise, 2010; Muñoz, Frick, Kimonis, & Aucoin, 2008). Further, youth with elevated CU traits are more likely to view the use of aggression as an acceptable means for obtaining desired social outcomes, to display positive outcome expectancies for the use of aggression, and blame the victim for their aggression (Chabrol, Van Leeuwen, Rodgers, & Gibbs, 2011; Marsee & Frick, 2007; Stickle, Kirkpatrick, & Frick, 2009). Also, in a study of the social goals of youths with CU traits during peer conflicts, Pardini (2011) reported that adolescents with elevated CU traits were more likely to endorse social goals related to revenge, dominance, and forced respect and less likely to endorse social goals related to conflict avoidance and relationship building when confronted with social conflict.

Despite showing this pattern of social behaviors, research suggests that youth with CU traits report having just as many friends as other adolescents, although these friendships may be less stable (Muñoz, Kerr, & Besic). Also, there is emerging evidence that youth with CU traits may exert a strong influence on the behavior of their friends. For example, in a sample of adjudicated adolescents, CU traits were associated with a greater likelihood of the adolescent

taking a leadership role in group crime and in planning the offense (Thornton et al., 2015). Furthermore, Kerr, Van Zalk, and Stattin (2012) examined the moderating effects of both target adolescents' and their peers' levels of CU traits on their susceptibility to peer influence on their delinquent behavior, using a large peer network approach in a community sample of 847 8th grade adolescents over 5 assessment points. Results indicated that, if the target adolescent had elevated CU traits, he or she was less influenced by peer delinquency. Interestingly, the target adolescent was more influenced by peer delinquency if they had friends who had elevated CU traits.

In short, the emerging findings from research suggests that youths with significant levels of CU traits are capable of forming peer relationships and they are highly influential on the behavior of their peers. However, they are also more likely to affiliate with delinquent peers, perceive their friendships as conflictual, and endorse deviant social goals when involved in peer conflict. As youth with CU traits enter late adolescence and early adulthood, these characteristics could also influence their romantic relationships. Unfortunately, this possibility has not been the focus of much research to date. However, there are data from research on the romantic relationships of adults with elevated psychopathic traits that would support this possibility.

Psychopathy and Romantic Relationships

One consistent finding in the adult literature is that psychopathic traits are related to a short-term dating strategy (Jonason & Buss, 2012; Jonason, Valentine, Li, & Harbeson, 2011). For example, psychopathic traits were associated with preferences for various types of short-term relationships (i.e., “one-night stands,” “friends-with-benefits,” and “booty-call relationships”) and negatively associated with a preference for long-term relationships in a sample of 210 adults

(ages 18 to 68; Jonason, Luevano, & Adams, 2012). The authors suggested that booty-call relationships perhaps appeal to individuals with psychopathic traits because it enables them to exploit and use the partner explicitly for sex without commitment. Another study examining short-term mating strategy in a sample of 224 psychology undergraduate students also suggested that psychopathic traits were associated with more sexual partners and less restrictive sociosexual attitudes (Jonason, Li, Webster, & Schmitt, 2009), which further support a short-term mating strategy emphasizing quantity over quality. Although much of this research has been conducted using broad measures of psychopathy.

Another consistent finding from research on adults' romantic relationships is that psychopathic traits show a positive relationship with infidelity (Brewer, Hunt, James, & Abell, 2015; Jonason, Li, & Buss, 2010; Jones & Weiser, 2014). For example, a recent study conducted by Jones and Weiser (2014) in a sample of 884 adults aged 18 to 74 found that psychopathic traits uniquely predicted infidelity towards a romantic partner in both men and women, controlling for other personality traits including narcissism and Machiavellism. Moreover, Adams, Leuveno, and Jonason (2014) showed that psychopathic traits were associated with a number of one-night-stands, while in a monogamous relationship. Research has also indicated that engagement in infidelity by individuals with psychopathic traits predicts future relationship dissolution (Jones & Weiser, 2014) and lower partner retention (Jonason et al., 2010).

Adults with psychopathic traits may be more susceptible to infidelity because their callous nature may predispose them to pursue sex regardless of consequences, relationship context, and relationship outcomes (Jones & Weiser, 2014). Another study examined cheating strategies in romantic relationships using a sample of 462 undergraduate psychology students (Baughman, Jonason, Lyons, & Vernon, 2014). Specifically, participants' cognitive and

emotional perceptions of lying were assessed by asking them to rate various aspects of lying (e.g., lying frequency, likelihood of lying, cognitive effort). Participants were also asked to report on their emotional state when lying on an 8-item measure with higher scores indicating positive emotions such as joy and satisfaction. Results indicated that psychopathic traits were associated with a propensity to lie and positive emotions when lying to a hypothetical romantic partner

Research has also shown an association between psychopathic traits and physical aggression (Marshall & Holtzworth-Munroe, 2010; Swogger, Walsh, & Kosson, 2007), sexual aggression (Marshall & Holtzworth-Munroe, 2010; Mouilso & Calhoun, 2011), and sexual coercion (Williams, Spidel, & Paulhus, 2005) in adult romantic relationships. These findings would be consistent with the research reviewed previously linking psychopathic traits to aggression more generally and to research linking CU traits to sexually aggressive offending specifically, in adolescents (Caputo et al., 1999; Lawing et al., 2010). Also, this level of violence in intimate relationships has been directly tied to deficits in recognizing others' emotional expressions in adult samples. Specifically, in a study using a community sample of 88 couples, husbands' level of psychopathic traits was related to misidentifying partners' fearful expressions as neutral and their decreased sensitivity to fearful expressions (Marshall & Holtzworth-Munroe, 2010).

A final relationship characteristic that has been associated with psychopathic traits in adult samples is dissatisfaction with the relationship. For example, a study investigating the psychosocial costs related to psychopathy in an international sample of adults found that psychopathy was negatively associated with romantic relationship quality (Jonason, Li, Czarna, 2013). Savard and colleagues (Savard, Sabourin, & Lussier, 2006; 2011) reported that

psychopathic traits were negatively related to couple satisfaction and positively associated with marital distress in a sample of married adults. In summary, psychopathic traits have been associated with a number of problematic outcomes in romantic relationships in adult samples.

CU Traits and Relationship Outcomes Independent of Other Dimensions of Psychopathy

One crucial issue that could have important implications for understanding the role of CU traits in young adults' romantic relationships is the fact that most studies on relationship outcomes to date have used general measures of psychopathy. Specifically, psychopathy describes a constellation of personality features including lack of guilt, callousness, selfishness, deceitfulness, and superficial charm (Lilienfeld, 1998). These characteristics are typically grouped into two correlated yet distinct factors, Factor 1 and Factor 2 (Harpur, Hare, & Hakstian 1989; Hart & Hare, 1997; Karpman, 1941; Levenson, Kiel, & Fitzpatrick, 1995). Factor 1 reflects the affective/interpersonal component of psychopathy and corresponds most closely to definitions of CU traits and with the criteria for the “with limited prosocial emotions” specifier. In contrast, Factor 2 captures the impulsive, irresponsible, and antisocial behavior component of psychopathy (Lilienfeld, 1998).

