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Insecure Attachment, Maladaptive Personality Traits, and the Perpetration of In-Person and Cyber Psychological Abuse

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Insecure Attachment, Maladaptive Personality Traits, and the Perpetration of In-Person and Cyber Psychological Abuse

Although past findings show that insecure attachment and maladaptive personality traits confer risk for perpetrating intimate partner violence (IPV), little is known about how these factors may underpin psychological abuse committed in-person and via technology. This study examined whether borderline personality disorder (BPD) traits and psychopathic traits account for indirect effects of insecure attachment on the perpetration of face-to-face and cyber psychological abuse. Participants included a community-based sample ($N = 200$; $M_{\text{age}} = 22.28$ years) in Australia who completed a battery of online questionnaires. Results from bivariate correlations showed that elevated levels of attachment anxiety and avoidance, and higher scores on BPD traits and psychopathic traits, were significantly associated with the perpetration of both face-to-face and cyber psychological abuse. Findings from mediation analysis indicated that attachment anxiety was indirectly linked with the perpetration of both forms of psychological abuse via elevated scores on BPD traits and psychopathic traits. High levels of psychopathic traits accounted for the indirect effects of attachment avoidance on both forms of psychological abuse. Results support the theory that insecure attachment and maladaptive personality functioning might be involved in the development and/or maintenance of the perpetration of psychological abuse. These findings have implications for preventive and treatment programs for the perpetration of IPV in terms of shedding new light on potential risk factors for engagement in face-to-face and technology-based psychological abuse.

Keywords: *intimate partner violence; attachment; borderline personality; psychopathic traits; cyber abuse*

Insecure Attachment, Maladaptive Personality Traits, and the Perpetration of In-Person and Cyber Psychological Abuse

Intimate partner violence (IPV) is a pervasive public health problem and social issue (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006) and encompasses physical, sexual, and psychological abuse perpetrated by a current or previous romantic partner (Jackson, Sippel, Mota, Whalen, & Schumacher, 2015). Physical violence has traditionally received the most attention by researchers investigating IPV; however, more recent conceptualisations of IPV have highlighted the harmful effects of psychological abuse (PA) on victims' health and well-being (e.g., Leisring, 2013; O'Leary, 1999). PA involves controlling and coercive behavior towards a partner, including isolating them, using threats, verbal aggression, and manipulative tactics (Gormley, & Lopez, 2010); and often precedes physical violence in relationships (O'Leary, 1999).

PA is a growing concern in Australia and has been experienced by 2.1 million women and 1.2 million men since the age of 15 (Australian Bureau of Statistics, 2013). This form of violence is evident across different relationship types and is a widespread problem among young adults in their romantic (i.e., non-marital) relationships (Chan, Straus, Brownridge, Tiwari, & Leung, 2008; McDermott & Lopez, 2013; Straus 2004). A recent meta-analysis showed that IPV peaks in late adolescence and early adulthood, which emphasises the developmental vulnerability of these individuals (Capaldi, Knoble, Shortt, & Kim, 2012). Contrary to popularly held beliefs, empirical findings involving community samples demonstrate comparable levels of IPV perpetration in men and women (e.g., Whitaker, 2014).

Alongside technological advancements and increasing use of electronic devices, a new medium for committing PA is becoming more prevalent. Cyber PA is a unique form of IPV, not only because it occurs through an electronic platform, but also because perpetrators

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have greater ability to publicly humiliate and degrade their partner (Zweig, Lachman, Yahner, & Dank, 2014). Past studies show that around 90% of college students regularly engage in social interaction (more than six hours/week) via social media applications, such as Facebook (Locatelli, Kluwe, & Bryant, 2012). In light of these recent trends, it is not surprising that college students are increasingly perpetrating PA using electronic devices and social networking platforms (Bennet, Guran, Ramos, & Margolin, 2011; Kellerman, Margolin, Borofsky, Baucom, & Iturralde, 2013). Indeed, more than 75% of college students have experienced at least one type of electronic dating aggression, involving hostility, intrusiveness, humiliation, and exclusion (Bennet et al., 2011). Furthermore, perpetration of cyber PA often co-occurs with perpetration of face-to-face PA (Leisring, & Giumetti, 2014; Schnurr, Mahatmya, & Basche, 2013). In sum, these findings highlight the need for research on factors associated with increased risk for perpetrating traditional and contemporary forms of PA.

Insecure Attachment and Psychological Abuse

Attachment theory provides a useful framework for describing an individual's expectations, behaviors, and affect regulation strategies within romantic relationships during times of separation, distress, or interpersonal conflict (Gormley, 2005). Bowlby (1969) proposed that individuals form mental representations concerning the availability and responsiveness of attachment figures early in development, and that these attachment representations guide expectations about self and others in subsequent relationships across the lifespan. Past research supports two overarching dimensions underlying attachment insecurity in adults (Brennan, Clark, & Shaver, 1998). Attachment anxiety is characterised by a fear of abandonment, affect escalation, and excessive proximity-seeking behavior toward a partner. Attachment avoidance describes a fear of intimacy, affect restriction, and a preference toward self-reliant behavior.