The studies reviewed previously showing a link between psychopathic traits and infidelity have generally used measures that combine both dimensions of psychopathy (Adams et al., 2014; Jones & Weiser, 2014). However, in a recent study examining psychopathic traits and infidelity in a university sample of 102 heterosexual women, Brewer and colleagues (2015) reported that psychopathic traits were related to the prior engagement of infidelity, intentions of future engagement in infidelity, and vulnerability to a partner's infidelity. However, this relationship was stronger for Factor 2 of psychopathy compared to Factor 1, suggesting that it is

the impulsive and antisocial lifestyle that makes individuals with psychopathic traits more likely to engage in infidelity.

To date there have been no studies investigating the relationship between CU traits, specifically, and mating strategies in young adult samples. However, Wymbs and colleagues (2013) studied a community sample of 471 6th grade students followed through 12th grade and showed that CU traits were related to early initiation of sexual intercourse in youth with serious conduct problems. Further, research with detained adolescents suggests that CU traits are related to risky sexual behavior, such as engaging in unprotected sex (Thornton et al., 2015). These results, taken together with the literature on adult psychopathy and short-term mating, suggest that persons with elevated CU traits may be more likely to endorse a short-term mating strategy.

Similarly, many of the studies reviewed above showing the association between psychopathic traits and partner violence used global measures, again making it unclear if the associations were specific to either dimension. Mager, Bresin, and Verona (2014) reported that both factors of psychopathy were related to intimate partner violence perpetration in a sample of 250 men and women. However, Swogger, Walsh, and Kosson (2007) reported that Factor 1, but not Factor 2 was positively related to domestic violence. Similarly, Muñoz, Khan, and Cordwell (2011) reported that Factor 1, but not Factor 2 predicted sexually coercive behaviors (e.g., emotional manipulation and physical force) in a sample of 150 university males and females. These results suggest that it may be CU traits in young adults that accounts for the perpetration of violence against romantic partners.

There is also a paucity of research on the association between CU traits and satisfaction within romantic relationships in young adult samples. However, research on CU traits and peer relationships suggests that youth with CU traits tend to be less satisfied than their peers within

friendships (Muñoz, Kerr, & Besic, 2008). For example, in one of the few studies to investigate friendship quality of youths with CU traits in a large community sample (667 adolescents aged 12-15), Muñoz and colleagues (2008) found that youths with elevated CU traits reported just as many friends as other adolescents; however, these friendships were less stable. In addition, they reported experiencing high rates of conflict within those friendships, whereas their peers did not. These findings suggest that young adults with elevated CU traits may be more likely to report lower satisfaction within their romantic relationships.

In summary, it is important to test whether CU traits themselves are related to poor relationship outcomes independent of the other dimensions of psychopathy or whether they are largely associated with these outcomes because they are related to a general pattern of acting without thinking of the consequences or a more general pattern of acting in ways that hurt others. If CU traits are related to poor relationship outcomes independent of the other dimensions of psychopathy, it is then important to determine what characteristics associated with these traits might account for this association.

Potential Mediators of the Association between CU and Problematic Relationship Outcomes

As noted above, CU traits are associated with the endorsement of social goals related to revenge, dominance, and forced respect (Pardini, 2011) and they are associated with the use of aggression as a means to obtain social goals and with positive outcome expectancies for the use of aggression (Marsee & Frick, 2007; Pardini, 2011; Stickle et al., 2009). In addition, Foulkes and colleagues (Foulkes, Viding, McCrory, & Neumann, 2014) reported a positive relationship between psychopathic traits and negative social potency (i.e., a social reward motivated by cruel and callous treatment of another person for one's personal gain and a need for dominance in social relationships) in a sample of 505 men and women. Furthermore, in a college sample of

184 men and women, psychopathic traits were positively associated with a hostile-dominant style, which is marked by high agency (individuation through power, dominance, control, status, ambition, competence, autonomy, and superiority) and low communion (i.e., connectivity through relation, affiliation, warmth, love, harmony, and morality; Rauthman & Kolar, 2012). Examining dominance in romantic relationships of young adults could be important for explaining the link between elevated CU traits and negative dating outcomes because a comprehensive review examining data from 75 samples reported that power/control was the most common motivation for intimate partner violence (Langhinrichsen-Rohling, McCullars, & Misra, 2012).

Another reason that could explain the problematic romantic relationship outcomes for persons with CU traits is that individuals with elevated CU traits may choose partners with certain characteristics (e.g., submissiveness; CU traits). These characteristics may contribute to problematic outcomes. For example, in a community sample of 44 males, Wilson and colleagues (Wilson, Demetriooff, & Porter, 2008) examined the ability to detect vulnerability in victims by measuring participants' social memory for the recognition of vulnerable faces. Results indicated that psychopathic traits were related to heightened memory for female faces depicting sadness and vulnerability, but impaired memory for recognizing other faces. Another study reported that individuals with psychopathic traits showed increased performance on a task designed to judge others' level of assertiveness in which they viewed a two-minute interaction between a target individual and a confederate (Book, Quinsey, & Langford, 2007). These results suggest that individuals with psychopathic traits may have a predatory propensity to assess their potential victims for submissiveness so that they may easily manipulate them and obtain their social goals related to personal gain.

On the other hand, individuals with elevated CU traits appear to associate with similarly deviant peers, as noted above. Also, there is some research to suggest that individuals with psychopathic traits may show assortative mating (e.g., mating with others who share similar characteristics) (Jonason et al., 2011; Jonason, Lyons, & Blanchard, 2015; Smith et al., 2014). For example, in a community sample of adult men ($n = 108$) and women ($n = 134$). Jonason and colleagues (2011) reported that psychopathic traits were negatively associated with the preference for kindness in a long-term mate, suggesting that they select for mates who are more similar to them on callousness. In another study examining assortative mating and psychopathy in 45 heterosexual undergraduate couples, Smith and colleagues (2014) found a significant positive association between partners' level of psychopathic traits. Jonason and colleagues (2015) created prototypical male profiles that were high on the Dark Triad Traits (e.g. psychopathy, narcissism, and Machiavellianism). They asked men and women to rate these prototypical profiles and found that both men and women with elevated psychopathic traits were more attracted to men and women with the same characteristics.

Thus, there is some evidence to suggest that adults with psychopathic traits select romantic partners with traits that could contribute to problematic dating outcomes. However, it is not clear whether these are traits related to submissiveness or callousness. Further, these studies did not consider the separate dimensions of psychopathy. Thus, it is not clear whether partner selection would contribute to romantic outcomes in young adulthood or whether they are specifically associated with CU traits. In one study that would support this possibility, CU traits were associated with perceived similarity to and desirability for dominant/cold characters using a social judgement task in a community sample of 101 adult men (Foulkes, Seara-Cardoso, Neumann, Rogers, & Craig, 2014). Further, in a study examining peer relationships of youths

with CU traits using a community sample of 667 adolescents assessed over a 4-year period, adolescents with CU traits tended to befriend other peers who were also high on CU traits (Muñoz, Kerr, & Besic, 2008). Thus, there is at least some suggestive findings that individuals with elevated CU traits may value dominance in romantic partners and adopt a birds-of-a-feather-flock-together mentality which renders them more likely to pair with romantic partners who also exhibit high CU traits.

Current Study

Based on this research, the current study examined the relationship between CU traits and short-term mating, infidelity, partner aggression, and relationship satisfaction in a college sample consisting mostly of young adults. Specifically, it tested the hypothesis that CU traits would be positively associated with short-term mating, infidelity, and partner aggression, but negatively related to relationship satisfaction. A second goal of the current study was to control for impulsivity and antisocial behavior in order to determine if it is CU traits that account for the relationship outcomes. Specifically, it was hypothesized that CU traits would still show significant associations with partner aggression and relationship satisfaction even after controlling for impulsivity and antisocial behavior but not show incremental associations with short-term mating and infidelity. Another goal was to examine whether dominance mediates the relationship between CU traits and the relationship outcomes. Specifically, the current study tested the prediction that the association between CU traits and poor relationship outcomes was accounted for by dominance. Finally, the study also explored whether partner perceived variables (e.g., partner's perceived submissiveness, partner's perceived CU traits) also mediated the relationship between CU traits and relationship outcomes. Specifically, it was tested whether

the relationship between CU traits and poor relationship outcomes was accounted for by level of partner's perceived submissiveness *or* partner's perceived level of CU traits.

Methods

Participants

Two hundred and forty college students, aged 18 to 50, enrolled in undergraduate psychology courses were recruited from a state university located in the southeastern U.S. in exchange for extra credit for their participation. To be eligible to participate in the study, participants were required to be involved in a self-defined mutually-exclusive, serious romantic relationship for at least 3 months at the time of participation, consistent with other research on romantic relationship outcomes in college samples (Rodriguez, Øverup, & Neighbors, 2013). A total of 24 participants were excluded from the analysis because they missed over 100 questions. This led to a final sample of $n = 216$ (167 females and 49 males) with a mean age of 22.93 ($SD = 5.16$) years. 20% of the sample was over the age of 25 and 91.2% of the sample was over age 30. The primary ethnic category was Caucasian (50.5%) with the remaining sample identifying as African-American (20.4), Hispanic/Latino (9.3%), Asian/Pacific Islander (9.3%), Middle-Eastern (3.2%), Mixed Race/Ethnicity (5.6%), or Other (1.9%). The primary sexual orientation was heterosexual (86.6%) with the remaining sample identifying bisexual (9.7%) or gay/lesbian (3.7%). The primary relationship status with current romantic partner was exclusively dating (44.4%), followed by casually dating (21.3%), nearly engaged (19.4%), engaged (9.3%), or married (5.3%). G-power analyses indicated that a sample of 176 was necessary to obtain an indirect effect of a moderate effect size ($f^2 = .10$) at $p < .05$ with three predictors (Faul, Erdfelder, Lang, & Buchner, 2007). Thus, the current sample size provided adequate power to detect a moderate effect size

Measures – Predictor

CU Traits. The self-report Inventory of Callous-Unemotional Traits (ICU; Frick, 2004) was used to measure CU traits. The ICU was developed to provide a more comprehensive assessment of CU traits in order to overcome psychometric limitations of previous measures and was derived from the 6-item CU subscale of the self-reported Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The ICU includes 24 items which are rated on a 4-point Likert-type scale (0 = *not at all true*, 1 = *somewhat true*, 2 = *very true*, 3 = *definitely true*). The ICU was developed using four items from the CU subscale of the APSD that consistently loaded onto the CU factor (Frick et al., 2000). These items were expanded to include three similarly positively worded and three similarly negatively worded items, resulting in a total of 24 items. Factor analysis provides support for an overarching dimension of CU traits (Essau, Sasagawa, & Frick, 2006; Fanti, Frick, & Georgiou, 2009; Kimonis et al., 2008). Further, the ICU has demonstrated strong reliability in children, adolescents, and adults (Byrd, Kahn, & Pardini, 2013; Essau et al., 2006; Kimonis, Branch, Hagman, Graham, & Miller, 2013; Roose, Bijttebier, Decoene, Claes, & Frick, 2010; White, Gordon, & Guerra, 2015). The 3-factor structure of the ICU was supported in one study using an undergraduate sample of men and women and ICU total scores showed strong associations with other measures of psychopathy (Kimonis et al., 2013). The ICU has shown associations with proactive forms of aggression in an undergraduate sample of women (White et al., 2015). The current study excluded two items from the analyses (i.e., items 2 and 10) due to low inter-item correlations, which are the same two items that have resulted in poor item total correlations in other samples of adolescents (Kimonis et al., 2008) resulting in a 22-item scale. The internal consistency in the current sample for callous-unemotional traits was $\alpha = .82$.

Measures – Outcome Variables

Short-term Mating. The 9-item Revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008) is a measure that assesses individual differences in sociosexual permissiveness and promiscuity and was used in the current study to measure short-term mating strategy. The SOI-R was adapted from the original SOI (Simpson & Gangestad, 1991) and was intended to overcome psychometric limitations of other measures of sociosexuality. It consists of three facets which are composed of three items each: behavior (e.g. “With how many partners have you had sex with in the last 12 months?”), attitude (e.g., “Sex without love is OK.”), and desire (e.g., “In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?”). The scale was developed using a 9-point Likert-type scale; however, the current study used the 5-point Likert-type scale, as recommended by Penke (2011) for most applications. The items from the behavior subscale asks participants to indicate the number of partners (1 = 0 to 5 = 8 or more) with which they have engaged in specific sexual behaviors; the items from the attitude subscale asks participants to indicate how strongly (1 = *totally disagree* to 5 = *totally agree*) they endorse specific sexual attitudes; and the desire subscale asks participants to indicate how frequently (1 = *never* to 5 = *nearly every day*) they experience sexual fantasies and arousal. Higher scores indicate a less restricted sociosexual orientation. The scores on the SOI-R have been associated with infidelity and greater desire for sex in samples of young adults (Penke & Asendorpf, 2008). The internal consistency in the current sample for short-term mating strategy was $\alpha = .87$.

Infidelity. An Infidelity Index was created to assess the frequency of infidelity while being in a committed relationship with a current partner. Previous studies have measured the incidence of infidelity in current romantic relationships by simply asking one or two items

regarding the commitment of infidelity (Brewer et al., 2015; Jones & Weiser, 2014). For example, in a recent study on infidelity patterns in a community sample of men and women, Jones and Weiser (2014) measured infidelity by asking participants two questions: “Have you ever been unfaithful to your current (or most recent) partner?” and “Did the infidelity end the relationship?” However, this form of ambiguous questioning could be problematic in that there are likely individual differences in defining “infidelity.”