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Insecure attachment has been studied in relation to the perpetration of relationship violence as it helps explain an individual's deviant motives and goals in relationships, and sheds light on dysfunctional interpersonal dynamics. For instance, when individuals with high levels of attachment anxiety perceive a threat to their emotional bond with their partner, they may escalate their anger and distress and seek more intimacy via manipulative tactics. Individuals high on attachment avoidance might be more distrustful of their partner and threatened by their assertiveness or bids for intimacy, and motivated to psychologically control them via abusive behavior (Gormley, 2005). Results from prior studies support an association between attachment anxiety and avoidance and the perpetration of face-to-face PA (Dutton, Saunders, Starzomski, & Bartholomew, 1994; Mauricio, Tein, & Lopez, 2007). There is only limited research, however, examining the potential relationship between insecure attachment and cyber IPV. Wright (2015) found that adolescents who were more anxiously attached to their romantic partner were more likely to commit cyber aggression towards them. From an attachment theory perspective, social media platforms may help facilitate psychological proximity to a partner—and activate mental representations of attachment—and afford some insecurely attached individuals an alternative method for harming a partner.

Maladaptive Personality Traits and Psychological Abuse

Attachment plays a fundamental role in shaping personality, and maladaptive personality functioning is considered another key risk factor for committing violent behavior in romantic relationships (Ehrensaft, Cohen, & Johnson, 2006). In particular, elevated traits of two personality disorders, borderline personality disorder (BPD) and psychopathy, have been observed in perpetrators of IPV (Jackson et al., 2015; Smallbone & Dadds, 2001). BPD traits consist of a hypersensitivity to rejection, impulsivity, self-destructive behaviors, uncontrolled anger, and devaluation of self and others (Bouchard & Sabourin, 2009;

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Gunderson, 2007). There is extensive research investigating links between BPD traits and relationship violence (Jackson et al., 2015; Mauricio, Tein, & Lopez, 2007). Individuals with BPD features often engage in abusive behavior in order to retain closeness to their partner, and because of deficits in regulating emotional distress in relationships, particularly in response to perceived abandonment (Scott, Stepp, & Pilkonis, 2014). Although little is known about the perpetration of cyber PA by individuals high on BPD traits, it could be reasoned that these individuals are at-risk for committing PA via social media platforms, particularly given their impulsivity, low distress tolerance, and need for social approval.

Psychopathic traits are linked with multiple forms of violence, including violence in romantic relationships (Holtzworth-Munroe & Stuart, 1994; Leistico, Salekin, DeCoster, & Rogers, 2008), and can be conceptualized in terms of two core dimensions: 1) deficits in interpersonal-affective functioning (e.g., callousness, grandiosity, emotional detachment, manipulateness) and 2) impulsive-antisocial lifestyle (e.g., antisocial deviance, risk-taking behaviors) (Forth, Brown, Hart, & Hare, 1996). Although there is some overlap in behavior between psychopathic and BPD traits, such as impulsive and risk-taking behaviors, these traits uniquely predict antisocial outcomes (e.g., Muñoz Centifanti, Thomson, & Kwok, 2016). Individuals high on psychopathic traits demonstrate empathy deficits and coercive behavior that may be related to their increased risk for committing different forms of IPV, including PA (Mack, Hackney, & Pyle, 2011). As noted above with regards to BPD, research is lacking concerning a specific association between psychopathic traits and cyber IPV.

However, the link between psychopathic traits and other forms of cyber violence—such as cyber bullying (Kokkinos, Antoniadou, & Markos, 2014)—provides evidence to suggest that individuals elevated on these traits may act violently towards romantic partners in both in-person and electronic contexts.

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Attachment theory has received increasing attention from researchers investigating characteristics of individuals who perpetrate IPV. Negative mental representations of the self and others that underpin insecure attachment, can act as maladaptive templates for intrapersonal (e.g., identity and self-direction) and interpersonal (e.g., empathy and intimacy) problems, which in turn may influence trajectories of personality development and psychological functioning (Bowlby, 1973; Weinstein, Perez-Rodriguez, & Siever, 2014).

Findings from a large body of research support Bowlby's (1973) theory regarding a link between insecure attachment and personality pathology. Results from meta-analyses suggest that attachment anxiety may represent an underlying factor for the phenotypic manifestation of BPD (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Scott et al., 2009), and individuals with BPD features tend to demonstrate mental representations indicating strong levels of self-blame and hypersensitivity to rejection from others (Levy, Johnson, Clouthier, Scala, & Temes, 2015). Attachment avoidance is related to distrust, limited affective expression, and withdrawal in relationships (Bartholomew & Horowitz, 1991), and is thought to be implicated in the emergence of psychopathic traits (Fowles & Dindo, 2006). Psychopathic individuals tend to exhibit distancing behaviors (Lawson & Brossait, 2013) and often have short-term relationships consisting of high levels of distress and conflict, as they are unable to authentically commit to their partner (Conradi, Boertien, Cavus, & Verschuere, 2016; Han, Weed & Butcher, 2003). In sum, prior theory and findings suggest that anxious and avoidant attachment are key factors potentially involved in the development of BPD traits and psychopathic traits.