Thus, to overcome these limitations an Infidelity Index was created for the current study using more defined items to decrease ambiguity. The questions were adapted from the Perceptions of Dating Infidelity Scale (PDIS; Mattingly, Wilson, Clark, Bequette, & Weidler, 2010; Wilson, Mattingly, Clark, Bequette, & Weidler, 2011). The PDIS is a measure assessing the extent to which specific behaviors are perceived as infidelity. Participants are asked to rate the extent to which they consider each item to be indicative of infidelity on a 5-point Likert-type scale ranging from 1 (*extremely low level of cheating*) to 5 (*extremely high level of cheating*). For the current study, five items from the Explicit facet of the PDIS were used and reworded to reflect items endorsing the commitment of infidelity while being involved in a romantic relationship with a current partner. The PDIS demonstrated convergent validity and the Explicit subscale of the PDIS was positively correlated with guilt and avoidance and negatively correlated with unrestricted sociosexual orientation in a sample of undergraduate students (Wilson et al., 2011). Specifically, participants were asked to respond to six items with respect to infidelity: “I have cheated on my partner,” “I have dated another person since I have been in a serious relationship with my current partner,” “I have kissed another person since I have been in a serious relationship with my current partner,” “I have engaged in heavy petting or fondling with another person since I have been in a serious relationship with my partner,” “I have engaged

in oral sex with another person since I have been a serious relationship with my current partner,” and “I have engaged in sexual intercourse with another person since I have been in a serious relationship with my current partner.” Responses were scored as 0 = *no* and 1 = *yes*.

In addition, participants were asked to respond to five analogous items with respect to how they perceived their partners would feel in regards to infidelity: “My partner would be upset if I went on a date with another partner,” “My partner would be upset if I kissed another person,” “My partner would be upset if I engaged in heavy petting or fondling with another person,” “My partner would be upset if I engaged in oral sex with another person,” and “My partner would be upset if I engaged in sexual intercourse with another person.” Responses were scored as 0 = *no* and 1 = *yes*.

Total scores were created for Infidelity Acts and Partner’s Perceived Feelings Towards Infidelity, respectively, by summing the items. Because Infidelity Acts had a large number of “0” responses and Partner’s Perceived Feelings Towards Infidelity had a large number of “5” responses (i.e., no infidelity acts endorsed 71.80%; all infidelity considered unacceptable endorsed 86.10%), Infidelity Acts was recoded as 0 for no instances of infidelity and 1 for any instances of infidelity and Partner’s Perceived Feelings Towards Infidelity was recoded as 0 if partner was perceived as endorsing all acts of infidelity as unacceptable and 1 if partner was perceived as endorsing any act of infidelity as acceptable. In the current sample, the internal consistencies for Infidelity Acts and Partner’s Perceived Feelings Towards Infidelity were $\alpha = .85$ and $\alpha = .89$, respectively.

Partner Aggression. The Revised Conflict Tactics Scale (CTS2; Straus, Hamby, & Warren, 2003) is a 78-item self-report measure that was adapted from Straus’ (1979) original CTS to assess the extent to which partners in a dating or marital context engage in aggression

during conflict resolution. The CTS2 asks the respondent each item twice, once about the respondent's behavior towards partner, and then about the partner's behavior towards the respondent. For the current study, only the 20 items assessing psychological and physical aggression towards partner were used. Specifically, the Psychological Aggression subscale consists of 8 items (e.g., "insulted or sworn at partner") and the Physical Aggression subscale consists of 12 items (e.g., "threw something at a partner"). The scale is scored on an 8-point Likert type rating scale (0 = *never*, 1 = *once*, 2 = *twice*, 3 = *3-5 times*, 4 = *6-10 times*, 5 = *11-20 times*, 6 = *more than 20 times*, 7 = *not in the past year, but it happened before*) to measure frequency of the behaviors. This scale shows associations with jealous actions, control tactics, and attitudes supporting dating aggression in a high school sample (Cascardi, Avery-Leaf, O'Leary, & Slep, 1999). In a study of 391 undergraduate males and females, the Physical Aggression subscale was correlated with dominance, antisocial personality, and conflict in males and females (Straus & Mouradian, 1999). The current study used Psychological Aggression and Physical Aggression separately to measure partner aggression. The internal consistencies in the current sample for Psychological Aggression and Physical Aggression were $\alpha = .68$ and $\alpha = .71$, respectively.

Relationship Satisfaction. The 18-item Perceived Relationship Quality Component (PRQC; Fletcher, Simpson, & Thomas 2000a) was used to measure relationship satisfaction with a partner. This measure includes six subscales, each consisting of 3 items: relationship satisfaction (e.g. "How satisfied are you with your relationship?"), commitment (e.g., "How committed are you to your relationship?"); intimacy (e.g., "How connected are you to your partner?"), trust (e.g., "How dependable is your partner?"), passion, (e.g., "How sexually intense is your relationship?"), and love (e.g., "How much do you love your partner?"). Responses

were scored on a 7-point Likert-type scale ranging from 1 (*not at all*) to 7 (*extremely*) and subscales were used to create a global index of relationship quality, with greater scores reflecting higher perceived relationship quality. Two studies using confirmatory factor analysis in a community sample of young adults demonstrated good internal reliability for the six subscales and a higher order factor representing overall relationship quality (Fletcher et al., 2000a). The PRQC shows positive associations between partner ideal-perception consistency (i.e., consistency between ideal standards and perceptions of partner; Fletcher, Simpson, & Thomas, 2000b), with perceived partner support (Overall, Fletcher, & Simpson, 2010), and with forgiveness (Friesen, Fletcher, & Overall, 2005) in samples of college students. In the current sample, the internal consistency for relationship satisfaction was $\alpha = .95$.

Measures – Controls

Impulsivity. The Barratt Impulsiveness Scale, Version 11 (BIS-11; Patton, Stanford, & Barratt 1995) was used to assess impulsivity. The BIS-11 consists of 30 items measuring a variety of impulsive and non-impulsive (for reverse scored items) behaviors that are rated on a 4-point Likert type scale ranging from 1 (*rarely/never*) to 4 (*almost always/always*). The BIS-11 includes three subscales: attention impulsiveness (8 items; e.g. “I have ‘racing thoughts.’”), motor impulsiveness (11 items; “I act ‘on impulse.’”), and non-planning impulsiveness (11 items; “I plan tasks carefully.”). For the current study, 2 of the original 30 items were eliminated due to low inter-item correlations (i.e., items 4 and 23), resulting in 28-items used to calculate a total impulsivity score. A comprehensive review conducted by Stanford and colleagues (2009) reports good internal consistencies and test-retest reliability for the total score in diverse sample of adults. The BIS-11 also shows convergent validity by being highly correlated with similar

self-report measures of impulsivity (Patton et al., 1995). The internal consistency for impulsivity in the current sample was $\alpha = .79$.

Antisocial Behavior. Antisocial behavior was assessed using a measure adapted from the 26-item self-reported General Delinquency Scale adapted from the National Youth Survey (NYS) from the Rochester Youth Development Study (Smith & Thornberry, 1995). These items were designed to assess a full range of antisocial behavior that ranged in severity from minor offenses (e.g., petty theft, rowdiness) to more serious offenses (e.g., armed robbery and serious assault; Thornberry & Krohn, 2000). Participants are typically asked if they have committed each offense in the past 6 months, and if so they are instructed to indicate how often. In previous studies, because frequency measures are typically skewed, log transformations have been used (Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003). However, because the NYS was a longitudinal study following adolescents into early adulthood, the current study assessed for lifetime commitment of offenses. The current study used a 5-point Likert type response coded as 0 = *never*, 1 = *once*, or 2 = *more than once*. This scale has well-established validity from the NYS (Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003) and is associated with delinquent peer affiliation and gang membership (Battin-Pearson, Thornberry, Hawkins, & Krohn, 1998). In the current sample, internal consistency for antisocial behavior was $\alpha = .82$.

Measures – Mediators

Dominance. The Resource Control Strategies Inventory (RCSI; Hawley, 1999; Hawley, Little, & Pasupathi, 2002) was modified for the current study to measure dominance. The RCSI is a 12-item measure, which assesses strategies used for obtaining goals across coercive (6 items) and prosocial (6 items) dimensions. The current study used the coercive dimension to measure dominance. For the current study, item wording was slightly modified to make the measure

more understandable to participants. For example, “I access resources (material, social, informational) by tricking or manipulating others” was modified to “I get what I want by tricking or manipulating others”. Items were rated on a 5-point Likert type scale with responses ranging from 0 (*never*) to 5 (*often*). The coercive and prosocial subscales, as well as the total RCSI total, have shown good reliability in college samples (Hawley, Shorey, & Alderman, 2009). The RCSI has demonstrated positive associations with submissive sexual fantasies (Hawley & Hensley, 2009) in college men and women. Internal consistency for this measure in the current sample was $\alpha = .77$.

Partner’s Perceived Submissiveness. The self-report 16-item Submissiveness Behavior Scale (SBS; Allan & Gilbert, 1997; Gilbert & Allan, 1994) was modified to ask participants to report on their partner’s level of submissiveness. The SBS was adapted from Buss and Craik (1986) to measure submissive social behavior. Responses were rated on a 5-point Likert-type scale ranging from 0 (*never*) to 4 (*always*). Sample items include, “I continue to apologize for minor mistakes,” “I do what is expected of me even when I don’t want to,” and “I avoid direct eye contact.” For the current study, instructions were modified to specify that participants should choose the rating which best describes the degree to which each statement is true for their partners. Item wording was modified to reflect partner behavior and feelings (e.g., “My partner continues to apologize for minor mistakes,” “My partner does what is expected of him/her even when he/she doesn’t want to,” and “My partner avoids direct contact”). Previous studies using this measure have reported good internal consistency and good test-retest reliability (Gilbert & Allan, 1994) and the SBS shows positive associations with interpersonal sensitivity and unexpressed hostility (Allan & Gilbert, 1997) and with shame, guilt, and social anxiety (Gilbert,

2000) in samples of college students. Internal consistency for partner's perceived submissiveness in the current sample was $\alpha = .74$.

Partner's Perceived CU Traits. Participants were asked to report on their current romantic partners' CU traits by rating their partners' traits on the 22-item ICU (Frick, 2004) described above. As noted above, there is evidence to support a self-report version of the ICU in college age samples. However, an experimental partner-report measure was developed for this study based on this self-report version. In the current sample, internal consistency for partner's perceived CU traits was $\alpha = .90$.

Procedures

The current study was approved by the University of New Orleans Institutional Review Board prior to data collection. Undergraduate students enrolled in psychology courses who were eligible to participate in the study followed a link to take an anonymous online survey available via Qualtrics (2015). To control for privacy and confidentiality, participants were able to complete an anonymous survey. Measures were grouped such that each participant was prompted to complete demographic information first, then complete self-report measures specific to the participant's feelings and behaviors (i.e., CU traits, short-term mating, dominance, impulsivity, and antisocial behavior). Next, each participant was prompted to choose *one* primary partner with whom they were currently in a romantic relationship and was instructed to indicate the first name of this primary partner. This survey was programmed to generate the partner's name on the measures specific to the partner (i.e., infidelity, partner aggression, relationship satisfaction, partner's perceived submissiveness, partner's perceived CU traits). Following completion, the survey closed and a separate window appeared in which participants

were prompted to provide their name, student identification, and course and instructor information for which they wished to receive extra credit for compensation.

Data Analysis Plan

Prior to testing the main study hypotheses, preliminary analyses involved examining raw scores and distributions for all measurements. An inspection of variables indicated some extreme outlier scores for most variables. As a result, variables were winsorized by replacing outliers with the next most extreme score that was not an outlier. For the current study, for all variables with skewed distributions and outliers, all values that were more than 3 standard deviations from the mean were replaced with the score at 3 standard deviations. All variables that were winsorized (all main study variables with the exception of short-term mating, infidelity, and partner's perceived submissiveness) were included in subsequent study analyses after winsorization. Descriptive statistics for all main study variables after winsorization are presented in Table 1.

Bivariate correlations between all demographic variables (e.g., sex, age, ethnicity) and main study variables were tested. To test the first hypothesis, a Pearson correlation was run to test the associations between CU traits and relationship outcome variables (i.e., short-term mating, infidelity, physical aggression, psychological aggression, and relationship satisfaction), controls (i.e., impulsivity and antisocial behavior) and mediators (i.e., dominance, partner's perceived submissiveness, and partner's perceived CU traits). Next the incremental contribution to the relationship variables was tested using a series of multiple regression analyses. Specifically, CU traits, impulsivity, and antisocial behavior were entered together in a simultaneous multiple regression to test their independent associations with dependent variables (short-term mating, infidelity, physical aggression, psychological aggression, and relationship

Table 1. *Distributions of Study Variables*

Variable	<i>M</i>	<i>SD</i>	<i>Min-Max</i>	<i>S</i>	<i>K</i>	α
Predictors						
CU traits	15.86	7.11	0-37	.61	.46	.82
Dependent Variables						
Short-term Mating	21.75	8.19	9-44	.56	-.43	.87
Infidelity	.28	.45	0-1	.97	-1.06	.85
Psychological Aggression	23.50	23.31	0-94	1.14	.63	.68
Physical Aggression	6.75	12.83	0-50	2.20	3.92	.71
Relationship Satisfaction	105.66	19.54	45-126	-1.30	1.17	.95
Mediators						
Dominance	1.99	2.20	0-9	1.51	2.09	.77
Partner's Perceived Submissiveness	19.01	7.36	4-41	.37	-.24	.74
Partner's Perceived CU Traits	19.64	10.56	1-50	.75	.36	.90
Controls						
Impulsivity	62.16	9.04	41-84	.19	-.42	.79
Antisocial Behavior	7.51	6.09	0-26	1.06	.78	.82

Note. *M* = Mean; *SD* = standard deviation; *S* = skewness; *K* = kurtosis; α = internal consistency for each variable measure; CU = callous-unemotional
Standard error for *S* = 0.17; Standard error for *K* = 0.33.

satisfaction) and potential mediators (dominance, partner's perceived submissiveness, and partner's perceived CU traits). Finally, to test the mediational hypotheses, the Process procedure (Hayes, 2012) was used in IBM SPSS Statistics 23.0 (IBM, 2015). Specifically, a series of mediation analyses were conducted using bootstrapped regression analyses to test total, direct, and indirect effects of CU traits on each relationship outcome variable through the potential mediators. Importantly, indirect effects were not tested with *p*-values but with bootstrapped and bias-corrected 95% confidence intervals. The bootstrapping method is a commonly used resampling method to test mediation by randomly sampling with replacement from the original *n*, thus obtaining a new sample of *n*, which represents the first bootstrap resample (Efron, 2000; Efron & Tibshirani, 1993; Yung & Bentler, 1996). Usually, at least 1,000 bootstrapped resamples are recommended to compute confidence limits (Efron & Tibshirani, 1993). For the current sample, 5,000 bootstrapped resamples were used. Finally, a confidence interval not including 0 shows support of an indirect effect.