Research examining the pathways by which these variables may relate to perpetration of IPV has significance for informing preventive and treatment interventions for relationship violence. Despite strong theoretical justification for their interrelationships, surprisingly only

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a handful of prior studies have examined a model linking insecure attachment to IPV via symptoms of BPD and antisocial features. First, a study on court-mandated male partner abusers demonstrated that symptoms of BPD and antisocial personality disorder (ASPD) mediated the relationship between attachment avoidance and perpetration of physical and psychological violence, and mediated the relationship between attachment anxiety and perpetration of psychological violence (Mauricio, Tein, & Lopez, 2007). Second, in a sample of female offenders, McKeown (2014) found that insecure attachment was associated with victimization and not perpetration of IPV; however, BPD and ASPD predicted both IPV victimization and perpetration. Evidence for mediation was only found for attachment anxiety predicting IPV victimization through the personality dimensions. Finally, in a sample of male abusers, Lawson and Brossart (2013) showed that hostile dominant interpersonal problems (e.g., vindictive and coercive behavior in relationships), but not BPD and antisocial dimensions, significantly mediated links between insecure attachment and IPV. Together, results from these studies converge to suggest that insecure attachment and maladaptive personality/interpersonal functioning may be associated with IPV; however, they are unclear regarding the mediating role of maladaptive personality traits and point to the need for additional research to help clarify interrelationships between these variables.

Importantly, these prior studies are limited in that they have examined general features of antisocial personality, and have not focused on psychopathic traits per se. The affective-interpersonal dimension of psychopathy characterises individuals who are at increased risk for committing aggressive and callous acts (Leistico et al., 2008). Furthermore, only one of these prior studies examined psychological abuse (the others focused on the broad IPV construct), and none of the studies have assessed cyber abuse. Moreover, given that the most serious instances of IPV involve criminal assault against a partner, understandably past studies have concentrated on forensic samples. However, in light of the

prevalence of milder and more varied (including technology-based) forms of IPV perpetration in community samples involving women and men, and the need for research to inform proactive approaches to reducing risk for more severe IPV, further research using non-forensic samples is clearly warranted.

Current Study

The overarching aim of this study was to examine whether maladaptive personality traits account for the indirect association between attachment insecurity and perpetration of PA. To extend on prior research, this study included a community-based sample and examined two key personality dimensions—BPD traits and psychopathic traits—as putative mediators, that have consistently evinced relations with both attachment insecurity and IPV. Furthermore, as social interaction has been heavily influenced by the rapid emergence and popularity of social media applications, we assessed perpetration of both face-to-face and cyber PA. Based on theory and prior findings linking attachment to personality dimensions and IPV, it was hypothesized that attachment insecurity (anxiety and avoidance) would be indirectly associated with both face-to-face and cyber PA through elevated levels of BPD traits and psychopathic traits.

Method

Participants

A community sample of 200 participants (147 female, 53 male) with a mean age of 22.3 years ($SD = 5.6$, range = 18-70) was recruited using study advertisements on a university website and a social media platform. Study eligibility included participants to be 18 years or older, and currently in a relationship that has extended over the past six months or more, or previously been in a relationship for at least six months or more within the past two years. Participants were ethnically diverse (48% Caucasian, 34.5% East Asian, 8% Mixed race, 7.5% Southern Asian, 2% Other ethnicity) and primarily heterosexual (89%), with 11% non-

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heterosexual. Most participants were in a relationship (75.5%), whereas 24.5% were not currently, but had previously been, in a relationship in the past two years for at least six months. Participants more frequently reported that the length of their most recent relationship was 2-4 years (27%), followed by 1-2 years (22%). Additionally, most participants reported that their longest time in a relationship was 2-4 years (32%), followed by more than 4 years (26%). Most participants reported daily face-to-face (56%) and cyber (81%) interaction with their current or previous partner, followed by a few interactions a week for face-to-face (29%) and cyber (17%) interaction.

Measures

Attachment insecurity. The Experiences of Close Relationships-Revised questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000) is a 36-item self-report measure of adult attachment dimensions. The ECR-R consists of two subscales with 18 items each: attachment anxiety (e.g., “I worry a lot about my relationships”) and attachment avoidance (e.g., “I prefer not to be too close to romantic partners”). Responses were rated on a 7-point Likert-scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicated higher levels of attachment insecurity. In the present sample, scores for both attachment anxiety ($\alpha = .92$) and avoidance ($\alpha = .92$) showed high internal consistency.