Results

Preliminary Analyses

The results of the correlation analyses between all main study variables and demographic variables are presented in Table 2. Age was positively associated with short-term mating, but negatively related to CU traits, physical aggression towards partner, dominance, and partner's perceived submissiveness. Sex (coded male = 1 and female = 2) was positively related to psychological aggression towards partner, physical aggression towards partner, and relationship satisfaction, but negatively related to CU traits, short-term mating, partner's perceived submissiveness, and antisocial behavior. Ethnicity (coded as 1 = Caucasian, 2 = ethnic/racial minority) was negatively related to short-term mating and antisocial behavior.

Table 2. Zero-order Pearson Correlations of Main Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Demographic Variables														
1. Age	—	.04	-.23**	-.26***	.26***	.06	-.07	-.18**	.07	-.16*	-.24***	-.06	-.04	-.02
2. Sex		—	.05	-.28***	-.29***	.02	.26***	.19**	.16*	-.13	-.24***	.08	-.00	-.19**
3. Ethnicity			—	.09	-.19**	.02	.08	.12	-.02	.00	.07	.03	-.03	-.17*
Predictor Variables														
4. CU traits				—	.17** ^a	.12	.10	.16** ^a	-.24*** ^a	.51*** ^a	.24**	.15** ^a	.35*** ^a	.27*** ^a
Dependent Variables														
5. Short-term Mating					—	.34*** ^a	-.01	.03	-.17** ^a	.15** ^a	.02	-.02	.23*** ^a	.38*** ^a
6. Infidelity						—	.21*** ^a	.22*** ^a	-.25*** ^a	.08	.06	.11	.10	.13
7. Psychological Aggression Towards Partner							—	.59*** ^a	-.10	.01	-.01	.21*** ^a	.15** ^a	.19*** ^a
8. Physical Aggression Towards Partner								—	-.06	.15** ^a	.12	.11	.17** ^a	.15** ^a
9. Relationship Satisfaction									—	-.15*	-.08	-.46*** ^a	-.15** ^a	-.12
Mediators														
10. Dominance										—	.31*** ^a	.13	.26*** ^a	.31*** ^a
11. Partner's Perceived Submissiveness											—	-.05	.09	.19*** ^a
12. Partner's Perceived CU Traits												—	.25*** ^a	.22*** ^a
Controls														
13. Impulsivity													—	.38*** ^a
14. Antisocial Behavior														—

Note. CU = callous-unemotional; * $p < .05$; ** $p < .01$; *** $p < .001$; ^a partial correlations remained significant after controlling for age, sex (coded as 1 = male and 2 = female), and ethnicity (coded as 1 = Caucasian, 2 = ethnic/racial minority).

The zero-order correlations between the main study variables are also provided in Table 2. Consistent with predictions, CU traits were positively associated with short-term mating and physical aggression towards partner, but negatively related to relationship satisfaction. However, contrary to predictions, CU traits were not significantly associated with infidelity nor psychological aggression towards partner. Further, CU traits were positively associated with all proposed mediators (i.e., dominance, partner's perceived submissiveness, partner's perceived CU traits) and with both control variables (i.e., impulsivity and antisocial behavior). Moreover, dominance showed positive associations with short-term mating, physical aggression towards partner, and partner's perceived submissiveness, but a negative association with relationship satisfaction. Partner's perceived CU traits showed a positive association with psychological aggression towards partner and a negative association with relationship satisfaction. Correlations between all study variables controlling for all demographic variables (i.e., age, sex, ethnicity) are also provided in Table 2. Results showed that all significant correlations remained significant even after controlling for demographic variables, with the exception of two correlations (i.e., the positive correlation between CU traits and partner's perceived submissiveness and the negative correlation between relationship satisfaction and dominance). Based on these results, age, sex, and ethnicity were not entered as controls in subsequent analyses.

Multiple Regression Analyses

The results of the multiple regression analyses testing the independent associations of CU traits, impulsivity, and antisocial behavior are summarized in Table 3. CU traits were not significantly correlated with short-term mating after controlling for impulsivity and antisocial behavior. However, there was a significant main effect for antisocial behavior ($\beta = .33, p < .001$)

for the prediction of short-term mating. There were no main effects for CU traits, impulsivity, nor antisocial behavior for the prediction of infidelity. Also, contrary to predictions, there were no main effects for CU traits for the prediction of psychological aggression; however, there was a main effect for antisocial behavior ($\beta = .15, p < .05$), but no main effect for impulsivity. Moreover, contrary to predictions, CU traits were not associated with physical aggression towards partner after controlling for impulsivity and antisocial behavior. There were no main effects for impulsivity nor antisocial behavior. As hypothesized, CU traits were negatively related to relationship satisfaction ($\beta = -.21, p < .01$), even after controlling for impulsivity and antisocial behavior. There were no main effects for impulsivity nor antisocial behavior.

Results of the regression analyses testing the independent associations of CU traits, impulsivity, and antisocial behavior with the potential mediators are also reported in Table 3. Results indicated CU traits were positively associated with dominance ($\beta = .46, p < .001$). There was also a significant main effect for antisocial behavior ($\beta = .17, p < .01$) with dominance, but not for impulsivity. Results indicated CU traits were positively associated with partner's perceived submissiveness ($\beta = .21, p < .01$), after controlling for impulsivity and antisocial behavior. There was also a main effect for antisocial behavior ($\beta = .15, p < .05$), but not for impulsivity. Finally, impulsivity was positively associated with partner's perceived CU traits ($\beta = .18, p < .05$), but there were no main effects for CU traits nor antisocial behavior.

Mediational Analyses

Table 4 presents the amount of variance (R^2) explained by the total model with all variables, and the total, direct, and indirect effects (all using unstandardized coefficients) of CU traits on the various outcomes that were significantly associated with CU traits in zero order correlations. As hypothesized, there were positive total effects from CU traits to short-term

Table 3. *Multiple Regression Analyses Testing the Main Effects of Impulsivity, Callous-Unemotional (CU) Traits, and Antisocial Behavior (ASB)*

Variable	Standardized beta			R^2	SE	F
	CU	Impulsivity	ASB			
Dependent Variables						
Short-term Mating	.05	.09	.33***	.15	7.60	12.71***
Infidelity	.08	.04	.10	.03	.45	1.86
Psychological Aggression	.04	.08	.15*	.04	22.97	3.12*
Physical Aggression	.10	.10	.09	.05	12.62	3.37*
Relationship Satisfaction	-.21**	-.07	-.04	.06	19.03	4.87**
Mediators						
Dominance	.46***	.03	.17**	.29	1.86	29.49***
Partners Perceived Submissiveness	.21**	-.04	.15*	.07	7.13	5.63**
Partner's Perceived CU Traits	.05	.18*	.14	.08	10.19	6.24***

Note. CU = callous-unemotional; ASB = Antisocial Behavior. All *F* values had (3, 212) degrees of freedom.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 4. *Bootstrapped Regression Analyses for Mediation with Callous-Unemotional Traits as the Predictor*

	Total Effect	Direct Effect	Indirect Effect	95% Confidence Interval	
				Lower	Upper
CU → Dom → STM	.1930*	.1388	.0542	-.0392	.1523
CU → PSub → STM	.1976*	.2035*	-.0058	-.0477	.0320
CU → PCU → STM	.1930*	.2009*	-.0079	-.0461	.0105
CU → Dom → PhysAgg	.2928*	.2105	.0823	-.0387	.2519
CU → PSub → PhysAgg	.3047*	.2697*	.0351	-.0278	.1561
CU → PCU → PhysAgg	.2928*	.2679*	.0249	-.0029	.0995
CU → Dom → RSat	-.6580***	-.6068**	-.0513	-.2737	.1611
CU → PSub → RSat	-.6277***	-.6119**	-.0159	-.1338	.0789
CU → PCU → RSat	-.6580***	-.4872*	-.1709	-.3770	-.0105

Note. CU = Callous-Unemotional Traits; Dom = Dominance; PSub = Partner's Perceived Submissiveness; PCU = Partner's Perceived CU Traits; STM = Short-term mating; PhysAgg = Physical Aggression; RSat = Relationship Satisfaction

* $p < .05$; ** $p < .01$; *** $p < .001$; Direct and indirect effects are unstandardized coefficients; Confidence intervals are bias corrected.

mating, physical aggression towards the partner, and to relationship satisfaction. Contrary to predictions, however, the indirect effects through the mediators were not significant for any of these variables, with the exception of a significant indirect effect of CU traits on relationship satisfaction through partner's perceived CU traits, $b = -.171$, CI $[-.377, -.011]$. However, this effect size needs to be interpreted cautiously because this was only one of nine tested potential mediational pathways that showed significance.

The primary focus of the study hypotheses was on the potential influence of CU traits on relationship outcomes. However, because antisocial behavior was associated with several outcomes even after controlling for CU traits, similar mediation tests were conducted to determine if there were significant indirect effects through the mediators for these associations. Importantly, these results should be interpreted cautiously, since they were not part of the a priori study predictions. The results of these analyses are provided in Table 5. Results indicated positive total effects from antisocial behavior to both short term mating and psychological aggression. However, the test of indirect effects did not suggest that this association was due to the effects of the mediators, with the exception of a significant indirect effect of antisocial behavior on psychological aggression through partner's perceived CU traits, $b = .151$, CI $[.044, .349]$.

Discussion

Consistent with past research, results from the current study of adult college students indicate that several dimensions of psychopathic traits are associated with problematic outcomes in romantic relationships (Jonason & Kavanaugh, 2010; Smith et al., 2014). Importantly, these results advance past research by suggesting that different dimensions of psychopathy are related to specific aspects of problematic relationship outcomes.

Table 5. *Bootstrapped Regression Analyses for Mediation with Antisocial Behavior as the Predictor*

	Total Effect	Direct Effect	Indirect Effect	95% Confidence Interval	
				Lower	Upper
ASB → Dom → STM	.5058***	.4883***	.0175	-.0442	.0827
ASB → PSub → STM	.5057***	.5195***	-.0138	-.0646	.0120
ASB → PCU → STM	.5058***	.5376***	-.0318	-.0947	.0019
ASB → Dom → PsychAgg	.7135**	.7875**	-.0740	-.2952	.1227
ASB → PSub → PsychAgg	.7119**	.7507**	-.0388	-.2093	.0568
ASB → PCU → PsychAgg	.7135**	.5627*	.1508	.0441	.3494

Note. CU = Callous-Unemotional Traits; Dom = Dominance; PSub = Partner's Perceived Submissiveness; PCU = Partner's Perceived CU Traits; STM = Short-Term Mating; PsychAgg = Psychological Aggression

* $p < .05$; ** $p < .01$; *** $p < .001$; Direct and indirect effects are unstandardized coefficients; Confidence intervals are bias corrected.

Specifically, the affective dimension (i.e., CU traits) of psychopathy was positively associated with short-term mating, physical aggression towards partner, dominance, partner's perceived submissiveness, and partner's perceived CU traits, but negatively associated to relationship satisfaction. Importantly, CU traits remained significantly associated with dominance and partner's perceived submissiveness, as well as still showed a negative association with relationship satisfaction when controlling for impulsivity and antisocial behavior. In fact, CU traits was the only dimension to account for unique variance in relationship satisfaction. Further, CU traits, impulsivity, and antisocial behavior were all related to physical aggression towards partner. However, results from multiple regression analyses indicated that when all these variables were entered into the model together, these associations no longer remained significant, suggesting it is the shared variance across all three variables that predicts physical aggression.

The finding that physical aggression towards a partner was related to CU traits, as well as behavioral dimensions of psychopathy (i.e., impulsivity and antisocial behavior), supports past research showing that elevated CU traits in adolescents combined with antisocial and impulsive behaviors designates a particularly severe and aggressive pattern of offending in these youths (Caputo et al., 1999; Christian et al., 1997). Further, the adult literature shows an association between CU traits and domestic violence (Swogger et al., 2007) and between CU traits and sexually coercive behaviors using emotional manipulation and physical force (Muñoz et al., 2011). These results, combined with those showing that CU traits are related to dominance and partner's perceived submissiveness, support past research suggesting that individuals with CU traits are more likely to endorse power-oriented social goals related to dominance and forced respect when navigating peer conflict, as well as exhibit little concern for the suffering of their

victims (Pardini, 2011). In fact, individuals with CU traits are less likely to expect that their use of aggression will lead to victim suffering, remorseful feelings, or consequences, but more likely to expect that it will result in social dominance, suggestive of a social worldview emphasizing a callous and careless use of dominance with little concern for those whom they hurt (Pardini & Byrd, 2012). Further, research suggests that power and control are the most common motivators for intimate partner violence in adult samples (Langhinrichsen-Rohling et al., 2012). In short, our findings suggest that theories developed to explain domestic violence in young adults should consider the potential role that CU traits and dominance may play.

The second relationship outcome that was associated with CU traits was relationship satisfaction, which was negatively associated with CU traits and this remained significant even after controlling for impulsivity and antisocial behavior. This finding is consistent with research examining peer relationships of adolescents with CU traits, which reports that adolescents with CU traits are able to form peer relationships; however, they report less satisfaction and more conflict within those friendships (Muñoz, Kerr, & Besic, 2008). The current results suggest similar dynamics in the romantic relationships of young adults, whereby CU traits are negatively related to relationship satisfaction. One possible explanation for this decreased relationship satisfaction could be that their callous and uncaring treatment of romantic partners contributes to a strained relationship dynamic in which conflict is consistently high with little to no resolution. This would be consistent with studies suggesting that persons with CU traits often engage in behaviors that increase the rate of negative life events that they experience (Kimonis, Centifanti, Allen, & Frick, 2014). These possibilities require further testing but they are critical questions for future research, given that a) CU traits proved to be the strongest predictor of relationship

satisfaction in the current college sample and b) the hypothesized mediators largely did not seem to significantly account for this association, with the exception of partner's perceived CU traits.