BPD traits. The Minnesota Borderline Personality Disorder scale (MBPD; Bornovalova, Hicks, Patrick, Iacono, & McGue, 2011) contains 19 true/false items that reflect core BPD characteristics (e.g., “I have often been lied to” and “My mood often goes up and down”). The MBPD has demonstrated associations with BPD diagnostic interviews and correlates of BPD (e.g., suicidality, distress, substance use; Bornovalova et al., 2011). Internal consistency in the current sample was $\alpha = .73$.

Psychopathic traits. The Levenson Self-Report of Psychopathy scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) was used to measure two core domains of

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psychopathic traits: 1) interpersonal-affective traits and 2) impulsive-antisocial lifestyle. The interpersonal-affective subscale measures egocentrism, manipulativeness, emotional detachment, and inability to care (e.g., “I often admire a really clever scam”). The impulsive-antisocial subscale measures impulsivity and deviant lifestyle (e.g., “When I get frustrated, I often ‘let off steam’ by blowing my top”). Seven items were reverse-scored in order to control for social desirability and response style (Levenson et al., 1995). This measure was developed for use in non-clinical/non-forensic settings and consists of 26 items based on a 4-point Likert-scale (1 = *strongly disagree*; 4 = *strongly agree*). Internal consistency was high ($\alpha = .85$) in the present sample.

Face-to-face PA. The Multidimensional Measure of Emotional Abuse (MMEA; Murphy & Hoover, 1999) is a 56-item measure that assesses the presence and severity of four forms of emotional abuse: restrictive engulfment (e.g., “Secretly searched through the other person’s belongings”), denigration (e.g., “Called the other person worthless”), hostile withdrawal (e.g., “Acted cold or distant when angry”), and dominance/intimidation (e.g., “Threatened to hit the other person”). Each form of emotional abuse consists of seven items each, and includes two subscales—perpetration and victimization—for each form. Only the perpetration subscale (28 items) was included in the present study. Participants were asked to report, on a 7-point scale, the frequency of their engagement in each type of emotionally abusive behavior with their current or previous partner within the last six months they have been or were together (0 = *never*, 1 = *once*, 6 = *more than 20* times). The perpetration subscale evinced good reliability ($\alpha = .89$).

Cyber PA. The Cyber Psychological Abuse scale (CPA; Leisring & Giumetti, 2014) is an 18-item measure designed to assess victimization and perpetration of PA in intimate relationships that occurs during arguments through technological devices (e.g., mobile phones, computers, social media, and email). Only the 9-item perpetration subscale was

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included in the current study. Participants reported how often (0 = *never*, 6 = *over 20 times*) they engaged in each abusive behavior (e.g., “Have you kept tabs on your partner by checking their e-mail messages, messages on their mobile phone, or inbox messages on a social networking site?” and “Have you sent an e-mail/message about your partner to others to hurt or embarrass them?”) during an argument throughout their current or previous relationship. CPA scores have demonstrated good convergent validity in terms of associations with psychometrically sound measures of in-person psychological abuse and IPV, and a measure of Facebook arguing (Leisring & Giumetti, 2014). There was acceptable reliability ($\alpha = .79$) for the perpetration subscale.

Analysis Plan

To test the indirect effects of insecure attachment on perpetration of PA through maladaptive personality traits, a saturated path model was examined using Mplus version 7.4 (Muthén & Muthén, 2015). The mediating effects of BPD traits and psychopathic traits were examined simultaneously (i.e., entered together) in the model. The model was estimated using full information maximum likelihood (FIML) and indirect effects were measured using the product of coefficients method with bias-corrected bootstrapped confidence intervals (CI) (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). Bootstrap samples were generated by randomly resampling with replacement observations from the data. This approach enables estimation of the CI of the indirect effects based on computations of the data itself, therefore avoiding having to make a priori assumptions about the sampling distribution, which are necessary for parametric procedures (Preacher & Hayes, 2004). For example, bootstrapping is robust against non-normality due to its use of observed data to produce the sampling distribution (Davison & Hinkley, 1997). Analyses were conducted with 5000 bootstrapped estimates of the indirect effect to achieve 95% CI (MacKinnon et al., 2002). The significance of an indirect effect is determined when the 95% CI does not contain

0. As the path model was fully saturated (i.e., perfect fit between the data and model, $\chi^2[0] = 0.00$) model fit statistics were not reported as they would not be meaningful in this context. Potential covariates were included in the mediation analysis if they were significantly associated with either face-to-face or cyber PA, and made theoretical sense. These covariates included: age, ethnicity (Caucasian, Southern Asian), current relationship status (0 = not in a relationship; 1 = in a relationship), and longest relationship length.

Results

Descriptive Statistics

Approximately 24% of participants reported perpetrating at least one form of minor face-to-face PA, and around 2% endorsed perpetrating at least one severe form of face-to-face PA. Regarding cyber PA, nearly 19% of participants reported committing at least one minor form and less than 8% endorsed perpetrating at least one major form. Males and females did not significantly differ in average levels of perpetration of face-to-face ($M_{\text{males}} = 45.17$, $SD = 16.67$, $M_{\text{females}} = 46.40$, $SD = 17.59$; $t[198] = 0.44$, $p = .66$) and cyber PA ($M_{\text{males}} = 14.23$, $SD = 5.11$, $M_{\text{females}} = 16.61$, $SD = 8.64$; $t[198] = 1.89$, $p = .06$).

Table 1 shows descriptive statistics and bivariate correlations for the main study variables and covariates included in the analysis. Scores for attachment anxiety and avoidance were positively associated with perpetration of face-to face and cyber PA. Levels of BPD and psychopathic traits were also positively associated with both PA measures. The attachment dimensions were significantly positively associated with levels of BPD traits and psychopathic traits. Regarding covariates, scores for face-to-face PA showed significant associations with Caucasian, current relationship status, and longest romantic relationship length. Scores for cyber PA demonstrated significant associations with age and Southern Asian ethnicity.

Indirect Effects of Insecure Attachment on Perpetration of PA through Maladaptive Personality Traits

Figure 1 shows the significant paths in the structural model examining indirect effects of attachment anxiety and avoidance on face-to-face and cyber PA through BPD traits and psychopathic traits. The unstandardized and standardized path coefficients in the model are presented in Table 2. The model accounted for 27.7% ($p < .001$) and 25.6% ($p < .001$) of the variance in BPD and psychopathic traits, respectively; and 34.5% ($p < .001$) and 24% ($p < .001$) of the variance in face-to-face and cyber PA, respectively.

Regarding direct effects, higher levels of attachment anxiety were significantly associated with higher scores on BPD ($\beta = .55, p < .001$) and psychopathic ($\beta = .27, p < .001$) traits. Attachment avoidance was significantly positively associated with psychopathic traits ($\beta = .20, p = .03$), but not significantly associated with BPD traits ($\beta = .00, p = .97$). BPD and psychopathic traits were significantly associated ($\beta = .22, p = .004$). Higher levels of BPD ($\beta = .32, p < .001$) and psychopathic ($\beta = .27, p < .001$) traits were significantly associated with more frequent perpetration of face-to-face PA. Higher levels of BPD ($\beta = .29, p < .001$) and psychopathic ($\beta = .24, p < .001$) traits also showed significant associations with more frequent perpetration of cyber PA. Scores for face-to-face PA and cyber PA were significantly associated ($\beta = .48, p < .001$).

Results from the mediation analysis revealed several significant indirect pathways leading to perpetration of both forms of PA. Attachment anxiety was indirectly associated with face-to-face PA via BPD traits ($B (SE) = 3.87 (1.04), 95\% CI [2.11, 6.22]$) and psychopathic traits ($B (SE) = 1.58 (0.83), 95\% CI [0.39, 3.61]$). Attachment anxiety also showed indirect effects on cyber PA through both BPD traits ($B (SE) = 1.61 (0.48), 95\% CI [0.77, 2.67]$) and psychopathic traits ($B (SE) = 0.65 (0.32), 95\% CI [0.19, 1.45]$). Attachment avoidance showed significant indirect effects on both face-to-face PA ($B (SE) = 1.39 (0.66)$,

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95% CI [0.26, 2.92]) and cyber PA (B (SE) = 0.57 (0.30), 95% CI [0.10, 1.31]) via psychopathic traits. There were no significant indirect effects of attachment avoidance on face-to-face (B (SE) = 0.03 (0.66), 95% CI [-1.32, 1.35]) or cyber PA (B (SE) = 0.01 (0.28), 95% CI [-0.55, 0.58]) through BPD traits. This was likely due to the non-significant association between attachment avoidance and BPD traits.

The mediation analysis was repeated without the covariates and the pattern of findings reported above did not change. Nearly identical findings were also observed when face-to-face and cyber PA were examined singularly in the model (i.e., without entering the second PA variable), providing further evidence that these are correlated yet distinct constructs.

Discussion

In order to help understand individuals who perpetrate PA in emotionally intimate relationships, this study aimed to examine how insecure attachment and maladaptive personality traits may be linked to face-to-face and cyber PA. The latter form of IPV is on the rise in communities around the world due to rapid changes in people's preferences for social communication, yet has received limited research attention. Our findings demonstrated significant bivariate associations between more frequent perpetration of both face-to-face and cyber PA and higher levels of attachment anxiety and avoidance, and elevated scores for BPD traits and psychopathic traits. Results from mediation analysis helped clarify the nature of these interrelationships. BPD and psychopathic traits accounted for indirect effects of attachment anxiety on in-person and cyber PA. Furthermore, psychopathic traits accounted for indirect effects of attachment avoidance on both forms of PA. Together, these findings support the conjecture that insecure attachment may underpin maladaptive personality traits, which in turn, appear to be linked to perpetration of PA in the cyber and real world.