In contrast to these outcomes that seemed to be more strongly related to CU traits, short-term mating seemed to be more highly associated with more general patterns of antisocial behavior. These results are consistent with past research in adult samples suggesting that the impulsive/antisocial facet of psychopathy is associated with a fast life-strategy emphasizing a greater number of sexual partners, more permissive sociosexual attitudes, and a short-term mating strategy (McDonald, Donnellan, & Navarette, 2012). Moreover, research supports that risky sexual behavior and hypersexuality (e.g., sexual sensation seeking, sexual disinhibition) are more strongly related to the behavioral component of psychopathy (Fulton, Marcus, & Payne, 2010; Kastner & Selbom, 2012). Overall, these results suggest that the propensity for a fast life strategy and short-term mating style seem to be more related to an impulsive and irresponsible lifestyle, as opposed to a general lack of empathy, which is the hallmark of CU traits.

In addition, antisocial behavior, but not CU traits, was associated with psychological aggression towards a partner, which is defined as a form of aggression used to excite psychological pain or fear through the use of insults, verbal attacks, or threats (Straus et al., 2003). Schmeelk, Sylvers, and Lilienfeld (2008) reported similar results in that relational aggression (e.g., a form of social aggression used to manipulate and damage social relationships through insults, gossip, and withholding friendship) was significantly associated with the impulsive and antisocial dimensions of psychopathy in an adult sample. Moreover, another study investigating relational aggression in peer and dating relationships in an adolescent sample found that the use of relational aggression predicted delinquency for girls (Ellis, Crooks, & Wolfe, 2009). One possible explanation for this finding may be that young adults with antisocial

behavior may be more likely to use psychological aggression in the heat of the moment when threatened or provoked by a partner; whereas, young adults with CU traits may be more likely to use more severe forms of aggression in a premediated and instrumental manner to exert dominance and control over their partners. In support of this possibility, antisocial adolescents without CU traits are more likely to display only reactive aggression (e.g. aggression that results in reaction to a real or perceived threat) towards peers (Frick et al., 2003; Marsee & Frick, 2007). In contrast, antisocial youths who also display high rates of CU traits are more likely to engage in proactive aggression (e.g., aggression that is premediated and used to obtain a desirable goal) towards peers (Frick et al., 2003; Lawing, Frick, & Cruise, 2010).

Finally, the current study largely did not show support for the proposed mediators as accounting for the effects of CU traits and antisocial behavior on the outcomes. However, there was support for partial mediation, such that partner's perceived CU traits partially mediated the relationship between CU traits and relationship satisfaction. Results also indicated that partner's perceived CU traits partially mediated the association between antisocial behavior and psychological aggression. These results provide some support for the possibility that both dimensions of psychopathy may be associated with relationship outcomes due to partner selection effects, which is consistent with past research on adults (Foulkes et al., 2014) and studies showing that adolescents with CU traits tend to befriend other peers who are also high on CU traits (Muñoz, Kerr, & Besic, 2008). However, it is important to note that this mediation was only partial and only accounted for a modest amount of the total effect of the psychopathy dimensions on relationships outcomes. Therefore, future research should test other potential mediators in the relationship between CU traits and romantic relationship outcomes to further understand these associations. One possibility is sensitivity to emotional expressions in others.

For example, a study examining psychopathy in a community sample of 80 married couples found that husbands' sensitivity to wives' emotional expression (i.e., happiness) mediated the relationship between psychopathy and intimate partner violence (Marshall & Holtzworth-Munroe, 2010). In addition, husband's sensitivity to unfamiliar female expressions of fear partially mediated the relationship between psychopathy and intimate partner violence. Such tests of mediation are important, given the association between CU traits and reduced relationship satisfaction. Also, given the associations between CU traits and physical aggression towards partner, examining potential mediators for this association may shed further light on a public health issue and inform treatment for domestic violence. For example, one study indicated that sociosexuality (i.e., endorsement of more casual and more frequent sexual encounters) mediated the association between psychopathy and sexual assault in a sample of college men (Mouilso & Calhoun, 2012). Thus, understanding underlying attitudes that foster partner violence in individuals with CU traits may help clinicians and mental health professionals develop treatments that aim to modify existing schemas and values that perpetuate aggression towards partners.

The current study is not without methodological limitations. First, the current study relied exclusively on self-report data. As a result, some of the associations may have been inflated due to shared method variance amongst measures. Another limitation to using self-report data is the inability to control for response bias or lying. Participants may have been motivated to respond in a socially desirable way to present themselves positively or to lie about inclusionary criteria (i.e., length of time in a relationship) to receive extra credit for a class. In addition, participants were asked to report on their perceptions of their partners' levels of CU traits and submissiveness. This could have resulted in a "negative halo" effect in which

participants potentially report negatively on their partners' feelings and behavior and this is not specific to any particular characteristic. In support of this possible limitation there was a positive correlation between partner's perceived submissiveness and partner's perceived CU traits. To address this limitation, future research should include larger samples of romantic couples who have been in long-term relationships to examine CU traits with relationship outcomes. These couples would be able to report on their own behaviors and feelings as well as their partners'. Second, the current sample consisted of college students enrolled in undergraduate psychology courses. In addition, as commonly reported in personality research using college samples, females and younger adults were largely overrepresented. Thus, the generalizability of the current results needs to be tested in future studies. That is, future research should aim to replicate these findings using larger sample sizes that are more demographically representative. Third, participants with CU traits and antisocial behavior may have been underrepresented in the current study because participants were recruited from a community sample. Moreover, at-risk individuals may be less likely or willing to participate. Future research should compare the association between callous unemotional traits and romantic relationship outcomes in both community and at-risk samples in order to examine whether differences emerge.

Within the context of these limitations, the current results shed some light on how CU traits may influence romantic relationships in young adults, consistent with past research suggesting that they can influence the peer relationships of adolescents. Specifically, results indicated that CU traits were uniquely positively associated with dominance and partner's perceived submissiveness, but negatively associated with relationship satisfaction, even after controlling for antisocial behavior and impulsivity. Thus, CU traits appears to be an important variable to consider when studying romantic relationships in young adults. In addition, CU traits,

impulsivity, and antisocial behavior were all related to physical aggression; however, these associations were no longer significant when all three variables were entered, suggesting their associations with physical aggression were due to shared variance. These results suggest that all three dimensions are important for understanding this critically important relationship outcome. They also support past research suggesting that individuals elevated on CU traits show a general interpersonal style that values dominance, control, and physical aggression that can lead to interpersonal difficulties across the lifespan. As a result, one part of treatment of young adults high on CU traits should focus on addressing this interpersonal style in order to reduce their need for dominance and level of domestic violence. In particular, treatment programs for domestic violence or marriage counseling may consider incorporating strategies targeting empathy training, recognition of partner's expressions of fear, and anger management to address dominance and perpetuation of partner violence in individuals with elevated CU traits. Furthermore, considering the unique negative association between CU traits and relationship satisfaction, mental healthcare providers working with couples may target communication skills regarding needs and expectations within romantic relationships to encourage increased relationship satisfaction.

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