Approximately one-quarter of participants in the current study reported perpetrating at least one act of face-to-face or cyber PA. These data are lower than those from prior studies

with US community samples (Leisring & Giumetti, 2014; Torres et al., 2012), and consistent with past research suggesting that, on average, IPV is perpetrated less frequently by young adults in Australia compared with their US counterparts (Chan et al., 2008). Notwithstanding this, from a public health perspective it is concerning that one-quarter of our sample—considered to be generally low-risk given we recruited a normative group of men and women—had committed some form of PA, considering its harmful effects on victims' well-being, and that PA often precedes physical violence in intimate relationships (O'Leary, 1999).

The current findings extend on those in prior studies by shedding new light on psychorelational factors potentially implicated in the perpetration of two overlapping, yet distinct, forms of PA, in a community-based sample. Technological advancements facilitating shifts in the way individuals communicate in intimate relationships motivated our investigation of PA in both real world and cyber settings. In terms of bivariate associations, consistent with prior results, attachment anxiety and avoidance were positively associated with face-to-face PA (e.g., Mauricio et al., 2007). Our findings also provide first evidence regarding positive bivariate associations between these attachment dimensions and cyber PA. Moreover, in line with a significant body of past research examining maladaptive personality features in relation to IPV more generally (Conradi et al., 2016; Jackson et al., 2015; Mauricio et al., 2007; Schmeelk et al., 2008), our results demonstrated that higher scores on BPD and psychopathic traits were associated with greater levels of perpetration of face-to-face and cyber PA.

The main aim of this study was to examine a theoretical model linking attachment, maladaptive personality, and perpetration of distinct forms of PA. According to attachment theory, and as conceptualized in the DSM-5 Section III model of personality disorders (APA, 2013), maladaptive mental representations of self and others are fundamental to

understanding the emergence and maintenance of personality pathology. From this standpoint, maladaptive personality traits—in particular those reflecting symptoms of BPD and psychopathy—may be one potential mechanism accounting for more distal effects of insecure attachment on the perpetration of PA in intimate relationships. Indeed, our results support this theoretical model; that is, BPD and psychopathic traits significantly accounted for indirect associations between anxious and/or avoidant attachment and PA perpetrated in-person and via electronic devices. Insecure attachment did not demonstrate significant associations with PA in the mediation models.

These results suggest that individuals with heightened anxiety or avoidance in close relationships, may have a lower threshold for acting aggressively towards a partner in conflict scenarios where the partner is either present in-person or “in-mind” (in a cyber context). Regarding the latter, mental representations of self and others in relationships—a core psychological feature of attachment—can be activated in the absence of real-life interactions with a partner. Based on theory and the current findings, this lower threshold for relationship violence may be to some extent explained by dysfunctional interpersonal functioning, as reflected by features of BPD and psychopathy. Importantly, we found parallel indirect pathways from insecure attachment to perpetration of PA via both BPD and psychopathic traits, suggesting that these maladaptive personality features may be implicated in distinct developmental and/or maintenance processes underpinning relationship violence. Our findings suggest that individuals high on attachment avoidance might engage in PA via the effects of elevated psychopathic traits, whereas individuals high on attachment anxiety may perpetrate acts of PA underpinned by deficits associated with either BPD or psychopathic traits.

Researchers have proposed specific accounts for why individuals with these different maladaptive personality traits may engage in IPV. Individuals high on BPD features are

emotionally dysregulated and highly sensitive to rejection, and may perpetrate PA to manipulate their partner to gain closeness, and as a result of their deficits in impulse control and heightened experience of negative affect, particularly anger (Muñoz Centifanti, Thomson, & Kwok, 2015; Gunderson, 2007; Scott et al., 2014). By contrast, individuals with psychopathic traits exhibit unique deficits in interpersonal-affective functioning, particularly callousness and emotional detachment, which may explain their motives for engaging in PA (Forth et al., 1996). These individuals may lack remorse associated with their abusive behavior, and focus on the control and power that the PA provides them in the relationship, which can often be planned, but also impulsive if activated by intense anger (Conradi et al., 2016; Hamberger & Hastings, 1988; Mager, Bresin, & Verona, 2014). Overall, BPD and psychopathic traits may play unique roles in underpinning the perpetration of PA in romantic relationships, despite some overlap in the symptomatic presentation of these personality pathologies (e.g., impulsive and manipulative behavior).

The present findings may help inform intervention efforts to reduce risk for engagement in IPV. We found that maladaptive personality traits had direct effects, whereas insecure attachment only evinced indirect effects, on perpetration of PA. It is important to note, however, that a prior study found that insecure attachment showed a significant direct effect on PA, as well as an indirect effect via BPD symptoms (Mauricio et al., 2007). Notwithstanding this, our results suggest assessing for and targeting symptoms of personality pathology, in particular BDP and psychopathic traits, in interventions for PA. Research demonstrates that various models of cognitive behavior therapy (CBT) may be effective in improving psychological functioning—including interpersonal functioning—in individuals with personality disorder symptoms (Matusiewicz, Hopwood, Banducci, & Lejuez, 2010). Future research should investigate whether there may be specific components in CBT interventions for personality disorders (e.g., addressing maladaptive core beliefs linked to

self-identity) that might augment existing CBT-based abuser treatment programs.

Furthermore, to ensure victim safety and best tailor intervention, clinicians seeing clients manifesting personality pathology should consider assessing for perpetration of multiple forms of IPV (e.g., psychological and physical violence) across different settings (e.g., in-person and cyber).

Our findings should be considered in the context of several important limitations. First, the current study examined cross-sectional data, as did the three prior studies examining mediation models involving attachment and IPV (Mauricio et al., 2007; McKeown, 2014; Lawson & Brossart, 2013). Thus, we are unable to draw conclusions about temporal and causal relationships between the variables examined in our models. As this study provides the first findings regarding associations among insecure attachment, maladaptive personality traits, and two distinct forms of PA, it provides support for a novel conceptual model that should be tested in future longitudinal studies. As discussed earlier, there is strong justification for the ordering of our variables in the mediation model, considering prior findings and theory suggesting that attachment styles (known to first emerge in infancy) precede the emergence of personality traits that become more fixed across adolescence and early adulthood (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2008; Borghuis et al., 2017). Moreover, this study's participants reported their perpetration of PA (within the past 6-24 months) in their recent relationship(s), supporting it as an outcome in our theoretical model.

Second, this study relied on self-reports which may be less valid than more objective/observational measures and can be influenced by response bias. For example, individuals may respond for social desirability reasons or respond on extreme standings. It is important to note, however, that the anonymous nature of this study (online survey) may have helped ameliorate effects associated with response biases. Notwithstanding this, future research could include informant reports (e.g., from partners) to strengthen the validity of

self-reports and reduce shared method variance. Third, there was an over-representation of female participants and the limited number of male participants restricted statistical power for examining gender differences. Gender has been found to moderate PA outcomes in prior research (Gormley & Lopez, 2010), and deserves attention in future studies examining more complex theoretical models of PA perpetration. Finally, childhood traumatic experiences—particularly maltreatment—are known to influence the development of both insecure attachment and personality pathology (Fonagy et al., 2010). In this light, early interpersonal trauma should be considered in future studies examining the paths tested in the current model.

In conclusion, IPV is a serious and growing social problem and is the focus of empirical investigation by researchers around the world. The current findings support prior results by demonstrating significant interrelationships between anxious and avoidant attachment, BPD and psychopathic traits, and PA in intimate relationships. Importantly, our findings expand on those in prior research by providing initial evidence, in a community-based sample, for a theoretical model wherein maladaptive personality traits may act as a mechanism that increases the likelihood of the perpetration of both face-to-face and cyber PA in individuals with insecure attachment. Longitudinal research is needed to examine the putative causal or maintenance processes implicated in the proposed conceptual model.

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Table 1

Means, Standard Deviations, and Bivariate Correlations Among Main Study Variables and Covariates

Variable	Mean (SD) or %	1	2	3	4	5	6	7	8	9	10	11	12
1. Age (years)	22.28 (5.60)	-											
2. Male	26%	-.05	-										
3. Southern Asian	8%	-.02	.00	-									
4. Caucasian	48%	.11	-.08	-.27**	-								
5. Currently in a relationship	76%	-.24**	.10	.09	.06	-							
6. Longest romantic relationship length (years)	4.61 (1.14)	.37**	-.08	-.05	.08	-.37**	-						
7. Attachment anxiety	2.47 (0.80)	-.08	.08	.13	-.05	.32**	-.25**	-					
9. Attachment avoidance	2.01 (0.66)	-.08	.08	.14*	-.04	.28**	-.07	.45**	-				
9. BPD traits	5.43 (3.30)	-.07	-.07	.07	.07	.09	-.13	.49**	.19**	-			
10. Psychopathic traits	48.90 (8.83)	-.16*	.24**	.17*	-.27*	.13	-.21*	.38**	.31**	.33**	-		
11. Face-to-face psychological abuse	46.08 (17.32)	-.13	-.03	.11	-.21**	.16*	-.14*	.34**	.30**	.43**	.47**	-	
12. Cyber psychological abuse	15.98 (7.92)	-.15*	-.13	.15*	-.10	.11	.01	.24**	.16*	.36**	.36**	.60**	-

Note: Correlations between dichotomous and continuous variables are point biserial.

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Table 2

Path Coefficients for Associations between Attachment Anxiety and Avoidance, BPD and Psychopathic traits, Face-to-Face and Cyber Psychological Abuse, and Covariates

Variable	B(SE)	β	p value
BPD traits ON			
Attachment anxiety	2.28(0.33)	.55	.00
Attachment avoidance	0.01(0.38)	.00	.97
Southern Asian	0.71(0.96)	.06	.46
Caucasian	0.85(0.42)	.13	.40
Age	-0.02(0.04)	-.03	.62
Current relationship status	1.32(0.63)	.17	.04
Longest romantic relationship length	-0.11(0.25)	-.04	.65
Psychopathic traits ON			
Attachment anxiety	3.02(1.02)	.27	.00
Attachment avoidance	2.65(1.25)	.20	.03
Southern Asian	1.85(1.88)	.06	.32
Caucasian	-3.80(1.15)	.13	.00
Age	-0.15(0.12)	-.03	.20
Current relationship status	1.32(1.56)	.17	.40
Longest romantic relationship length	-0.71(.60)	-.04	.24
Face-to-Face psychological abuse ON			
Attachment anxiety	-0.17(2.21)	-.01	.94
Attachment avoidance	3.97(2.64)	.15	.13
BPD traits	1.70(0.42)	.32	.00
Psychopathic traits	0.52(0.15)	.27	.00
Southern Asian	-1.30(5.42)	-.02	.81
Caucasian	-5.26(2.17)	-.15	.02
Age	-0.18(0.29)	-.06	.52
Current relationship status	-0.92(3.18)	-.02	.77
Longest romantic relationship length	0.05(1.03)	.00	.96
Cyber psychological abuse ON			
Attachment anxiety	-0.25(0.94)	-.03	.79
Attachment avoidance	0.18(1.10)	.02	.87
BPD traits	0.71(0.20)	.29	.00
Psychopathic traits	0.22(0.07)	.24	.00
Southern Asian	2.20(3.04)	.07	.47
Caucasian	-0.45(0.98)	-.03	.64
Age	0.21(0.09)	-.15	.02
Current relationship status	-1.86(1.49)	-.10	.21
Longest romantic relationship status	1.26(0.50)	.18	.01
Face-to-Face psychological abuse WITH			
Cyber psychological abuse	46.40(10.20)	.48	.00
BPD traits WITH			
Psychopathic traits	4.76(1.64)	.22	.00

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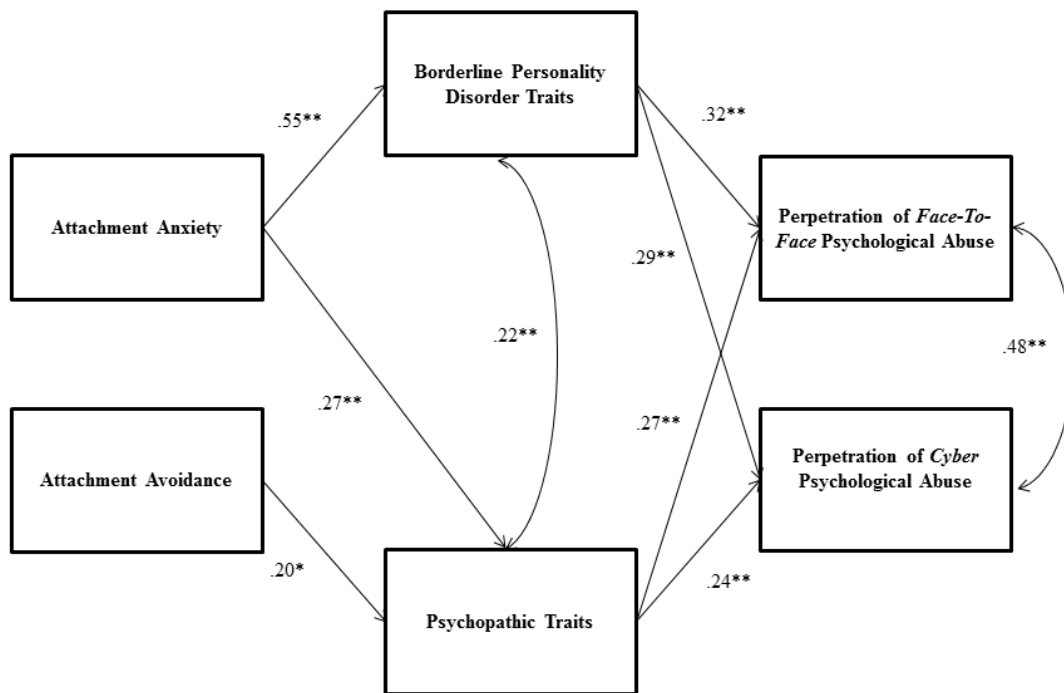


Figure 1. Results for the structural model testing indirect effects of attachment anxiety and avoidance on face-to-face and cyber psychological abuse through BPD and psychopathic traits. Path estimates are standardized beta coefficients. Covariates (not shown) include Southern Asian ethnicity, Caucasian, age, current relationship status, and longest romantic relationship length. * $p < .05$ ** $p < .001$